Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica

Part I: Project Information

Name of Parent Program

Global Programme to Support Countries with the Shift to Electric Mobility.

GEF ID

10289

Project Type

MSP

Type of Trust Fund

GET

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica

Countries

Jamaica

Agency(ies)

UNDP

Other Executing Partner(s)

Ministry of Housing, Urban Renewal, Environment and Climate Change

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Focal Areas, Chemicals and Waste, Waste Management, Climate Change, Climate Change Mitigation, Sustainable Urban Systems and Transport, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Stakeholders, Type of Engagement, Partnership, Private Sector, Large corporations, Communications, Education, Awareness Raising, Civil Society, Academia, Capacity, Knowledge and Research, Knowledge Generation, Innovation, Knowledge Exchange, Learning, Capacity Development

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 2

Climate Change Adaptation

Climate Change Adaptation 0

Submission Date

12/11/2020

Expected Implementation Start

9/1/2021

Expected Completion Date

8/31/2025

Duration

48In Months

Agency Fee($)

160,638.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CCM-1-2	Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility	GET	1,784,862.00	11,474,500.00
		Total Project Cost($)	1,784,862.00	11,474,500.00

B. Project description summary

Project Objective

Development of resilient and low emission public and private transportation systems in Jamaica.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
1.Institutionalisation of low-carbon electric mobility.	Technical Assistance	1.1 The policy and institutional framework for low-emission eMobility in Jamaica has been strengthened.	1.1.1 Drafting the national policy for eMobility, covering the social, economic, technical and environmental sustainability dimensions. 1.1.2 Regional Support and Investment Platform assistance to policy makers and sector staff to develop eMobility policy and regulation 1.1.3 Drafting of regulatory instruments and technical standards for eMobility systems. [1] 1.1.4 Drafting of proposals for tax policy and financial incentives for eMobility.	GET	355,000.00	2,450,000.00

1.1.5 Establishment of an information clearinghouse for eMobility data to support policy design and market development.

[1] With a focus on smaller electric vehicles (i.e. mini-buses and bus shuttles, e-scooters, electric bikes, vehicles for physically disabled people, etc.) and supporting infrastructure.

2. Short term barrier removal through low-carbon e-mobility demonstrations	Investment	2.1 eMobility demonstration pilot has been prepared, implemented and monitored to provide evidence on technical, environmental and economic performance and market potential.	2.1.1 Development of a low-emission mobility action plan for the UWI campus in the Kingston Metropolitan Area, including the adoption of relevant methodologies and tools. 2.1.2 Implementation of a feasibility study into investment and deployment of medium-size buses and small and light-duty eMobility systems at UWI. 2.1.3 Specification and procurement of eMobility vehicles, charging stations and supportive systems in collaboration with project partners. 2.1.4 Supervision of eMobility pilot operations including data collection and analysis for technical and operational optimisation.	GET	824,000.00	1,800,000.00
3. Preparing for scale-up and replication of low-carbon electric mobility.	Technical Assistance	3.1 Jamaica's knowledge base, technical skills, and public awareness have been enhanced	3.1.1 Fostering of business spin-offs related to eMobility	GET	200,000.00	775,000.00

for accelerating the uptake of eMobility systems.	following the Campus business incubator concept.[1] 3.1.2 Integration of eMobility concepts and technologies into academic courses and projects, taking benefit from partnerships under the Global Program. 3.1.3 Implementation of on-campus events and workshops targeting academia, government, private sector companies, investors and end-users. 3.1.4 Professional training of drivers, mechanics and first responders on use, maintenance, repair and safety of EVs and ancillary systems

[1] Potential spin-offs include among others intelligent vehicle dispatch and maintenance schemes, on-campus billing systems, financing platforms and leasing schemes, integration with

			added-value services including business advertising, phone apps, etc.			
3. Preparing for scale-up and replication of low-carbon electric mobility.	Investment	3.1 Jamaica’s knowledge base, technical skills, and investors' awareness have been enhanced for accelerating the uptake of eMobility systems.	3.1.5 Early-market investment by public and private stakeholders to test EV business concepts under commercial conditions	GET	30,000.00	4,774,500.00

4. Long-term environmental sustainability of low-carbon electric mobility	Technical Assistance	4.1 Guidelines have been developed and shared to ensure the long-term environmental sustainability of low-carbon eMobility,	4.1.1 Crafting a suite of knowledge products and toolkits targeting policy developers and institutional users of light-duty eMobility solutions.[1] 4.1.2 Adoption of guidelines for tracking, downgrading, re-use and recycling of batteries from electric vehicles. 4.1.3 Assessment of business models for extended supplier responsibility for eMobility infrastructure and vehicle components. [1] Such as: educational and business campuses, small government entities such as Jamaica Post, National Water Commission.	GET	124,359.00	950,000.00

5. Knowledge management, monitoring and evaluation.	Technical Assistance	5.1 The Project's Knowledge Management (KM) and project monitoring and evaluation (M&E) plans have been implemented.	5.1.1 Implementation of Project's Knowledge Management and Communication Strategy. 5.1.2 Implementation of monitoring and evaluation plan, environmental and social management plan, and gender action plan. 5.1.3 GEF Terminal Evaluation is conducted.	GET	89,243.00	125,000.00
				Sub Total ($)	**1,622,602.00**	**10,874,500.00**
Project Management Cost (PMC)						
				GET	162,260.00	600,000.00
				Sub Total($)	**162,260.00**	**600,000.00**
				Total Project Cost($)	**1,784,862.00**	**11,474,500.00**

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Ministry of Housing, Urban Renewal, Environment and Climate Change (HURECC)	Public Investment	Recurrent expenditures	4,000,000.00
Beneficiaries	University of the West Indies (UWI)	In-kind	Recurrent expenditures	1,700,000.00
GEF Agency	UNDP	Grant	Recurrent expenditures	50,000.00
GEF Agency	UNDP	In-kind	Recurrent expenditures	250,000.00
Recipient Country Government	Ministry of Transport and Mining (MTM) and JUTC	Public Investment	Investment mobilized	1,164,500.00
Private Sector	ATL Automotive Holdings Ltd	Equity	Investment mobilized	2,000,000.00
Private Sector	Stewarts Auto Sales Ltd	In-kind	Recurrent expenditures	1,810,000.00
Private Sector	Tropical Battery Ltd	Equity	Investment mobilized	500,000.00
			Total Co-Financing($)	**11,474,500.00**

Describe how any "Investment Mobilized" was identified

- MTM/JUTC is GOJ commitment to procure e-buses and charging stations for JUTC during Project horizon. It will be mobilized after GOJ budget approval (legislative process) in the concerning fiscal year. - ATL Ltd anticipates sales of emobility equipment (cars and ancillary systems) for the Jamaican market, partially upfront and partly through a mix of customer financing (cash, consumer credits, leasing) - Tropical Battery Ltd has committed investment in emobility batteries (including replacement market), workshop facilities for battery testing, repair, disposal, safety) and technological upgrading

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)
UNDP	GET	Jamaica	Climate Change	CC STAR Allocation	1,784,862	160,638
				Total Grant Resources($)	**1,784,862.00**	**160,638.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **false**

PPG Amount ($)	PPG Agency Fee ($)
50,000	4,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)
UNDP	GET	Jamaica	Climate Change	CC STAR Allocation	50,000	4,500
				Total Project Costs($)	**50,000.00**	**4,500.00**

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	0	762	0	0
Expected metric tons of CO_2e (indirect)	0	199000	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)				
Expected metric tons of CO_2e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)		762		
Expected metric tons of CO_2e (indirect)		199,000		
Anticipated start year of accounting		2025		
Duration of accounting		10		

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)		1,761,000		

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
Solar Photovoltaic		0.01		

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		14,000		
Male		6,000		
Total	0	20000	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Methodology The methodology for evaluating the core indicators is given in Prodoc Annex 12 “Environmental benefits (GHG emission reductions)”. The calculation used for the Jamaica project deviates from the EMob calculator proposed by the Global Programme, as the latter produced unrealistically vehicle. market growth figures. Among possible other causes, this is probably due to the suppressed demand for mobility in Jamaica (transport services are far below demand), which also explains the fast uptake of hackney carriage services (taxis) after opening the market. The EMob template is still used for determining vehicle parameters (Annex 12, step 1). As the classification of vehicles in Jamaica is not always consistent (and does not match with the EMob), the following types are used as a proxy: (1) large bus, 55 seats; (2) medium bus, 20 seat; (3) light duty vehicle (LDV), 9 seats, and (4) motorcycle, 1.6 seats/passenger. See next table for full characterisation (step 2). PASSENGER VEHICLE CHARACTERISATION JAMAICA - ESTIMATED OPERATIONAL PARAMETERS FOR ICES Vehicle type No seats Annual distance Annual seats-distance Annual GHG emissions Annual energy use Annual energy cost (-) (km/yr) (km/yr) (tCO2/yr) (GJ/yr) (USD/yr) Large bus (JUTC and sublicencees) 55 40,000 2,200,000 85.1 735 33,687 Medium bus 20 25,000 500,000 31.9 276 12,632 LDV (gasoline) 9 20,000 180,000 5.06 46.9 2,002 Motorcycle 1.6 10,000 16,000 1.17 10.4 443 Determination of the number of passenger vehicles in Jamaica proved challenging during project preparation as data is sparse and the metrics used by the various sources differ. Calculated estimates for 2017 are: (a) gasoline private cars 312,200 (70%), (b) heavy duty vehicles (HDV) 93,600 (21%) and motorcycles 35,680 (8%). Since not all vehicles in Jamaica are duly registered the actual total vehicle stock is at least 15% higher. The HDVs comprise large buses and large trucks and trailers. Data from the Island Traffic Authority (2018/19) indicate a total of 30,195 licensed Public Passenger Vehicles of different categories. These are mapped” using the proxy types (defined above) as shown in the next the table, allowing an estimate of total seat capacity per vehicle type. The JUTC Stage buses (784 units) are assumed to represent those operated by JUTC (371) and its sublicencees (489), 860 units in total (the difference is 10%). The calculated total number of PPV seats is close to the total reported by the other data sources (260,508 seats). Given the uncertainty as it relates to the actual deployment and occupancy of the vehicles, the

figures above appear consistent (within 10-20% error margin). For the purpose of this annex, the distribution is assumed to represent the actual situation (step 4). PUBLIC TRANSPORT SEAT CAPACITY PER PPV LICENSE AND VEHICLE TYPE Licensed Public Passenger Vehicles (PPVs) Vehicle type and seat capacity License Type No. PPVs Vehicle class Seats/unit Total seats Share (%) Route Taxis 18,565 combi 9 167,085 64% Contract Carriage 5,317 car 3 15,951 6% Hackney Carriage 5,317 car 3 15,951 6% Rural Stage Carriage 913 medium bus 20 18,260 7% JUTC Stage Carriage 784 large bus 55 43,120 17% Total Licensed PPVs 30,186 260,367 100% Based on the above and the estimated annual distance per unit, the operational savings (GHG reductions, energy savings and fuel cost savings) can be calculated for the EV alternative compared to the benchmark (ICE vehicle), as in the following table. Private car vehicle type (contract carriage and hackney carriage) are not considered as GEF project interventions focus on bus transport and light EVs. The results are shown in the netx table (step 5). PUBLIC PASSENGER VEHICLE CHARACTERISATION - OPERATIONAL SAVINGS EV, PER UNIT Vehicle type No seats Annual distance Annual seats-distance Annual GHG reductions Annual energy savings Annual energy cost savings (-) (km/yr) (km/yr) (tCO2/yr) (GJ/yr) (USD/yr) Large bus (JUTC and sublicencees) 55 40,000 2,200,000 67.1 570 21,129 Medium bus 20 25,000 500,000 25.2 214 7,923 LDV (gasoline) 9 20,000 180,000 3.92 36.4 1,205 Motorcycle 1.6 10,000 16,000 1.01 8.94 334 The EVs that appear on the market are assumed to replace conventional ICE vehicles. It is assumed that penetration of EVs in the market will grow linearly after Project termination (2025), starting at 0% in 2025 and reaching 40% by 2035 for all categories except LDVs (30%). Then average market penetration is 20% (large bus, medium bus, motorcycle) and 15% (LDVs). The following results are obtained (step 6). PUBLIC PASSENGER VEHICLE CHARACTERISATION – OPERATIONAL SAVINGS EV, TOTAL STOCK Vehicle type Market penetration No vehicles Annual distance Annual seats-distance Annual GHG reductions Annual energy savings Annual energy cost savings (%) (-) (km/yr) (km/yr) (tCO2/yr) (GJ/yr) (USD/yr) Large bus (JUTC & sublicencees) 20% 157 6,272,000 344,960,000 10,526 89,344 3,312,971 Medium bus 20% 183 4,565,000 91,300,000 4,597 39,017 1,446,784 LDV (gasoline) 15% 2,785 55,695,000 501,255,000 10,918 101,284 3,355,178 Motorcycle 20% 7,136 71,360,000 114,176,000 7,227 63,805 2,384,138 Totals 10,260 137,892,000 1,051,691,000 33,268 293,450 10,499,070 Finally, a level 3 causality factor (60%) is applied,yielding the following indirect benefits: GHG emission reductions 199,000 tCO2eq; energy savings 1,761,000 GJ, energy cost savings US$ 63,000,000 (step 7). From the calculated annual seats-distance (km-yr) and assuming a seat occupancy (70% for buses, 80% for combis (LDV) and 100% for motorcycles, and assuming a 4-km daily distance (45 weeks/yr, 5 days/week), the number of indirect beneficiaries (commuters using a type of EV post-project) is estimated at 456,000 (step 8). Applying the causality factor, this is 273,000 individuals. Direct benefits are calculated assuming a deployment during the UWI demonstration pilot as in the next table. PUBLIC PASSENGER VEHICLE– DEMONSTRATION PILOT Vehicle type No vehicles No seats Annual distance Annual GHG reductions Annual energy savings Annual energy cost savings (-) (-) (km/yr) (tCO2/yr) (GJ/yr) (USD/yr) Large bus (JUTC and sublicencees) 0 0 0 0 0 0 Medium bus 2 40 50,000 50.3 427.3 15.847 LDV (gasoline) 4 36 80,000 15.7 145.5 4.819 Motorcycle 10 16 100,000 10.1 89.4 3.341 Totals 16 230,000 76.2 662.2 24.006 The number of beneficiaries of the EV demonstration pilot is assumed to be the entire campus population (approx. 20,000 individuals, of which reportedly 60% are women (step 9).

Part II. Project Justification

1a. Project Description

DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF

1. Work carried out during the PPG phase was aimed at complementing information and validating the assumptions underlying the Project Identification Form (PIF), as well as engagement with project counterparts. PPG work started in August 2019 but extended to November 2020 due to the COVID-19 pandemic. Early September 2020, elections were held in Jamaica leading to some changes in the organisation of the Government; as a result the name of the Implementing Partner changed from Ministry of Economic Growth and Job Creation (MEGJC) into Ministry of Housing, Urban Renewal, Environment and Climate Change (HURECC).

2. A workshop to develop the problem tree and results framework was conducted in October 2019 with participation of key Government of Jamaica (GOJ) counterparts: the Ministry of Science, Energy and Technology (MSET), Ministry of Transport and Mining (MTM), the Planning Institute of Jamaica (PIOJ) and MEGJC. Discussions were held with the public service providers JPSCo (electric utility) and JUTC (public transport operator for the Kingston Metropolitan Transport Region, KMTR). Meetings were held between GOJ partners, UNDP and the Inter-American Development Bank (IDB) to discuss activities to avoid overlaps and coordinate support to the national eMobility agenda.

3. The workshop validated the presence of systemic and specific challenges faced by the involved sectors and ranked relevant interventions to address these in terms of priority and timeframe. It is recalled here that the project design at PIF - in response to a GOJ request- was centred around the public bus company JUTC given the expected positive social impact and potential for low-income people to benefit from the GEF project. While the potential of eMobility for public transport is fully acknowledged by GOJ, the sector faces a range of challenges that preclude the effective demonstration and operation of EV buses at this stage. These challenges, which were not well considered at PIF, would greatly undermine the implementation and the outcomes of an investment pilot with JUTC.

4. Based on an analysis of current constraints, mid 2020 the GOJ concluded to first build conditions and in-country capacities prior to investing in EV buses for public transport. Given the need for field experiences and analysis thereof, it was chosen to seek a more controlled environment to focus specifically on meeting mobility demand and assessing technical performance of implemented EV systems. An appropriate context was found at the University of the West Indies Mona (UWI), enabling GOJ and UNDP to tap into their academic and engineering skills and infrastructure for scenario building and data analysis. The UWI campus is closely inter-linked with the KMTR leaving ample room for engagement with public transport providers (JUTC and its franchises, as well as taxis).

5. This approach is still aligned with the Global Programme which aims to guide the participating countries to take these first hurdles by a suite of technical assistance activities. The situation in Jamaica is not different and actually confirms the validity of the Global Programme approach. However, the PPG learned that aiming for deployment of EV buses by JUTC would be one step too far.

6. In terms of format, the SRF has been further revised to assure alignment across all child projects under the Global Programme. This implies that: (i) support from the Regional Platform is now under Component 1; and (ii) the demonstration pilot is covered by Component 2. The readjustment of the components is presented in the next table.

Changes in Project's SRF between PIF and CEO ER - Components		
Components at PIF	Components at CEO Endorsement	Comments / Rational for changes
1. Integration and coordination of National Electric Mobility Initiatives in Jamaica.	1. Institutionalisation of low-carbon electric mobility.	Harmonisation across Global Programme child projects
2. Technical and regulatory assessments for the development and update of National EV policies and legislation[1]	2. Short term barrier removal through low-carbon e-mobility demonstrations.	
3. Pilot program designed and deployed in Kingston including electric buses purchase and necessary charging infrastructure of electric buses	3. Preparing for scale-up and replication of low-carbon electric mobility.	
4. National awareness raising and capacity development for the transition to low-emission electric mobility	4. Long-term environmental sustainability of low-carbon electric mobility.	
(None)	5. Knowledge management, monitoring and evaluation.	Separate outcome for M&E is UNDP requirement.

7. The table hereunder presents the changes between PIF and CEO Endorsement Request (CEO ER) at output level.

Changes in Project's SRF between PIF and CEO ER - Outputs			
Components at PIF stage	Outputs - location at PIF stage	Outputs - location at CEO Endorsement	Comments / Rational for changes
1. Integration and coordination of National Electric Mobility Initiatives in Jamaica. (At CEO ER: Institutionalisation of low-carbon electric mobility)	1.1.1 Institutional coordination mechanism established to guide GHG mitigation planning within the transport sector (under MSET/TA)	(removed)	Output 1.1.1 has been removed (deleted) as a coordination mechanism is already implemented by GOJ.
	1.1.2 Sectorial plan for e-mobility structured and approved (MSET/JPS, MTM)	1.1.1 Drafting the national policy for eMobility, covering the social, economic, technical and environmental sustainability dimensions.	Phrasing of the output has been adjusted. Rather than sector plans, an integrated transversal policy process is foreseen, under which sector ministries will develop action plans incorporating overarching national policy principles and objectives
		1.1.5 Establishment of an inform	

		1.1.5 Establishment of an information clearinghouse for eMobility data to support policy design and market development.	ciples and objectives. Output 1.1.5 has been added to strengthen availability of mobility data for policy design.
2. Technical and regulatory assessments for the development and update of National EV policies and legislation (At CEO ER: Short term barrier removal through low-carbon e-mobility demonstrations)	2.1.1 Regulatory and fiscal policies for electric mobility are reviewed and enhanced according to the national priorities.	1.1.4 Drafting of proposals for tax policy and financial incentives for eMobility.	Phrasing has been adjusted. The outputs are included in Component 1 in alignment with template Results Framework for child projects.
	2.1.2. Technical standards for electric vehicles and for grid integration of resilient charging stations (RE based) developed.	1.1.3 Drafting of regulatory instruments and technical standards for eMobility systems.	
	2.1.3. Procurement guidelines for public transport and technical specifications for monitoring systems to assess the effectiveness of mitigation measures (data acquisition, evaluation protocols) established.	(see 2.1.3 and 4.1.1 below)	Procurement of EV including data acquisition systems is covered as part of the demonstration pilot (new output 2.1.3). Consolidation of specifications is anchored in envisioned toolkits (new output 4.1.1) for outreach.
	2.1.4. Legal and institutional arrangements to support the implementation of a sectoral plan for EV transport systems established.	(removed)	Removed as it would be outside the mandate of the Implementing Partner. Indirectly, sector plans are addressed through HURECC as part of the Climate Change Policy and MTM's Strategic Business Plan and forthcoming updates..
3. Pilot program designed and deployed in Kingston including electric buses purchase and necessary charging infrastructure of electric buses (At CEO ER: Preparing for scale-up and replication of low-carbon electric mobility)	3.1.1. Operational and financial guidelines for public transport systems developed.	(see 4.1.1 below)	Removed as the Project scope is no longer directly the main public transportation system in Kingston. However, it is envisioned to include useful guidelines as one of the toolkits under new output 4.1.1.
	3.1.2. Comprehensive feasibility studies for electrification of Kingston public transport system developed including total cost deployment estimations.	2.1.1 Development of a low-emission mobility action plan for the UWI campus in the Kingston Metropolitan Area, including the adoption of relevant methodologies and tools.	New output 2.1.1 is proposed for scenario analysis and subsequent informed scoping of the demonstration pilot (coverage, quantification of demand and transport modes). Afterwards, the feasibility study is carried out following a due diligence process (output (2.1.2). Given budget constraints and local mobility context, the focus will be on smaller EVs and medium-size buses.
		2.1.2 Implementation of a feasibility study into investment and deployment of medium-size buses and small and light-duty eMobility systems at UWI.	
	3.1.3 Electric buses procurement and charging infrastructure route analysis implemented.	2.1.3 Specification and procurement of eMobility vehicles, charging stations and supportive syste	The purpose of this output has not changed, however the pilot will be focused on smaller EVs rather than larg

		ms in collaboration with project partners.	e buses.
		3.1.5 Early-market investment by public and private stakeholders to test EV business concepts under commercial conditions.	This output reflects expected, early-market investment by private and public actors towards EOP.
	3.1.4. Data from electric bus demonstration and integrated renewable power generation for recharging collected, analysed and disseminated.	2.1.4 Supervision of eMobility pilot operations including data collection and analysis for technical and operational optimisation.	The scope of the output has been widened to accommodate for supervision and management of the pilot based on incremental costs.
4. National awareness raising and capacity development for the transition to low-emission electric mobility (At CEO ER: Long-term environmental sustainability of low-carbon electric mobility)	4.1.1 Key national and subnational stakeholders are trained in the EV Global Programme capacity development activities (national and regional workshops, and thematic working group trainings).	1.1.2 Regional Support and Investment Platform assistance to policy makers and sector staff to develop eMobility policy and regulation.	The output is included in Component 1. Phrasing has been adjusted to specify the role of the Support Platform (new 1.1.2).
		4.1.1 Crafting a suite of knowledge products and toolkits targeting policy developers and institutional users of eMobility solutions	New output 4.1.1 is proposed to consolidated information, approaches, calculation models, factsheets and procurement guidelines to facilitate sharing with public and private EV developers in Jamaica.
	4.1.2. Capacity building and awareness raising activities carried out among government, consumers, and private sector stakeholders on the benefits and business opportunities for accelerating electric mobility uptake.	3.1.1 Fostering of business spin-offs related to eMobility following the Campus business incubator concept.	The scope and purpose of output 4.1.2 has been modified by proposing three new outputs. Output 3.1.1 capitalises on opportunities for EV ecosystem development in Jamaica by combining enterprise development with the training/academic context of the university. Output 3.1.2 specifies academic level capacity building (engineering, social studies, etc.). Output 3.1.3 is part of the Project's KM strategy to reach out to broader public and bring market agents together. As such, 3.1.3 provides an entry point for the Investment Platform/marketplace supported by the Global Programme. Output 3.1.4 targets vocational training of technicians, first responders, drivers ande mechanics.
		3.1.2 Integration of eMobility concepts and technologies into academic courses and projects, taking benefit from partnerships under the Global Program.	
		3.1.3 Implementation of on-campus events and workshops targeting academia, government, private sector companies, investors and end-users.	
		3.1.4 Professional training of drivers, mechanics and first responders on use, maintenance, repair and safety Evs and ancillary systems.	
	4.1.3. Recycling company operators are trained in aspects of reusing, recycling and safely disposing used electric vehicle	4.1.2 Adoption of guidelines for tracking, downgrading, re-use and recycling of batteries from electric vehicles	This output has been brought more in line with the local situation, i.e. the automobile branch has (voluntary) responsible waste management princi

	sposing used electric vehicle batteries.	ic vehicles.	sponsible waste management princi ples rather than recycling operators. Waste Management policy is under d evelopment and some experience ex ist with lead batteries. The proposed outputs seek to accompany GOJ and sector to strengthen waste manage ment mechanisms. It is expected to draw in assistance and experiences provided through the Global Program me.
		4.1.3 Assessment of business m odels for extended supplier resp onsibility for eMobility infrastruct ure and vehicle components.	
(5. Project mon itoring and eval uation.)	(none)	5.1.1 Implementation of Projec t's Knowledge Management and Communication Strategy.	These outputs have been added to s pecify project KM and M&E activities and facilitate tracking thereof.
		5.1.2 Implementation of monitori ng and evaluation plan, environm ental and social management pl an, and gender action plan.	
		5.1.3 GEF Terminal Evaluation is conducted.	

1a. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario with a description of outcomes and components of the project; 4) alignment with GEF focal area and/or impact program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovativeness, sustainability and potential for scaling up.

1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)

8. (See Prodoc §1-§8) The transport sector is responsible for approximately one quarter of global, energy-related carbon dioxide (CO2) emissions; this is expected to grow to one-third by 2050. The sector is a leading contributor to short-lived climate pollution, especially black carbon (soot), as well as other atmospheric contaminants including NOx, SO2, CO, and non-methane volatile organic compounds (NMVOC). Due to changing demographics and economic growth patterns around the globe, by 2050 two out of three cars will be found in the current lower- and middle-income countries. The United Nations Environment Assembly, at its fourth session in March 2019, adopted a UN sustainable mobility resolution that calls on all countries to switch to sustainable mobility, including electric mobility (eMobility).[2]

9. Electric vehicle (EV) technology has seen very significant progress with an associated reduction in costs. In most recent years (2018), in some industrialised countries, more private EVs are sold than internal combustion engine (ICE) vehicles (although sales are still biased to the luxury market segment). Awareness of the benefits of eMobility is growing and several countries are rolling out a comprehensive infrastructure for EV charging. In its

October 2018 report, the Intergovernmental Panel on Climate Change (IPCC) states that all vehicles added to the global fleet would need to be electric from 2035 onwards in order to keep global warming within 1.5 ^{o}C. This would translate to a complete phase-out of ICE vehicles towards 2050. eMobility is also rapidly expanding in the light vehicle market (3 and 4 wheelers) and the motor cycle and bicycle markets.

10. At the Paris Conference of Parties (COP 21), a group of countries adopted the Paris Declaration on eMobility and Climate Change, which calls for 100 million electric cars and 400 million electric two- and three-wheelers by 2030. The International Energy Agency (IEA) has developed several scenarios to assess the impact of eMobility on the global temperature, showing that an even more aggressive transition would be needed than targeted in the Paris declaration. The shift to eMobility would need to be accompanied by a simultaneous de-carbonisation of the electricity generation sector. The IEA *Beyond 2^{o}C scenario* (B2DS) requires well-to-wheel GHG emissions to be reduced by 83% by 2060, as an average for the whole land transport sector.[3]

11. Achieving global climate targets will thus require a transition to low-emission mobility that involves the low- and middle-income countries. Especially in lower-income countries, the upfront cost of EVs and the absence of a developed supply chain are major obstacles to make the shift. In Small Island Development States (SIDS) such as Jamaica, a substantial part of the market is made up by imported second-hand cars with obsolete engine technology, which may remain on the road for 15 years delaying the penetration of low-emission vehicles including EVs) by one or two decades.

12. Like most SIDS in the Caribbean, Jamaica is heavily reliant on imported fossil fuels as only 6.6% of primary energy is derived from domestic sources. Excluding the use of bagasse by the sugar sector (1.3%), fuelwood (2.8%) and charcoal (0.9%), the share of the renewable energy technologies (RETs) hydro, wind and solar PV is just about 1.5%. Fuel oil is predominant for electricity generation (4,098.4 kboe[4]; 77.9%), followed by natural gas (11.2%), diesel oil (4.7%), wind energy (3.6%), hydro power (2.1%) and solar PV (0.5%). The share of natural gas and RETs is expected to grow: according to Jamaica's Integrated Resource Plan 2018 for the electricity sector, natural gas shall provide 51% of generated energy by 2037 and RETs the remainder (49%), implying that petroleum would be fully phased out for electricity generation within 20 years from now.[5]

13. The country's overarching policy document Vision 2030 Jamaica – National Development Plan (2009) envisions energy security and efficiency as National Outcome #10, and identifies diversification, competitive energy cost levels and environmental sustainability as key areas. As it relates to the road transport sector, the impact of local pollutions on public health is also a concern. "Energy efficiency in the transport sector shall be increased by a broad set of measures, including more efficient vehicles, alternative energy vehicles and better mass transit."[6] An overview of GHG emission levels from the transport sector was published in Jamaica's Third National Communication (TNC, 2019), based on 2012 data however. Total emissions (2012) amounted 1,726,320 ton CO_2, of which gasoline accounted for 74% and diesel 26%. Methane (CH_4) emissions were 484 ton and N_2O 171 ton. The transport and electricity sectors combined make up two-thirds (67%) of national GHG emissions.

Challenges

14. Notwithstanding efforts made so far by the Government of Jamaica (GOJ) towards the development of resilient and low emission public and private transportation systems, the uptake of eMobility in Jamaica is hampered by challenges, which - to more or lesser extent – are present in many countries worldwide:

15. (i) Policy and institutional capacity. (Prodoc §28-29) eMobility demands a higher level of coordination of transport policy (under MTM) and electricity policy and planning (MSET) than currently the case. The switch from diesel and gasoline to electric charging also impacts upon tax revenues, which is the domain of the Ministry of Finance and Public Service (MFPS) and the Tax Authority (TAJ). The recent Electricity Act and Integrated Resource Plan (MSET), and

the draft Strategic Framework for Electric Mobility (MTM) provide a good starting point for setting targets and elaborating a road map. Relevant is also Jamaica's (draft) Green Paper on Hazardous Waste Management as it relates to the management of EV batteries and electronic waste generated by eMobility systems. As yet, Jamaica has not formally adopted specific policy and regulation for eMobility.

16. Notwithstanding the competences found within GOJ, EV technology is new and its possibilities and implications for Jamaica are not fully understood yet. In order to strengthen human capacity and know-how within GOJ, focal persons can be assigned to push forward the eMobility agenda and mainstream technical matter into sector policies and plans. To this purpose, the GOJ has recently established a Technical Working Group (TWG). Capacity development within the GOJ extends to specific topics including technical standards, updating of traffic regulation, registry of EVs, finance and tax policy, and public procurement. Involved entities in the public administration are the Bureau of Standards of Jamaica (BSJ), Transport Authority (TA), Island Traffic Authority (ITA), Tax Authority of Jamaica (TAJ), as well as staff from technical departments of the ministries.

17. (ii) Availability of technology. (Prodoc §30-§32) Electric mobility technology is challenging for Jamaica as EVs and auxiliary systems have to be imported from industrialised countries. In the absence of experiences under local conditions, the required skill set is not yet in place, neither training and research programmes to address this issue. A comprehensive eMobility ecosystem in Jamaica is a prerequisite for successful EV market development and still needs to develop. Key elements include: electricity generation and distribution infrastructure, EV charging stations and billing systems, a robust EV supply chain, repair and maintenance services, waste management, and a product offer that is affordable for a broad segment of society.

18. With a view on public bus transport, operators including JUTC need to develop rational approaches to fleet management including dispatch of rolling stock, as the business case for EVs depends on parameters including battery autonomy, layout of the EV charging network and its properties; traction power of EV buses; road conditions; and financial parameters.[7] Given the systemic approach needed, Jamaica will benefit through the exchange of experiences by EV bus operators in the region under the Global Programme, and toolkits developed for countries with similar characteristics as Jamaica.

19. A root cause is the weak drive for technological upgrades in the transport sector; effectively, capital goods are often fully depreciated and the business model is based on balancing operational costs and revenues. This situation can be linked to the status of Jamaica as a lower middle-income country with many people lacking the purchase power to pay for high-quality services. This business practice does not favour investment in new technologies and yield their benefits. The introduction of EV buses is an opportunity to bring a change but will need policy support and appropriate long-term financing to allow recovery of the investment.

20. (iii) Business models and delivery skills. (Prodoc §33-§35) Electric mobility demands new human skills and competences as part of the envisioned "ecosystem". An analysis is provided in, for example, the Strategic Framework for Electric Mobility (SFEM).[8] Key agents include first response professionals (police, fire fighters, ambulance personnel), and vehicle maintenance and repair technicians. The trustworthiness of services, including assurance of vehicle safety and liabilities, can be anchored in the value chain through validated training programmes and certification of people and processes.

21. Similarly, eMobility deserves research and analysis by universities and private and public sector agents. Notably, eMobility is one option as part of a systemic and comprehensive approach to mobility challenges.[9] To this purpose, the SFEM proposes to incentivise R&D&I[10] projects, which may build linkages between disciplines including engineering, social sciences, urban planning, economics, and policy. Electric mobility can also bring significant opportunities for Jamaica to create innovative business start-ups, particularly in relation to information and communication technologies (ICT), for which Jamaica is well-positioned.

22. Specific business models, for the context of Jamaica, are needed for the following elements of the ecosystem: (a) ownership and roll-out of EV charging stations; (b) financing and lease of EVs, including (capital-intensive) buses; (c) re-use and recycling of EV batteries. In many countries, gas stations are becoming multi-fuel, selling conventional fuels, biofuels and electricity for EVs. Developing a level playing field for energy suppliers for the transport market

shall involve participation of multiple stakeholders and sectors. Jamaica may benefit from toolkits for evaluating scenarios and setting a road map.

23. With a view on public bus transport, the PPG found that the sector faces a range of challenges that preclude the effective demonstration and operation of EV buses with public bus company JUTC, at this stage. (1) Quality standards for public transport services (by JUTC but also its franchises) are not being enforced. (2) Importantly, the sector essentially ignores capital costs reducing its business model to a balancing of revenues and operational costs. This model does not work for high-capital goods such as EVs, which require a rational business approach. In the absence of enforced quality standards (including low-emission transport), bus operators prefer to stick to the current low-risk technology. (3) Public bus operators are not prepared to take up eMobility technology. Only recently, specific actions towards modernisation of the sector are being developed under MTM's Strategic Business Plan 2019-2023.

24. The business model also experiences systemic challenges. The public bus company has been facing a loss of ridership in recent years in favour of the smaller taxis (hackney carriages) licensed by the GOJ. Lower revenues have led to a vicious circle undermining JUTC's cash flow and affecting JUTC and GOJ capacity to invest in ugrading measures. Among other factors, current tariffs and geographical coverage might be unattractive, pushing customers to the taxi market. However, information is lacking to draw firm conclusions. Public transport supply and demand in the KMTR appear not well matched, while input data and methodologies for developing a more customer-oriented public transport service are not in place. In 2020, the COVID-19 pandemic imposes a new challenge to traditional mass transport systems such as public buses worldwide.

25. The mentioned challenges would interfere with the purpose of the GEF demonstration pilot to generate useful and positive experiences with EVs in Jamaica. As a result, the PPG team and GOJ partners proposed to readjust the scope and context of the pilot (see §1-6).

26. (iv) Access to finance. (Prodoc §36-§37) High upfront costs would make EVs beyond reach for the majority of consumers, even though life-cycle costs are usually lower. Downward market penetration would entail mitigating the higher upfront costs. As in most countries, the market is waiting for middle-class and small electric cars which are more affordable. Their uptake in Jamaica can be accelerated through adequate (long-term) credit schemes, financial incentives, and tax benefits such as exemptions on import duties and/or Value-Added Tax (VAT). The GOJ has requested technical assistance from GEF to make a detailed assessment of the effectiveness and fiscal impact of such measures to support the development of EV policy and regulation.

27. Institutional buyers such as bus operators typically take investment decisions based on the lowest initial Capital Cost (CAPEX) rather than Total Cost of Ownership (TCO). In many countries, public procurement guidelines are not prepared for a life-cycle cost approach. Upscaling of EV bus infrastructure in Jamaica would outmatch the financial possibilities of JUTC and other operators, and therefore relies on public investment or concessions. Given the high capital costs, revenues and operational costs shall be properly assessed and secured for economic and financial sound operation. The financing barrier is interlinked with the business model and governance of EV bus systems. Private bus companies in Jamaica have indicated their interest in operating electric buses given their lower operating costs compared to ICE units. Private capital providers behind these operators are also active in Jamaica's large tourism industry which increases their options to develop an attractive business case for investors and customers.

28. (v) Access to information for planning and investment decisions. (Prodoc §38-§40) Several information challenges exist which affect the introduction of eMobility systems in Jamaica. Transport sector data were found to be sparse or outdated, and sometimes scattered among entities. Vehicle stock figures underestimate total on-the-road numbers as not all vehicles are registered. Data on public passenger bus operations (in terms of distance and customers served) are not always disclosed and consolidated. This challenges is linked to governance of the transport sector and duly acknowledged in MTM's Strategic Business Plan 2019-2023 (SBP).

29. It is unknown to what extent geo-referenced, socio-economic data is available to authorities and bus companies for planning of bus routes in function of local mobility demands. Information limitations would affect capabilities to design an integrated mobility system for the KTMR and adjust and differentiate services according to local demand. Global experiences such as the GEF Sustainable Cities Platform[11] and the C40 Cities[12] typically depart from

municipal authorities and transport companies, in close consultation with civil society organisations (CSOs). This is somewhat different to the context of Jamaica, where the GOJ takes the lead (rather than, for example, the parishes of the Kingston Metropolitan Area). Proactive engagement with local stakeholders may be required to close this gap and determine mobility demands and patterns in detail, including in relation to gender and socio-economic parameters.

30. Awareness of the merits of EV technology among prospective car buyers in Jamaica is crucial for creating momentum in the private car market. Since middle-income families tend to be more inclined to rationalise purchases, EV communication and promotion strategies should visualise the benefits and make them explicit and tangible. In parallel, the cost side can be addressed by design and marketing of financial packages, potentially supported by (tax) incentives. Presently, there is a demand for updated knowledge about EV products in the market, including new and used car dealers, car finance, lease, and assurance companies, and customer organisations.

2) the baseline scenario and any associated baseline projects (see Prodoc §9-§15)

31. Jamaica's Vision 2030: National Development Plan provides the comprehensive planning framework in which the economic, social, environmental and governance aspects of national development are integrated. Vision 2030 includes diversification of the energy supply and the promotion of energy efficiency and conservation. Specifically Vision 2030 Statement 6 evokes: "An energy sector supported by databases that are accurate and precise to enable analysis, forecasting and overall management of the sector, especially information related to the transportation sector".

32. The National Transport Policy (NTP, 2007) is the policy framework that guides all aspects of the transport sector under responsibility of the Ministry of Transport and Mining (MTM). The NTP prioritises environmental protection and energy efficiency. Jamaica has revised the Motor Vehicle Emissions Standards; the Petroleum Quality Control Act (1990)[13], and the Air Quality Regulations (1996) of the then Natural Resources Conservation Authority (NRCA) [14]. One of the features of the air quality regulation is a licensing system based on air pollutant discharge levels.[15]

33. MTM recently published its Integrated Strategic Business Plan (SBP) 2019-2023 and Operational Plan (2019/20-2020/21). The strategic objectives of the SBP are to: “establish an integrated transport system that facilitates greater land, rail, air and sea services to increase services and the efficient movement of people and goods across the island”; and to “promote energy efficiency and conservation practices in all aspects of business”. Relevant policy priorities include: (1) updating of national transport policy, specifically: (a) incorporation of new trends and strategies in the industry; and (b) providing a framework for environmentally sound transport infrastructure and services in support of sustainable economic and social growth; (2) land transportation, to: (a) rationalise the land transportation system by including alternatives such as Uber and electric cars.[16]

34. In 2019, a draft Strategic Framework for Electric Mobility (SFEM) was prepared for MSET under a technical cooperation of the Inter-American Development Bank (IDB).[17] The report evaluates four (4) scenarios towards the uptake of EVs in Jamaica characterised by different sets of incentives and policies. Subsequently, it describes required action lines towards the following six key results: (1) opportunities and national targets; (2) tax regime and fiscal considerations; (3) technical, efficiency and interoperability standards; (4) energy sector readiness; (5) transport sector readiness; and (6) creating an eMobility ecosystem. The Strategic Framework seeks the optimal development and full-benefit deployment of eMobility on the Jamaican society, for consideration of the GOJ. Headed by MSET, a Technical Working Group (TWG) was instated in 2019 to further coordinate and articulate the agenda towards EV policy development and sector regulation.

35. The energy sector is governed by the National Energy Policy (NEP) 2009-2030, prepared under the mandate of the Ministry of Science, Energy and Technology (MSET). Goal 1 of the NEP states: "Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency". Areas relevant to eMobility include: (1) Security of energy supply through diversification of fuels and RETs; (2) Modernisation of Jamaica's energy infrastructure; (3) Development of RE sources such as solar and hydro; (4) Energy conservation and efficiency; and (5) Development of a comprehensive governance structure. With a view on transportation, the NEP considers a fuel switch to CNG vehicles.

36. Begin 2020, MSET published the updated Integrated Resource Plan for the electricity sector.[18] Electricity demand forecasts over the period 2018-2037 project a modest increase from 4,656 GWh (2020) to about 5,078 GWh (2025) and 6,078 GWh by 2037. Over the same period, peak load will increase from 681 MW to 743 MW (2025) and 869 MW (2037). By 2025, solar and wind projected new capacity is 320 MW, while about 140 MW battery storage is foreseen to absorb short-term power fluctuations. These demand projections do not consider a significant transition from fossil-based transport to electricity. The figures demonstrate that very substantial expansion of electricity generation in Jamaica would be required to serve a large EV fleet.[19]

37. Since 2012, Jamaica has raised the profile of climate change issues. The GOJ has established MEGIC's Climate Change Division (CCD, since September 2020 under HURECC) and is in the process of appointing a Climate Change Advisory Board (CCAB) comprising representatives of public and private sectors, academia and non-governmental organisations. The Board will provide a platform for the exchange of scientific and technical information on climate change and related issues of importance to Jamaica and advice the Minister and the CCD. Jamaica is working on sector strategies and action plans within the forestry, agriculture and fisheries sector, to be extended to other fields including health, tourism, water, human settlements and coastal resources, transport, energy, waste and finance sectors.[20] In 2018, an assessment of transport sector vulnerability funded by USAID was received by the MTM.[21]

Baseline Projects and Initiatives:

38. MSET's Energy Efficiency & Conservation Programme aims to improve energy efficiency, mainly within the public sector, by strengthening the Ministry's institutional capacities to implement energy efficiency and conservation, in addition to designing and implementing cost-saving energy efficiency and conservation measures in the public sector. The donor-funded Energy Management and Efficiency Programme (EMEP) assists the GOJ in electricity planning and provides MSET with additional expertise and capacity. One of EMEP's components will develop an Integrated Energy Policy (IEP) for the country.[22] Importantly, MSET's Integrated Resource Plan for the electricity sector outlines an aggressive implementation plan for intermittent RE sources (wind and solar PV) as well as grid-connected battery storage (see §36).

39. The Inter-American Development Bank (IDB) provides support for EV market development through its Jamaica Electric Vehicle Climate Action & Resilience (JEVCAR) Program. The program involves several IDB operations and targets both the public and private sector.[23] Technical assistance to the GOJ includes: (1) the preparation of a strategic framework for electric mobility in Jamaica (started October 2019 and draft submitted January 2020); (2) data collection and analysis for vehicle fleet assessment; (3) support for feasibility studies and procurement for public transit; (4) training and awareness raising; and (5) analysis of business models and market demand for JUTC to improve business operations. Innovation and private sector development is boosted through the following fields of intervention: business model development; Vehicle to Grid (V2G) technology; digital innovation; battery recycling; and green finance, among others. Depending on the opportunities created, IDB Invest will evaluate lending to private sector businesses.

40. Public utility JPSCo engages with MSET to explore scenarios for rolling out an eMobility ecosystem in Jamaica, mostly oriented towards public EV charging stations. JPSCo views eMobility as a high-potential market and has submitted a tariff model to the Office for Utility Regulation (OUR) for approval (2020). The utility forecasts an increase of the private EV market to 10,700 vehicles by 2025 and 21,000 by 2030, on the condition that GOJ will reduce import tariffs and duties; electricity for EV is not significantly taxed over the coming years; and car dealers will actually import EV cars.

41. JPSCo has installed a pilot charging station at its premises in Kingston. The utility partnered with Jamaica's ATL Automotive Group for the installation of a 3-plug Level 2 EV charging station at the new AC Marriott Hotel in Kingston. This station currently provides charging for free for electric and plug-in hybrid car owners as a service to the hotel clients.[24] JPS plans to build, own, operate and maintain and island-wide system of public charging stations. Initial coverage could be assured by a grid of ten (10) charging stations to demonstrate EV across the country.[25]

3) the proposed alternative scenario with a description of outcomes and components of the project (Prodoc §41-§49)

42. The objective of the Project is: "Development of resilient and low emission public and private transportation systems in Jamaica." The immediate objective is: "To address prioritised challenges and demonstrate EV technology to determine the conditions for social, technical, economic and environmental sustainability." The Project follows the framework of the UNEP/GEF "Global Programme to Support Countries with the Shift to Electric Mobility". The Global Programme provides an integrated approach to support countries, including Jamaica, to address identified barriers simultaneously. The global approach will accelerate the learning curve, reduce duplications and facilitate economy of scale (e.g. development of tools, policies, training activities).

43. Within this context, the country (child) projects (including the Jamaica Project) will target the following challenges: (i) policy and regulation, to deliver the overall eMobility policy including building institutional capacities within the GOJ; (ii) demonstration of eMobility, to obtain operational data under local conditions and reduce perceived and real risks; (iii) improve market conditions, by building professional know-how and skills and support eMobility ecosystem development; and (iv) prepare for end-of-life vehicle management, to avoid the environmental hazards related to EV batteries and components.

44. A brief outline of the Project components, in adherence to the general structure for child projects as indicated by the Global Programme proponents, is as follows: (1) institutionalisation of low-carbon electric mobility; (2) short term barrier removal through low-carbon e-mobility demonstrations; (3) preparing for scale-up and replication of low-carbon electric mobility; (4) long-term environmental sustainability of low-carbon electric mobility; and: (5) knowledge management, monitoring and evaluation; these components are briefly described below. Please refer to the Results Framework in Annex A for the proposed progress indicators and targets.

45. Component 1: Institutionalisation of low-carbon electric mobility (GEF US$ 355,000; co-finance US$ 2,450,000). Outcome 1.1: Strengthened policy and institutional framework for low-emission eMobility in Jamaica. (Prodoc §50-§78). The specific objective of this component is to enhance institutional capacities and contribute to an appropriate policy and regulatory framework enabling the uptake of eMobility in Jamaica. The outcome responds to a range of short and medium term barriers prioritised during stakeholder consultations and discussed above. The GEF Project will build upon the GOJ's Technical Working Group (TWG), which will be instrumental for coordinating international cooperation programmes, including the present GEF Project. The Project will assist the GOJ to ensure that cross-cutting aspects of eMobility are addressed in sector policies and regulation.

46. Specifically, this component will draft a national eMobility policy and assist the GOJ to translate its ambitions into concrete actions and targets. The policy will cover relevant social, economic, technical and environmental aspects of eMobility in support of Jamaica's Vision 2030 (output 1.1.1). It will pursue regulatory instruments to foster the deployment of eMobility in Jamaica including Technical Standards for eMobility system components (1.1.3). This component will further support the GOJ to assess the impact of EV on the fiscal budget, evaluate options for EV taxation; and assess financial incentives to accelerate the uptake of EV in Jamaica in an inclusive manner. Based on the assessments, proposals will be developed and submitted to GOJ technical committees for further review and adoption by Cabinet (1.1.4).

47. Output 1.1.5 addresses the need for reliable information as input for effective policy design and monitoring of the impact of policy measures. It pursues the collection, verification and consolidation of mobility-related data for (indicatively) the Kingston Metropolitan Transport Area, through a so-called information clearinghouse accessible to public and private stakeholders. Knowhow, expertise and methodologies are also transferred through the Regional Support Platform (Mario Molina Centre Chile) under the Global Programme (1.1.2)

48. Jamaica can use the findings of the Project to set actionable and time-bound targets for EVs in support of the ambitions set forth in Jamaica Vision 2030, considering the feasibility of rolling out a dynamic EV charging network. The availability of low-emission electricity generation and T&D capacity is paramount for the success of large-scale EV deployment, as power availability is critical to secure charging times and avoid a loss of availability. Conventional bus operators are rarely familiar with electrical systems and the impact of battery autonomy and charging times on vehicle dispatch strategies.

49. In the end-of-project (EOP) situation, the following results are envisioned: (i) policy and decision makers have made effective use of the services offered by the Global Programme's Support Platform; (ii) GOJ's institutional capacities to promote eMobility have increased; (iii) the electricity sector's planning integrates RE generation and eMobility (iv) technical standards for electric road mobility have been developed; and (v) updated data on urban mobility have been collected and verified and incorporated in an information clearinghouse.

50. Component 2: Short term barrier removal through low-carbon e-mobility demonstrations (GEF US$ 824,000; co-finance US$ 1,800,000). Outcome 2.1: eMobility demonstration pilot has been prepared, implemented and monitored to provide evidence on technical, environmental and economic performance and market potential. (Prodoc §79-§103). The purpose of this component is to demonstrate the viability of eMobility concepts in Jamaica, and understand under which conditions EV technology can perform adequately in terms of user acceptance and satisfaction, operational endurance, environmental benefits, and financial sustainability. The experiences, business models and technical standards rolled out during the Project will benefit the direct counterpart, the University of the West Indies (UWI) Mona Campus, as well as public stakeholders including MTM, MSET, JUTC, KSAMC[26], and private sector associations.

51. This component will first analyse mobility patterns in relation to the Mona Campus, quantify demand and current trends, and develop scenarios to assess the effectiveness of traffic measures and transport services, including eMobility solutions (output 2.2.1). Taking benefit from this information and scoping exercise, the project will deliver a feasibility study into the deployment of small and light-duty EVs serving the UWI, including small passenger buses (indicatively: 20-seats). The study will assess the viability of proposed eMobility systems including routing, charging infrastructure, dispatch and billing schemes for buses as well as other shared EVs (2.1.2). The EVs will be operated for a test period of one (1) year with GEF support, which may be extended for another year (total 2 years) if deemed necessary. Output 2.2.3 encompasses procurement of equipment and associated services for the implementation and operation of the pilot. GEF funds are available to cover incremental costs and ensure that the objectives of the pilot will be met.

52. Output 2.1.4 involves the operation and supervision of the pilot. It will cover the costs of supervision and implementation of the demonstration pilot (beyond routine operations and expenditures by UWI and contractors). The objective of the pilot is to collect operational experiences for fine-tuning of parameters and testing of the EVs and charging systems under local conditions. Based on the findings, costs and benefit analyses (CBA) can be carried out with greatly improved accuracy for a range of EVs; and the technical, operational and financial risks better defined and evaluated. The obtained information is relevant for: (a) technical specification of EVs for fleet renewal; (b) evaluation of EV business cases compared to alternative technologies; (c) design of strategies for effective deployment of EVs to optimise benefits; and (d) development of approaches for identification of EV charging technologies and locations.

53. In function of the context, capital needs and risk profile, different financing options shall be explored and analysed with a view on long-term operational and financial sustainability. The monetisation of GHG emission reductions and other environmental and social benefits may be part of a comprehensive cost-benefit analysis. The use of distributed renewable energy (solar PV and battery storage) will be considered once the initial EV testing has been successfully

completed. Distributed RETs can strengthen the business case for EVs. The demonstration pilot shall assist in defining the envelope for technical and economically viable operation of selected EVs and (RET-assisted) charging stations.

54. At End-of-Project it is expected that: (i) UWI and associated transport operators have acquired confidence in EV technology; (ii) the demonstration pilot is successfully completed offering accurate information about suitability and reliability of EV systems under local conditions; (iii) accurate data concerning CAPEX, OPEX, and operational behaviour are obtained and analysed for building robust EV business cases.

55. Component 3: Preparing for scale-up and replication of low-carbon electric mobility (GEF US$ 230,000; co-finance US$ 5,549,500, of which US$ 4,774,500 INV). Outcome 3.1: Jamaica's knowledge base, technical skills, and investors' awareness have been enhanced for accelerating the uptake of eMobility systems (Prodoc §104-§125). This component aims to address identified barriers related to human skills, competences and know-how along the eMobility value chain in Jamaica. It further seeks upgrading of institutional capacities which offers opportunities for employment and new businesses.

56. The Project will provide support to commercial start-ups to further develop their business cases and enter the eMobility market with innovative products and services, which will strengthen the national ecosystem for eMobility (output 3.1.1). With a view on the changes required at the systemic level, relevant concepts will be introduced for academic students ranging from urban mobility planning, technology of EV systems and components, mobility policy development, social and environmental impacts, and long-term finance. This, in the understanding that present UWI students can become future decision makers (3.1.2).

57. Outreach to the GOJ, private sector and society is foreseen through the organisation of thematic workshops and and events. These will serve as a platform for bringing together a variety of stakeholders and facilitating the exchange of perspectives to provide a starting point for new partnerships (3.1.3). Professional and vocational training will be delivered to identified professionals following a gender-responsive approach. The training activities will be implemented in close coordination with the private sector including car dealer associations, institutional mobility stakeholders. GEF funds will be used on an as-needed base to supplement parallel funding, e.g. from IDB and bilaterals (3.1.4).

58. This output aims to facilitate the adoption of the products, findings, business concepts and lessons delivered by the Project by market actors. At Project start (baseline) there is demonstrated interest from public entities (e.g. MTM/JUTC) and private sector (e.g. JPSCo, suppliers, tourism companies, and others) to embark on EV technology through sales and/or operation. Substantial co-financing has been secured by the Project corroborating market interest. The Project assumes that private and public sector investment will start after 2023 but notable market impact will only occur post-project (3.1.5).

59. In the End-of-Project situation, the following results are anticipated: (i) market actors (eMobility project developers and financiers) have consolidated plans for investment; (ii) sector professionals and students have successfully completed training and/or academic courses and research projects.

60. Component 4: Long-term environmental sustainability of low-carbon electric mobility (GEF US$ 124,359; co-finance US$ 950,000). Outcome 4.1 Guidelines have been developed and shared to ensure the long-term environmental sustainability of low-carbon eMobility. (Prodoc §126-§137). The objective of this component is to address environmental challenges for eMobility in Jamaica, specifically the management of hazardous waste including lithium-based EV batteries, and the required expansion of national RE capacity for electricity generation.

61. Targeting awareness and knowledge levels among policy makers and government staff, the Project will deliver a series of toolkits covering environmental and planning aspects of eMobility (output 4.1.1). The toolkits will absorb the lessons and experiences gathered during the Project and draw in guidance, roadmaps and methodologies provided by the Global Programme. Tentatively, the knowledge kits will be crafted according to identified nexus including: (i) eMobility in relation to urban planning; (ii) eMobility and gender; (iii) fact sheets presenting consolidated information and business cases; and: (iv) a roadmap for planning corporate eMobility schemes in public and private organisations.

62. Output 4.1.2 will look into options for addressing the accumulation of degraded EV batteries in Jamaica. It will adhere to the principles laid out in Jamaica's National Policy for the Environmentally Sound Management of Hazardous Wastes (2017). Management of EV batteries is challenging in the context of a SIDS such as Jamaica. Support from the Regional Programme is expected including the identification of regional (transboundary) schemes for eMobility waste products. Importantly, Jamaica has previous experience with such schemes for lead-acid batteries, which can serve as a point of departure. With a view on smaller EV batteries, the viability of extended supplier responsibility (ESR) schemes in Jamaica will be assessed (4.1.3).

63. In the End-of-Project situation, it is expected that: (i) Jamaica has developed and endorsed a scheme for the re-use and recycling of EV batteries; and (ii) at least four (4) toolkits have been produced and disseminated among the target groups.

64. Component 5: Project monitoring and evaluation (GEF US$ 89,243; co-finance US$ 125,000). Outcome 5.1 The Project's Knowledge Management (KM) and project monitoring and evaluation (M&E) plans have been implemented. (Prodoc §138-§148). This outcome will establish the Project's KM framework and assist the Implementing Partner in establishing project oversight and monitoring systems, including the Project's Environmental and Social Management Framework (ESMF) and resulting management plans, the Gender Action Plan (GAP), and the GEF Terminal Evaluation (TE) of the Project. The Project's M&E Plan (Annex 3) is built upon experiences during project preparation with a view on mitigating implementation and fiduciary risks.

4) alignment with GEF focal area and/or impact program strategies

65. This Project is aligned with GEF-7 Climate Change Mitigation Objective 1: "Promote innovation and technology transfer for sustainable energy breakthroughs", through CCM1-2 - Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility. The Project aims to reduce current barriers to EV by updating the regulatory framework and developing supportive policies and strategies to foster the eMobility market. It will build institutional capacity including skilled human resources, and implement a pilot for testing and demonstration of EV bus technology. It will engage with the private sector in order to increase the market share of EVs in Jamaica and contribute to establishing enabling conditions for replication and upscaling in the public and private sector.

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

66. The Project builds on Jamaica's baseline scenario to modernise the energy and transport sector and reduce national GHG emissions in adherence to the Vision 2030 National Development Plan and the country's NDC. Energy production and transport are the two largest GHG emitters in the country.

67. Under leadership of MSET, Jamaica plans to increase the share of RE sources in the electricity mix from about 3% (2018) to about 30% (2025) and about 50% by 2037. This transition will assist Jamaica to control expenditures on imported fossil fuel and achieve a more balanced and resilient energy matrix. Distributed energy generation in combination with battery storage and smart grids are considered critical technologies for moving away from a traditional, centralised power grid structure.

68. The transport sector is concerned with high fuel costs and inadequate service, in quantity and quality. The government-owned, urban transport company in Kingston (JUTC) has high operating costs which are not fully recovered. Under the umbrella of MTM, fuel switch options are being explored: a test program with CNG buses is underway and electric buses are now considered. A revision of the National Transport Policy is in process targeting governance issues and preparing a series of action plans. However, the institutional landscape is fragmented and there is a notable gap between the mobility and urban planning agendas.

69. The private sector in Jamaica has demonstrated interest in eMobility, including investors, wealthy consumers, car dealers and rental agencies, as well as private bus operators and the large tourism industry. However, market actors are awaiting a clear perspective, a legal framework and regulation to be in place before making large-scale investments. Meanwhile, in the absence of effective urban planning and traffic management, the roads in Kingston are filling up quickly, reducing the efficacy and fuel-efficiency of private cars and public bus transport. The GOJ is working to address the multiple challenges and systemic barriers; however, institutional capacity and specific know-how and tools are constrained.

70. The Project's incremental action will enable MTM and MSET to address institutional and capacity limitations and accelerate the delivery of policy instruments and regulation. To this purpose, the Project will make available specific know-how, methodologies and tools and tap into the global knowledge base. It is acknowledged that eMobility is new to Jamaica: there is little experience with the technologies and its implications in terms of finance, operations, aptitude under local conditions, business models, and supportive policy frameworks. There is a growing awareness that a local ecosystem needs to be built covering aspects such as system design and integration, maintenance and servicing of vehicles and fixed infrastructure, as well as disposal of used equipment, notably EV batteries. The GEF Project will bring in expertise in all these areas which is currently not available in Jamaica.

71. The expected contributions from the baseline will be of the order of USD 11,474,500 as specified in Table C. As part of the baseline commitments, UNDP will provide continuous support to the Implementing Partner through its CO in Jamaica and the Regional Support Centre in Panama.

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

72. (Prodoc §149-151) The total direct GHG reductions are modest (76.2 tCO_2e/yr) given the small scale of the demonstration pilot. Over a 10-year period, accumulated benefits are of the order of 762 tCO_2e. Total energy savings under the pilot are 662 GJ/yr with a monetary value of USD 24,000 per year. Over a 10-year period this would translate into USD 240,000 energy cost savings for the transport operator. Indirect benefits over this 10-year period then accrue to 1,761,000 GJ energy savings with an associated energy cost reduction of USD 63.0 million. The indirect GHG emission reductions are estimated of the order of 199,000 $ktCO_2$. See Prodoc, Annex 12 for more details.

73. The direct beneficiary group counts about 20,000 individuals (campus population at The UWI Mona).

7) innovativeness, sustainability and potential for scaling up

74. (Prodoc §170-§173) The Project is innovative for Jamaica as it introduces a new technology for public and private mobility which is transformative in several ways: (i) linkages between mobility and energy policy; (ii) roll-out of a new "fuelling infrastructure" with constraints imposed by electricity T&D grid and EV autonomy; (iii) learning curve for vehicle dispatch strategies and optimisation of battery and vehicle performance; and (iv) implications for drivers and maintenance staff.

75. EV technology requires institutional operators (including passenger transport companies, such as JUTC) to develop rational strategies for the deployment and management of capital assets, which is challenging but also an opportunity to move towards a more sustainable business model. An innovative aspect is also the relationship with eMobility suppliers (including the utility JPSCo) to ensure adequate functioning of charging stations, involving ICT technologies for metering and billing of the energy consumed and for the digitalization of other services.

76. The envisioned Project outcomes are deemed sustainable as they are focused on developing capacities and demonstration of EV technology for experience and evidence building in Jamaica. It is still uncertain however when a massive uptake of EVs will actually occur. The fleet renewal scenarios calculated with the UNEP EMob simulator point at a tipping point in the market shortly after 2030 (with GEF Project). Under the baseline scenario, most Jamaican would continue to buy ICE vehicles (often imported, second-hand units). The demonstration pilot will serve as a platform for generating experiences to influence the market.

77. Determining factors include: (i) political willingness and choices; (ii) investment climate; (iii) evolution of fossil fuel and electricity costs in Jamaica; and (iv) the extent to which supportive regulation and fiscal measures are adopted and enforced. For passenger buses, specifically JUTC: (v) the robustness of the EV bus business case viz-a-viz ICE technologies and CNG-buses needs further demonstration; (vi) cost of capital for GOJ for fleet renewal may be a constraint; and (vii) business skills and operational capacities within JUTC for successful deployment of EV technology would require further enhancement.

78. Environmental sustainability will depend on solutions for EV battery recycling and disposal for which the Project will propose solutions that shall work in the context of a SIDS such as Jamaica. The approach will be mainstreamed with current policy development in Jamaica for hazardous and non-hazardous waste management, which is under the IP's mandate. Global environmental benefits are pursued by greening of the electricity supply. The Project aims to make a contribution into this direction by demonstrating distributed RE generation as part of EV charging stations. Sustainability aspects are monitored in the Results Framework.

79. The potential for scale-up for EVs is very substantial in Jamaica, as it is globally. Jamaica has a reported vehicle stock of about 470,000 certified units (2018), with 72,000 licensed for carrier services (passenger buses, taxis, carriages; and cargo) which points at a suppressed (latent) mobility demand. The annual renewal rate is in the range of 25,000 - 35,000 units comprising new and second-hand imported vehicles. Notably, JUTC operates about 400 large buses of which at least 50% can be replaced by electric units. Public transport operator Montego Bay Metro and private bus operators have indicated their interest to invest in EV technology during the PPG. The two-wheeler market comprises several thousand units yearly. These figures demonstrate the size of the market compared to the scale of the demonstration pilot.

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[1] Please note that the PIF structure had swapped the Components 2 and 3. In alignment with the structure for child projects adopted by all countries under the Global Programme, the demonstration pilot has been brought under Component 2.

[2] UNEP/EA.4/Res.3. Source: https://environmentassembly.unenvironment.org/

[3] Source: https://www.iea.org/reports/energy-technology-perspectives-2017

[4] 1 kboe = 1000 barrels oil equivalent (boe). 1 boe is equivalent to 6.12 GJ (gigajoule) and to 1.70 MWh (megawatthour).

[5] Source: Jamaica Integrated Resource Plan 2018, p.145.

[6] Source: Jamaica 20130 – National Development Plan, GOJ, 2009, p. 182.

[7] In the absence of a robust deployment strategy, an EV bus may end up in the street with depleted batteries, effectively putting the vehicle and its driver out of service for several hours, which may cause upstream repercussions in the operator's service schedule.

[8] Pages 41 ff.

[9] The congestion of several parts of the KMTR during recent years may exemplify the need for urban planning and adequate traffic management as a prerequisite for effective EV deployment.

[10] R&D&I means research, development and innovation.

[11] See: https://www.thegef.org/topics/sustainable-cities

[12] See: https://www.c40.org/

[13] Which provides fuel quality requirements addressing sulphur content and phasing out of Methyl tert-butyl ether (MTBE).

[14] In 2001 NRCA was absorbed by the National Environment and Planning Agency (NEPA), which was created in April 2001 as an Executive Agency under the Executive Agencies Act. NEPA was founded to carry out the technical (functional) and administrative mandate of three statutory bodies: (i) Natural Resources & Conservation Authority (NRCA); Town & Country Planning Authority (TCPA); and Land Development & Utilisation Commission (LDUC). See: https://www.nepa.gov.jm/new/about/overview.php.

[15] Source: Third National Communication (2019), p. 40.

[16] MTM Strategic Business Plan, p5 offers a listing of MTM priorities at outcome level.

[17] Technical Cooperation Number JA-T1172 – Sustainable Transport and Renewable Energy-powered Electric Mobility.

[18] Source: Integrated Resource Plan Jamaica Electricity Sector 2018. MSET, February 2020.

[19] Doubling (100% increase) of electricity production would be needed to replace diesel fuel; gasoline replacement would imply 200% increase of electricity production.

[20] Jamaica's National Determined Contribution (NDC) to the UNFCCC (2015). An update of the NDC will appear in 2020.

[21] Vulnerability Assessment of Jamaica's Transport Sector, Technical report, prepared by Chemonics International for the Climate Change Adaptation, Thought Leadership and Assessments (ATLAS) funded by USAID, March 2018.

[22] The EMEP is funded by the IDB, JICA and UKCIF (United Kingdom Caribbean Infrastructure Partnership Fund) and is being implemented by the Petroleum Corporation of Jamaica (PCJ).

[23] The following IDB operations: JA-T1172, RG-T3078, and JA-T1179.

[24] See also: http://jamaica-gleaner.com/article/auto/20190609/ac-hotel-kingston-offers-electric-car-charging. Note that commercial exploitation of EV charging is not permitted in Jamaica under current legislation as it would interfere with the utility's exclusive right to commercialise electric power for the public.

[25] Source: JPS presentation January 2020. Indicatively, the system would cover 10 sites (typically at third-party premises such as gas stations, parking lots, commercial areas, etc), totalling 13 charging units. Indicatively, there would be two single Level 2 plugs (7.6kW), nine dual Level 2 plugs (7.6 kW), and two Level 3 plugs (50kW), in total 22 plugs.

[26] The KSAMC is the Kingston and St. Andrews Municipal Corporation, which is the local authority these parishes in the Kingston Metropolitan Area.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

80. The project location is comprised within the areas as indicated in the next table. For a map, reference is made to the Prodoc Annex 1.

Jamaica eMobility Project (PIMS6403)– Area of Intervention			
	national territory	indicative impact area	eMobility pilot area
Description	whole of Jamaica	East Kingston and Mona area	UWI Mona Campus and vicinities in cluding UTech campus
Coordinates (UTC)		(17.989 and 18.050; North)	(17.994699 and 18.025299 North)
		(-76.779 and -76.734 West).	(-76.733142 and -76.753484 West)

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

81. This Project is hosted under the "Global Programme to Support Countries with the Shift to Electric Mobility" (GEF ID 10114) led by UN Environment. The Global Programme consists of the following four components: (C1) Global thematic working groups and knowledge materials; (C2) Support and Investment Platforms; (C3) Country project implementation; and (C4) Tracking progress, monitoring and dissemination. The child projects contribute to the outcome under C3 "Conditions are created at country and city level for the introduction of electric mobility demonstration projects, and wider up take of electric mobility". The Global Programme's monitoring framework tracks progress as outlined in the table below: 6 global indicators (highlighted in blue) and 6 at country level (green).

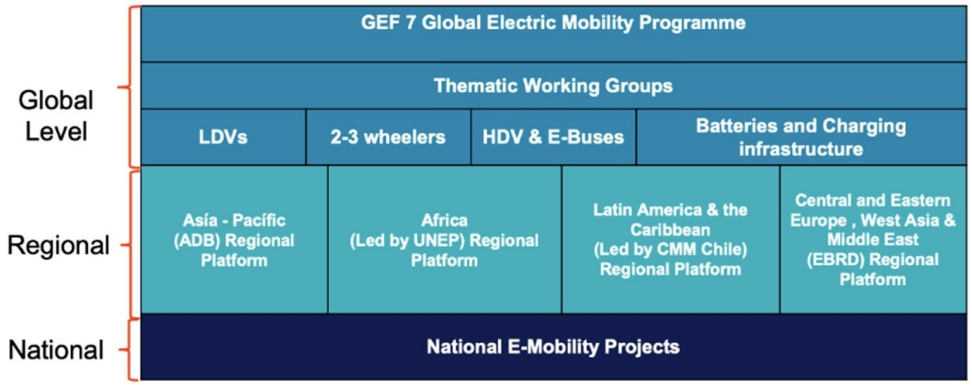
82. The Global Programme will report against this framework on an annual basis, using (1) the global level data from the Global Thematic Working Groups and from the Support and Investment Platforms, and (2) country level data provided by each country project during their annual Project Implementation 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. For the Jamaica child project, HURECC will annually report on the relevant indicators in addition to the GEF Core Indicators. The next figure summarises the overall results framework.

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 enegy 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	

83. The Global Programme will have a steering committee led by UN Environment to coordinate and monitor the implementation and the outputs of the GEF 7 Electric Mobility Programme. The four Thematic Working Groups will support the introduction of eMobility in the child project 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 eMobility markets. The working groups will be integrated by representatives from the Global Programme's regional platforms, participating countries, International Energy Agency (IEA), vehicle manufacturers, utilities, researchers and the civil society. The governance structure is presented in the figure below.



84. 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 four Support and Investment Platforms will interact with and support participating countries in the region to link with each other through the following activities:

- 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;
- Creation of thematic groups in light-duty vehicles (LDVs), 2-3 wheelers, and buses at regional level;
- Marketplace between countries, technology providers and financial institutions;
- Helpdesk for technical assistance to GEF 7 countries;
- Personalized assistance from international experts in electric mobility;
- Generation of training sessions and workshops.

85. 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.

86. The child projects feed into a number of indicators at outcome level. These indicators are labelled as “GP” in the Jamaica project’s SRF (see there). Qualitatively, contributions are expected to the following Global Programme indicators: (#3.1) % of countries with an improved institutional framework and a strategy to promote the uptake of low-carbon electric mobility; (#3.2) % of countries with nationally generated evidence of the technical, financial and/or environmental benefits of low-carbon electric mobility; (#3.3) % of countries that have improved preparedness to accelerate market transformation towards low-carbon electric mobility; (#3.4) % of countries with measures in place to ensure long-term environmental sustainability of low-carbon electric mobility; (#4.1) % of countries generating and sharing best practices and other lessons learned on low-carbon electric mobility with the Global Programme; and (#2.1) % of countries using services and knowledge products offered by the Support and Investment Platform.

2. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

87. Prodoc §166-167. The Stakeholder Engagement Plan is presented in Prodoc, Annex 7. This Plan will be used as a tool for reference and will be further detailed during the Project's inception phase and updated annually. The Stakeholder Engagement Plan is a starting point for the design of the Project communication strategy and specific communication plans (output 5.1.1).

88. 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.

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.

The PPG phase identified a lack of formal representation of civil society groups, in particular public transport users (which are predominantly lower-income groups) and women. Also middle-class income groups are a relevant group as private EV car supply tends to be biased towards the luxury segment. Being this project driven by the central Government, the PPG had limited space for identification with CSOs with the covid-19 pandemic impeding further engagement. Yet, we see opportunities for involving CSOs through the Kingston and St Andrews Municipal Council KSAMC (local knowledge of transport demands and neighbourhood characteristics), the new and used Car Dealers Associations (awareness of customer demand), and the UWI campus populace (20,000 students with mobility links into the KMTR). With a view on creating a low-carbon mobility plan (initially for UWI but also to serve as a template for the KMTR), the Project seeks establishing platforms and focus groups for exchange of viewpoints, needs and expectations. Through the platforms, CSO inputs are used to shape project outputs and strategy and strengthen inclusiveness. We believe a permanent CSO consultative/advisory body would be a valuable asset (for KSAMC, MTM, or JUTC) to improve mobility quality in the KTMR.

Select what role civil society will play in the project:

Consulted only; No

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain) Yes

The following stakeholders are involved in the Project:

List of Stakeholders and Project Partners	
Name	Role in Project Implementation

Name	Role in Project Implementation
Ministry of Housing, Urban Renewal, Environment and Climate Change (HURECC)	HURECC is the Implementing Partner for the Project and assumes responsibility for project execution. It will provide the National Project Director and host the PMU. The NPD chairs the Project Steering Committee (PSC)
Ministry of Science, Energy and Technology (MSET)	MSET is invited to take seat in the PSC. The role of MSET's Energy Division (ED) is: to provide advice on policy, legislative and regulatory initiatives concerning Jamaica's energy sector. MSET will be involved in eMobility policy development and through its technical divisions, participate in the design of specific regulation.
Ministry of Transport and Mining (MTM)	MTM is invited to take seat in the PSC. The Ministry oversees Jamaica's transport system (land, rail, sea and air) and the expansion and sustainability of the mining and minerals sector. MTM will be involved in eMobility policy development and through its technical divisions, participate in the design of specific regulation. MTM provides policy and technical guidance to public bus operator JUTC in the Kingston Metropolitan Area, which is a prospective client for eMobility systems in Jamaica.
Ministry of Finance and Public Service (MFPS)	MFPS is invited to take seat in the PSC. The Ministry has overall responsibility for developing the Government's fiscal and economic policy framework. The ministry is also responsible for collecting and allocating public revenues. As such, it has a direct interest in the definition of a tax policy for eMobility.
Planning Institute of Jamaica (PIOJ)	PIOJ is invited to take seat in the PSC. PIOJ's role is to coordinate and monitor the policy development process in Jamaica. (PIOJ) leads the implementation of the "Advancing the achievement of the Sustainable Development Goals (SDGs) through Vision 2030 Jamaica" project with support from UNDP and GOJ. PIOJ further coordinates the international cooperation agencies in Jamaica, and as such, its participation in the PSC is important for strategic planning and efficient resource allocation.
University of the West Indies (UWI)	The UWI is the largest university in Jamaica with presence in several islands of the Caribbean. The UWI is a key partner in the Project for the design and implementation of the EV demonstration pilot (component 2), the eMobility data clearinghouse, as well as capacity building and business development.
Office of Utilities Regulation (OUR)	The OUR regulates the electricity sector in Jamaica through the provisions of the Electricity Act, 2015 and the Electricity Licence, 2016,

	visions of the Electricity Act, 2015 and the Electricity Licence, 2016. Among other aspects, the OUR sets quality standards defining the electricity service, as well as the electricity tariffs for the defined customer categories.
Tax Administration Jamaica (TAJ)	TAJ's primary goal is to collect the tax revenues due in an equitable and efficient manner to contribute to a competitive business environment and facilitate economic growth and development. The agency is a stakeholder for defining a tax policy framework for eMobility in Jamaica.
Transport Authority (TA)	The TA is a statutory body established under the Transport Authority Act, 1987, in charge of regulating the public passenger system in Jamaica. It is responsible for licensing all public passenger and commercial vehicles which are regulated under the Road Traffic Act. As such, it is a key stakeholder for shaping of standards for quality of public transport services, vehicles and infrastructure.
Statistical Institute of Jamaica (STATIN)	The Statistical Institute of Jamaica is an agency of the Ministry of Finance and the Public Service (MFPS). STATIN is expected to play a role for mobility data collection and consolidation thereof, and may be a partner of the envisioned eMobility data clearinghouse.
Bureau of Standards Jamaica (BSJ)	The BSJ is a statutory body which operates under the Ministry of Industry, Commerce, Agriculture & Fisheries (MICAF). Its main activities include the development of standards, compliance monitoring, conducting tests; certification; and related services and training. Its participation in the Project concerns the development of national technical standards for electric vehicles and related systems.
Jamaica Customs Agency (JCA)	The JCA is ascribed to the Ministry of Finance and Public Service (MFPS). It is an important stakeholder for the definition of EV import policies including for second-hand EVs and hybrid cars,
National Environment and Planning Agency (NEPA)	NEPA was established in April 2001 as an Executive Agency and is currently ascribed to HURECC. NEPA will play an important role in the design of a waste management strategy and plan for EV batteries and components.
Jamaica Public Service Company Ltd (JPSCo)	JPSCo is an integrated electric utility company and the sole distributor of electricity in Jamaica. The utility plays a pivotal role in the electricity sector. It is a key project stakeholder for the development of technical standards, energy pricing methodologies, regulation and business models related to EV charging areas, as well as promotion and distribution of information on eMobility.

New Car Dealers Association of Jamaica (NCDAJ)	Both entities represent the private sector in Jamaica, with a demonstrated interest in the eMobility market. Their perspectives are important for a broad range of subjects including practical aspects of policy, technical standards, financial incentives, and taxation and importation regimes and controls.
Used Car Dealers Association of Jamaica (UCDAJ)	
Civil Society Organizations: commuters	Commuters are those individuals in the KMTR who tend to rely on public transport services for routine daily journeys (work, study, etc.). Commuters are the ultimate beneficiaries of the project. (At PPG, no specific entities could be identified representing this group.)
Civil Society Organizations: women organisations	Women organisations are an important stakeholder in their role to collect and transfer the interests, viewpoints and expectations of women throughout the Project. (At PPG, no specific entities could be identified representing this group.)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

89. Prodoc, §168-169. As in many countries in the Caribbean, public transport can be insecure for its users, especially for women. Notwithstanding achievements made, the public transport system in Kingston Metropolitan region requires improvement. Among the challenges are: (i) condition of some buses of both JUTC and private operators; (ii) efficiency at bus stops and bus parks; (iii) compliance with regulation and quality standards; (iv) inappropriate conduct by some drivers; and (v) sometimes aggressive behaviour by bus users. Reports of acts of violence and aggression that sometimes occur in the buses and at the bus stops include sexual harassment of women. Overcrowding is a cause of insecurity for women who are a majority group of public transport users. The Project pilot will adhere to all gender safeguards and demonstrate the benefits of enforced quality standards in campus transport, in alignment with national policy and UWI's ambitions as concerned to inclusiveness and campus safety for all.

90. The Gender Analysis and Gender Action Plan (GAP) are attached as Annex 9 to this Project Document. The Plan is to be expanded during the Project's inception phase and shall comprise a more detailed assessment of parallel (baseline) programs and activities to promote gender equality in relation to urban mobility. It shall also benefit from ongoing engagement with stakeholders and result in concrete actions. The GAP is one of the instruments under the Social and Environmental Management Framework (ESMF).

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

Yes

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on private sector engagement in the project, if any

91. Private sector agents have demonstrated their interest in eMobility during project preparation and engaged with the PPG team. Tour operators, hotels, and private bus companies view eMobility as a business opportunity offering additional, or better services to their customers, including car rental and tourist excursions. EVs are an opportunity to reduce operating costs and contribute to greening the sector's image. The companies and investors in the tourism sector look for new business opportunities and can mobilise large capital volumes.[1]

92. The Project will make a sustained effort to maintain this momentum in the private sector under the purview of the GOJ. Project outputs that are equally or specifically relevant for the private sector are: national eMobility policy (1.1.1), regulation and technical standards (1.1.3), tax policy and financial incentives (1.1.4), mobility data (1.1.5); innovative business models (3.1.1), awareness raising and promotion (3.1.3), and battery management and disposal strategies (4.1.2-3). Importantly, the private sector has stressed the need to adopt technical standards to provide guidance to the market; to regulate charging areas and provide a legal framework for charging operators; to define a tariff for EV charging; and to provide a policy framework for environmentally responsible management of EV waste, specifically the batteries.

93. Early-market investment by public and private actors is envisioned in the second half of the Project, are represented by UN Environment's EV market transition model (Prodoc, §125). Cofinance to this purpose has been secured (output 3.1.5). Parallel investments are expected, including from GOJ (public sector fleets, including JUTC) and private sector (possibly through lending from IDB Group).

94. The Global Programme will organise matchmaking events, linking suppliers and financiers to (public and private) EV operators, in which the Jamaica project will participate. Parallel initiatives by IDB will support business models and innovation, eventually resulting in financing instruments targeting the private sector. The Project will participate in business and thematic events organised by, or for, the private sector.[2] Special mention is made of the utility JPSCo which is responsible for the transmission and distribution networks in the country. JPS also views eMobility as a valuable opportunity to diversify its business portfolio.

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[1] One example is the ATL Group. It owns the AC Marriott Hotel in Kingston and is one of the main car importers in the country. The Hotel has installed a large PV system on the roof and an EV charging point. It rents electric cars to its customers and offers the charging service for free.

[2] Such as for example the Fourth Energy and Climate Partnership of the Americas (ECPA) held in Montego Bay, Jamaica in February 2020. See: http://ecpamericas.org/Ministerial-Meetings/ECPA-2020-Ministerial.aspx. Electric mobility and renewable energy are explicitly addressed: http://ecpamericas.org/News/Default.aspx?id=3611.

5. Risks to Achieving Project Objectives

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 format acceptable):

95. The PPG team has identified five (5) project risks related to assumptions made, implementation context and sustainability of results; plus seven (7) risks identified through the Social and Environmental Screening Procedure. For a description of risks and proposed mitigation measures reference is made to Prodoc, Annex 5. For the detailed management of SESP risks, reference is made to the Environmental and Social Management Framework (ESMF, Prodoc Annex 8) and corresponding management plans (subsections), and to the Gender Action Plan (Prodoc, Annex 9).

96. The main findings of vulnerability assessment to climate change of transport sector in Jamaica[1], are as follows:

- A highly heterogeneous topographic environment.. These all contribute to its vulnerability to hydro-meteorological hazards, which impact the transport sector, people and economic activities.
- Limited scheduling and financing of infrastructure maintenance.
- Unregulated land use change and outdated construction codes.
- Inconsistent planning and limited consideration related to increased urbanization and population growth.
- A highly concentrated coastal population.
- Policies and planning measures that lack sufficient climate change considerations. Neither the NTP nor the Vision 2030 Transport Sector Plan (TSP) includes meaningful climate change considerations.
- Insufficient climate and weather data for decision making.

97. This assessment has not found factors that may specifically affect electric mobility. Adaptations measures should include: i. Need for mainstreaming of climate risks into national policy (This concerns all GOJ actors present in the PSC and TWG). ii. A specific areas of concern are RE generation (IRP 2018, to be expanded to include EV demand). iii.Road infrastructure is a concern in KMTR. Flooding and water management are key aspects of UWI's Master Plan. Accessibility is compromised under heavy stormwater conditions, affecting all types of vehicles. iv.Climate and vulnerability data collection is an ongoing concern, for which UWI is already a partner.

[1] Vulnerability Assessment of Jamaica's Transport Sector, prepared by Maria Fernanda Zermoglio and Owen Scott (Chemonics International Inc.), for the United States Agency for International Development (USAID) - Climate Change Adaptation, Thought Leadership and Assessments (ATLAS). Washington DC, USA. March 2018.).

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner

1	Access to mobility services would be uneven with a strong socio-economic and gender bias and disfavouring underprivileged people, a situation that might be exacerbated by the introduction of eMobility solutions.	Social and Environmental	P = 2 I = 3 (moderate)	Access to mobility services is uneven with a strong socio-economic and gender bias and disfavouring the underprivileged people. The introduction of eMobility solutions may potentially exacerbate this inequality. Notably, the COVID-19 pandemic tends to increase equality gaps, while at a systemic level, it challenges the compatibility of present public transport models with public health demands. This systemic risk is addressed through the implementation of human rights based approaches (SESA) in the development of eMobility policies, regulations, and incentives (throughout Components 1 and 3). Guidance is provided in the ESMF. It is further acknowledged that the proposed eMobility pilot at the University of the West Indies (UWI) implies a bias to a (somewhat privileged) customer group. However, the pilot allows the PMU to leverage UWI's academic and engineering resources to enhance the programme – to address this bias and to benefit a wide-cross section of beneficiaries nationally. In the context of COVID-19, the Project design has stepped back from large bus deployment and instead, seeks to strengthen in-country capacities for mobility planning to build a more climate-resilient and equitable transport sector in Jamaica.	Project Technical Coordinator / Project eMobility Expert
2	The lack of formal organisations representing end-users in the KMTR may potentially exclude affected stakeholders, in particular marginalized groups, from fully participating in decisions concerning the design and scope of project activities.	Social	P = 3 I = 2 (moderate)	The lack of formal organisations representing end-users in the KMTR affected stakeholder engagement during the PPG. This situation may potentially lead to sub-optimal project design and can be an impediment for measuring social impact and benefits (ex-ante and ex-post). Inclusiveness and access to affordable and adequate public services including transportation is already foreseen under Jamaica's Vision 2030 – National Development Plan. With a view on monitoring the policy development process, the Project will apply a Strategic Environmental and Social Assessment (SESA) to address related risks and concerns. As a practical measure, the Project will advocate for the establishment of consultative committees to bring together key stakeholders for the KMTR mobility agenda as outlined in the ESMF. This will provide an opportunity for identification and consolidation of end-user/commuter representatives, to be included in the Stakeholder Engagement Plan (to be updated when needed). In addition, eMobility campaigns will be promoted among a broader public to foster high participation among youth.	Project Technical Coordinator / Project eMobility Expert

3	Potential reproduction of discrimination of women regarding participation in design and implementation or access to opportunities and benefits.	Social	P = 3 I = 3 (moderate)	Globally, women tend to be more dependent on external systems and public resources to meet their transport needs than men, e.g. women are typically a majority among public bus riders. Data on gender and transport in Jamaica are lacking however impeding a precise characterisation of the local context. The PPG could not identify a formal organisation to represent women in the Project. This situation may lead to sub-optimal project design impeding women to take full benefit. It is also an impediment for measuring social impact and benefits (ex-ante and ex-post). The Ministry of Transport and Mining with the support of the UNDP is in the process of revising the existing Transportation policy and this endeavour (the EnGENDER project) has an explicit focus on creating gender-responsive strategies to address gender-related inequities. Gender-related considerations have been incorporated in relevant Project outputs (1.1.4, 2.1.1, 2.1.2, 4.1.1). Safeguard measures have been proposed in tandem with the Gender Action Plan (budget US$34,000). One cross-cutting barrier is the lack of comprehensive, gender-segregated mobility data in Jamaica. This barrier is addressed in the Project design (surveys and data clearinghouse, output 1.1.5). However, the project's continued engagement with relevant stakeholders such as women's' groups remains a concern and specific methodologies may need to be developed to address this gap. The Project will tap into academic resources in Jamaica and engage with public entities including the Bureau of Gender Affairs. Other key stakeholders which may help to close the data gap are MTM and JUTC. As part of oversight (Component 5), UNDP will closely monitor the project to ensure that gender is mainstreamed into key activities including the recruitment of project staff, the deployment of counterpart staff, and the provision of access to capacity building activities.	Project Technical Coordinator / Project eMobility Expert
4	The physical assets, operations, and expected results of the demonstration pilot may be affected by the impacts of extreme weather events and climate change effects.	Climate	P = 3 I = 2 (moderate)	Transport systems and infrastructure in Jamaica are exposed to the effects of extreme weather events, which will be exacerbated by climate change. The vulnerability of the sector has been assessed (2018) and priority issues and recommendations communicated to GOJ.[1] In this context, new eMobility systems deployed in Jamaica will have a similar exposure. Given the limited scope of the demonstration pilot, this risk concerns a small number of vehicles and infrastructure that might get da	Project Technical Coordinator / Project eMobility Expert

				maged or lost. As part of the ESMP, all technical designs shall meet acceptable (international) standards. The infrastructure activities will demand technical studies to assess risk reduction measures for extreme weather events. Compliance with national building code and best practices will be required from subcontractors. Importantly, the Project seeks to generate best practices for future market development.	
5	The Project may directly or indirectly increase national social, environmental and economic vulnerability to climate change if investment in RE electricity generation would not materialise as anticipated (also known as maladaptive practices)	Climate	P = 1 I = 4 (moderate)	In principle electric vehicles are more efficient than internal combustion engine vehicles (from well to wheel), hence energy savings with associated GHG emission reductions can be expected for a constant transport service. Yet, the full potential of eMobility to combat global GHG emissions is only achieved in combination with low-emission (renewable energy-based) electricity production. While Jamaica has progressed with the uptake of RE technology, there is a (systemic) risk that RE supply will lag behind EV market development, forcing the country to meet demand by conventional energy sources (fuel oil and progressively, natural gas) which would reduce or postpone investment in RE generation. This can be considered a case of maladaptation at the national level, as Jamaica would not exploit the full GHG emission reduction of eMobility (although it would fare better than the current baseline). Coherent energy and transport policy is paramount for a coordinated development of the eMobility market, and the electricity generation, transmission and distribution sector. An associated aspect of such integrated policy is climate resilience of the energy sector. Current policies and electricity sector planning point to the direction of an increased share of RE sources, however the considered time scale is long. Notably, the sector's recent Integrated Resource Planning (February 2020) does not yet anticipate on massive electricity demand from an eMobility sector. While energy policy is beyond direct control of the GEF Project, the lead Implementing Partner, having Climate Change and Environment under its mandate, will address this aspect in EMobility policy design to govern sector plans and policies (Component 1). The SESA will support the GOJ to structure this process. With a view on upscaling of eMobility technologies (post-project) the Project will develop toolkits and technical assistance for mainstreaming of climate resilience into forthcoming policy instruments, including the revised National Transport Policy, eMobility Policy, and relevant technical standards (Component 3)	Project Technical Coordinator / Project eMobility Expert

				eMobility Policy), and relevant technical standards (Component 3). The pilot will assess the feasibility of charging stations using solar -PV, particularly for smaller EVs and e-scooters (Component 2) an d demonstrate the potential of RE systems for mobility purposes. The increase in RE-capacity is monitored in the Results Framework (GEF Indicator #2).	
6	Potential risks and vulner abilities related to occupa tional health and safety.	Operational	P = 2 I = 2 (low)	Activities under the demonstration pilot include (minor) civil work s, installation and commissioning of electric equipment, and opera tion of eMobility vehicles. These imply a health and occupational ri sk. The risk is deemed small and can be adequately mitigated if indus try practices are adhered to. Preferably, labour aspects shall be an chored in contractual arrangements which will align with national and international standards and certification (ISO9000 etc.). The P roject team shall insist on, or enforce, proper supervision at civil a nd electrical worksites, and adhere to best labour practices and en vironmental management processes. The Project Engineer (Comp onent 2) will act as a compliance officer for the pilot. This is a goo d practice to improve contractor performance and compliance. Sp ecific safeguards shall be further outlined in post-PAC ESIA/ESMP assigning responsibilities to UWI and contractual obligations to co ntractors. Compliance of Installed systems with building and safet y code (including disaster risk reduction) will be enforced.	Project Technical Coo rdinator / Project eMo bility Expert
7	Generation of waste (bot h hazardous and non-haz ardous).	Environmental	P = 2 I = 3 (moderate)	(a) There is a risk that e-waste will accumulate on the island (Jam aica) due to the increased use of EVs. Currently, the National Envir onment and Planning Agency has a rigorous system for the export ation of e-waste. However, no local e-waste processing and recycli ng systems exist. While larger batteries (from electric buses and c ars) are usually downgraded and re-utilised for stationary purpose s, smaller batteries may become dispersed in the environment. Im portantly, markets for downgraded devices, as well as environmen tally safe waste treatment facilities are usually not available in the context of a SIDS and rely heavily on importation. This risk is addressed in Project Component 4 (4.1.2-3) with inputs from the Global Programme, in the understanding that the battery problem exists in all participating countries. The Project will suppo rt HURECC to progress national waste management policy and pro tocols, specifically targeting EV components and batteries in com pliance with relevant Conventions. Notably, voluntary waste mana	Project Technical Coo rdinator / Project eMo bility Expert

				pliance with relevant conventions. Notably, voluntary waste management schemes are already adopted by private sector groups, including car dealers (for waste lubricants and lead-acid batteries), which offers an entry point for GOJ policy. Engagement with New and Used Car Dealer Associations in Jamaica has started already during PPG. The Global Programme's community of practice will assess approaches such as extended producer responsibility (applied in several countries). The Jamaica project will advocate for mainstreaming such approaches into national policy, the automobile branch and the retail sector. The current status of e-waste management in Jamaica is included in the ESMF, which further outlines procedures for monitoring this risk. (b) The civil works and the installation of electrical equipment and electric vehicles under the pilot will generate some waste. At the scale of the demonstration pilot (under direct responsibility of the GEF Project), these quantities and risks are small. Although the direct environmental liabilities related to the pilot are predictably small, the ESMF requires a detailed assessment of waste management as part of the ESIA, with mitigation measures to be stipulated in the ESMP. The objective of this exercise is to systemise experiences and prepare a template and toolkit for future replication and upscaling.	
8	Ownership issues and ineffective coordination between sector ministries would delay the uptake of e Mobility in Jamaica.	Political	P = 3; I = 3 (moderate)	Electric mobility surpasses the mandates of individual government sectors including electricity, transport, and finance. The GOJ has put forward the establishment of an inter-ministerial Technical Working Group (TWG) to facilitate dialogue between sectors and coordinate international agency programmes. The GEF project will assume a supportive role to the policy development process under leadership of the Ministry of Housing, Urban Renewal, Environment and Climate Change (HURECC). The design of eMobility policy will draw on ongoing processes including the Electric Mobility Framework (MTM) and the Renewable Energy Policy (MSET). This approach will allow project inputs to be prepared in response to GOJ demands and timeline. Ownership is further strengthened by inviting the key sector ministries to the Project Steering Committee (PSC): MTM, MSET, MFPS; as well as PIOJ. Finally, resources and best practices from the Global Programme will be drawn into the Project to provide clear-cut g	Project Steering Committee

				uidance to policy and decision makers. Operationally, project outputs and activities are centred at HUREC C which simplifies the Project's institutional set-up, thereby substa ntially reducing the potential impact of ownership issues on Projec t execution. However, one cannot discard that GOJ may not adopt EV policy an d regulation. This risk cannot be controlled directly by the GEF Proj ect alone. We expect (hope) that sufficient momentum is being bui lt, by UNDP/GEF, IDB and others, and primarily the Jamaican mark et who is asking for EVs, so GOJ will respond (by late 2023).	
9	The Implementing Partne r would face capacity limi tations to implement the Project in alignment with established NIM procedu res and guidelines.	Organizational, Fid uciary	P = 2; I = 4 (moderate)	UNDP's National Implementation Modality (NIM) can be challengin g for national counterparts, who may face limitations to respond ti mely and may lack internal resources (or prioritisation) to support as envisioned. Decision-making processes may occur at a higher l evel than where a project is acting. Also, Project staff needs time t o become acquainted with government procedures for specificatio n and procurement of services and goods. As a result, project acti vities can become delayed and quality and relevance may be affec ted as well. This risk is mitigated by ensuring adequate operational capacity wi thin the IP's Project Management Unit (PIU), specifically by recruiti ng a part-time procurement specialist and a project finance and ad ministrative specialist. Senior expertise is provided through the Pr oject's Technical Coordinator, who will lead the policy and regulato ry processes and be in charge of overall project management; and the Project's eMobility expert, who will lead the demonstration pilo t and will have the purview of the technical outputs, including moni toring of safeguards. The proposed arrangement will provide the e xpertise and operational capacity for the IP to fully assume its res ponsibilities for Project execution.	UNDP CO Programme Manager
10	Technical issues would i mpede the successful ex ecution of the demonstra tion pilot.	Strategic	P = 2; I = 4 (moderate)	Technical failure and underperformance of the demonstration pilot may undermine the credibility of eMobility solutions and business models among operators, financiers, end-users, and policy maker s. Technical issues with include the limited product offer, design fl aws, and range and power limitations which reduce operationabilit y and flexibility compared to ICE vehicles. This aspects is particula rly relevant for institutional EV operators such as bus companies, parcel services, medical services, etc. The purpose of the pilot project is to deliver real-life data on EV per	Project Technical Coo rdinator / Project eMo bility Expert

				The purpose of the pilot project is to deliver real life data on EV performance under local conditions. The pilot shall be robust enough to ensure a successful testing period. This risk is mitigated following a due diligence process throughout the Project and carefully defining the ambition level of the pilots, reducing technical and operational risks to the largest extent possible. UNDP OIMT services are available, pro bono, for structuring pilot procurement and operations, if requested by IP.	
11	Upscaling of eMobility would be delayed due to weak interest from investors, including the public sector.	Financial, Sustainability	P=2; I=4 (substantial)	The Project builds on the assumption that the investment climate in Jamaica will be stable and may improve in the near/medium future. Multilateral banks and private companies have demonstrated interest in the energy and transport sector. Also the GOJ has expressed its interest in acquiring EV buses for JUTC. However, as of 2020 the World's economic outlook is obscured by the COVID-19 pandemic. Moreover, mobility patterns may see a transformation over the next years as people tend be more home-based and public transport is seeking ways to reduce public health risks. In response, the final Project design is focused on creating conditions for facilitating systemic adjustments in Jamaica's transport sector, including strengthening of academic knowledge and tools for scenario assessment; demonstration of a broad range of EVs from two-wheelers to e-buses; and data collection to assess the effectiveness mobility services supply. By broadening the scope (from only e-buses at PIF), the Project has become supportive to all types of EVs by targeting individual and shared vehicles, which can be public- and private-owned.	Project Technical Coordinator
12	Persistent high electricity costs would affect financial closure of EV investments.	Strategic, Financial	P = 2 I = 3 (moderate)	The economy of electric mobility is affected by the cost of electricity, which is high in Jamaica (US$ 0.42 per kWh). Presently, there is a strong correlation between electricity costs and transport fuel prices given the high share of thermal power generation. Reducing the electricity costs is paramount for the business case for electric mobility in Jamaica to reach break-even point and translate into an effective cost-saver for the country. Moreover, under current high prices electric mobility would only be accessible to a small group of wealthy persons (in other words, it would not be an inclusive mobility proposition). The Project anticipates on this risk by pursuing innovative business models including the use of decentralised RETs to provide low-emission electricity at a lower cost than possible through the conve	Project Technical Coordinator

				ntional grid. The outcomes of the pilots shall feed into policy maki ng including electricity sector expansion plans.	

[1] Vulnerability Assessment of Jamaica's Transport Sector, prepared by Maria Fernanda Zermoglio and Owen Scott (Chemonics International Inc.), for the United States Agency for International Development (USAID) - Climate Change Adaptation, Thought Leadership and Assessments (ATLAS). Washington DC, USA. March 2018.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

98. (Prodoc §184-§198) The Project will be implemented following UNDP's National Implementation Modality (NIM) and according to the Standard Basic Assistance Agreement between UNDP and the Government of Jamaica signed 26 January 1976, and the UN Multi-Country Sustainable Development Framework (MSDF) in the Caribbean 2017-2021. The Implementing Partner for this project is the Ministry of Housing, Urban Renewal, Environment and Climate Change (HURECC)[1], which will assign the National Project Director (NPD) who holds formal ownership of the Project.

99. A dedicated Project Management Unit (PMU) will be established and hosted by the IP at their premises. The PMU will consist of the Project Technical Coordinator (PTC) who will combine policy-oriented activities and part-time management functions. The PMU will further include a part-time Project Finance and Administrative Officer (PFA) and a Project Procurement Specialist (PPS). Specific technical expertise is provided through the Project eMobility Expert (PEE) who will work in a tandem with the PTC. The PMU, assisted by the PEE will: (i) define terms of reference for consultancies, services and goods to be procured under the Project, for submission to the Project Steering Committee (PSC); (ii) supervise contracted services and consultancies; (iii) manage and monitor the Project on a day-to-day basis; and (iv) report to the PSC and UNDP.

100. The Project Steering Committee (PSC) will serve as the Project's decision-making body. It will meet according to necessity, at least twice each year. The PSC will provide strategic guidance to the PMU including corrective action if needed to ensure the Project achieves the desired results. The PSC will comprise the following members: (1) HURECC, as the Project Implementing Partner; (2) UNDP as GEF Agency. Invited to take seat in the PSC are the following GOJ entities: (3) Ministry of Science, Energy and Telecommunications (MSET); (4) Ministry of Transport and Mining (MTM); (5) Ministry of Finance and Public Service (MFPS); and: (6) Planning Institute of Jamaica (PIOJ).

[1] Until September2020: Ministry of Economic Growth and Job Creation (MEGJC).

Planned coordination with other relevant GEF-financed projects and other initiatives.

101. The Project will be coordinated with the following GEF-funded and other initiatives:

102. The GEF-5 Project "Deployment of Renewable Energy and Improvement of Energy Efficiency in the Public Sector", executed by the Petroleum Corporation of Jamaica (PCJ) and MSET (UNDP PIMS 5843). This Project seeks strengthening the regulatory framework and business concepts for RE and EE technologies including PPPs and ESCOs. Linkages exist with the project (GEF ID 5681) which targets urban development planning in Kingston "Building Climate Resilience of Urban Systems through Ecosystem-based Adaptation (EbA) in Latin America and the Caribbean" (implemented by the Ministry of Land and Environment).

103. Synergies may exist with the GEF-7 Enabling Activity "Review and update of the national implementation plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)" (GEF ID 10130) approved in 2019, which is also implemented by HURECC. Jamaica further partners in the GEF-6 project "Technology Needs Assessments – Phase III)", implemented by UN Environment and the Technical University of Denmark (GEF ID 9452), may reveal some technology challenges relevant for eMobility and can provide a platform function for engagement and awareness raising.

104. An important parallel initiative is IDB's Electric Vehicle Climate Action & Resilience (JEVCAR) program which is composed of several grants targeting public and private road transport. RG-T3078 is specifically designed to support JUTC to improve business operations and intelligence. Synergies also exist with IDB Labs JA-T1179 which covers business models, V2G technology, digital innovation and battery re-use and recycling. UNDP and IDB in Jamaica coordinate to avoid duplication of efforts. GOJ's Technical Working Group acts as a platform for dialogue and preparation of work plans to enhance efficiency and impact.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

105. The Project is supportive to MTM's Strategic Business Plan 2019-2023, specifically the priority policies "National Transport Policy (Revision) - Provide the framework for the development of environmentally sound transport infrastructure and services in support of sustainable economic and social growth"; and "Land Transportation Systems - Rationalise system to include alternatives Uber and Electric Cars vs. fossil fuel".[1] It is further supportive to the Strategic Objective "Promote energy efficiency and conservation practices in all aspects of business".[2]

106. The Project is aligned with the National Energy Policy 2009-2030, Principles 6 and 7: "An energy sector supported by databases that are accurate and precise to enable analysis, forecasting and overall management of the sector, especially information related to the transportation sector" and "An energy sector that is environmentally sustainable with significantly increased use of economically viable renewable energy sources."[3] Explicit goals are: "To (...) advance new, environmentally friendly technologies to increase energy supplies, particularly in the transport sector, and encourage cleaner, more efficient energy production, conversion and use"[4] and "To promote energy efficiency and conservation (reducing oil intensity and energy consumption), particularly in the areas of power generation, bauxite/alumina production, transport, and water supply systems".[5]

107. It is also aligned with Jamaica's "Climate Change Policy Framework and Action Plan (CCPFAP)", adopted as a Green Paper in 2013 and finalised in 2015. The CCPFAP identified twelve sectors for which a strategy and action plans will be devised, including energy and transport.[6] The policy is implemented by HURECC's Climate Change Division (CCD), in collaboration with Climate Change Focal Points designated by the various economic sectors.

108. The Project directly supports Jamaica's ambitions as laid out in its Nationally Determined Contribution (NDC) to the UNFCCC (2015, updated 2020)[7], specifically "(...) increasing the share of renewable sources of energy in its primary energy mix to 20% by 2030." which sets a GHG emission reduction target of 7.8% versus the business as usual (BAU) scenario.[8] This target would be raised to 10% conditioned to the international support made available to the country. The Project fosters the expansion of RE electricity in the national energy matrix.

109. The Project is supportive to Jamaica's National Policy (Green Paper) for the Environmentally Sound Management of Hazardous Wastes (2017) which was developed by MEGIC (now HURECC). This policy responds to Jamaica's obligations including under the Basel Convention, the Rotterdam Convention, and the Strategic Approach to International Chemicals Management (SAICM).

110. The Project is aligned with the Thematic Areas 5 "Basic Social and Physical Infrastructure"[9] and Thematic Area 7 "Coordination and Capacity Building" identified in the National Poverty Reduction Programme (NPRP)[10] which is linked to Jamaica's Vision 2030 National Development Plan and its Poverty Reduction Strategic Plan. By promoting inclusive and affordable mobility, the Project seeks to contribute to the national Vision that "Every Jamaican is consuming goods and services above the minimum acceptable national standards, and has equal and equitable opportunities and support to achieve and maintain income security and improved quality of life."

111. The Project is responsive to several priority actions voiced during consultations with civil society as part of preparation of Jamaica's Third National Communication to the UNFCCC[11], that: "(i) GOJ needs to improve public transportation system (...) to reduce the number of cars on the road and thereby reduce fossil fuel emissions; (ii) GOJ should introduce a school bus system to transport children and cut down on the number of cars on the road and loss of man hours; and (iii) GOJ needs to promote Jamaica as a site for pilot projects in renewable energy."

112. Jamaica has not yet finalised a Technology Needs Assessment (TNA) under UNFCCC. Neither has it performed a National Portfolio Formulation Exercise (NPFE) under GEFSEC.

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[1] MTM's Integrated Strategic Business Plan 2019-2023, p. 2.

[2] Ibidem, p. 4.

[3] Jamaica's National Energy Policy 2009-2030, p. ix.

[4] Ibidem, p.xi.

[5] Ibidem, p. 20, p.25-27.

[6] TNC, p.65.

[7] See: http://ndcpartnership.org/countries-map/country?iso=JAM

[8] Using 2005 as the base year, the BAU would result in a 37% increase of national GHG emissions by 2030.

[9] NPRP, p. 5. Access to infrastructure is not only important for social development but also economic development through provision of access to markets, inputs, distribution networks and transportation systems.

[10] Source: http://opm.gov.jm/wp-content/uploads/2017/01/NATIONAL-POVERTY-POLICY-Green-Paper-December-2016-Public.pdf

[11] Jamaica submitted its first Biennial Update Report (BUR-1) on 18 January 2016 and its Third National Communication (TNC) on 14 June 2019.

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

113. Being part of the Global Programme, Knowledge Management (KM) is mainstreamed into the Jamaica child project through several entry points. Capacity building and the exchange of knowledge and experiences with peer countries and the Regional Platform, is covered explicitly by output 1.1.2. The GEF budget will be used for training, capacity building, analytical work and curriculum development, as well as travel expenses to enable participation in regional events. With a view on anchoring know-how on low-emission and eMobility in Jamaica, it is envisioned to enter into a partnership with national universities, specifically UWI. It is noted that UN Environment and UTech have established working relations, the latter acting as the national coordinating entity for the Global Fuel Efficiency Initiative.[1]

114. Knowledge creation and consistency throughout Project execution is further strengthened by the core Project team consisting of the Project Technical Coordinator (PTC), Project eMobility Expert (PEE), complemented by the Project Engineer (PE) supporting the demonstration pilot implementation. Through structured engagement with the key partners, the Project aims to build national ownership and competences, specifically through the technical committees (for policy and regulation, Component 1) and through day-to-day work with UWI experts to develop, engineer and monitor the demonstration pilot (Component 2).

115. Engagement with transport sector agents including from private sector is covered under Components 3 and 4. Importantly, the Project will coordinate with other agencies to work towards a comprehensive package of training courses.[2] Through a structured approach towards capacity building, the Project expects to build more cohesion and momentum in the market, which shall facilitate the design of complementary activities post-project. Given the variety of subjects and the number of market agents, the Project expects to draw in expertise from the CMMCh and peer countries to enhance effectiveness during Project execution. Finally, Component 5 (output 5.1.1) envisions the design of an overarching KM and communication strategy for the Project during its inception phase, which shall serve as a container for capacity building and outreach activities.

116. The following table summarises the outputs tagged and their related budget as part of the Project's Knowledge Management framework.

Knowledge Management Activities		
Output		GEF Budget
3.1.3	Implementation of on-campus events and workshops targeting academia, government, private sector companies, investors and end-users	US$ 50,000
4.1.1	Crafting a suite of knowledge products and toolkits targeting policy developers and institutional users of eMobility solutions	US$ 64,359
5.1.1	Implementation of Project's Knowledge Management and Communication Strategy	US$ 27,000

[1] See for example: https://www.globalfueleconomy.org/blog/2018/april/gfei-workshop-plans-next-steps-in-jamaica

[2] Identified other agencies are IDB and the Canadian Embassy.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

117. Project monitoring and evaluation (M&E) are conducted in accordance with established UNDP and GEF procedures. The M&E activities are defined by Project Component 5. The concrete activities for M&E that are specified and budgeted in the M&E plan (please refer to the table below). Monitoring will be based on the indicators defined in the Results Framework and as further detailed in the Monitoring Plan (Prodoc Annex 3), which indicates the means of verification.

118. The GEF Core indicators (Prodoc, Annex 14) will be used to report the attained GHG benefits. Importantly, the Implementing Partner and the Project team are responsible for updating the indicator status for reporting to the GEF. The End-of-Project data should be shared with TE consultants prior to required evaluation missions according the M&E Plan. Intermediate measurements of progress can be recorded and shared through the GEF Portal.

119. UNDP as the GEF Implementing Agency will involve the GEF Operational Focal Point in Jamaica and its project partners during all stages of M&E activities to ensure that the findings are used for further planning and implementation. According to the Monitoring and Evaluation policy of the GEF and UNDP, follow-up studies like country portfolio evaluations and thematic evaluations can be initiated and conducted. All project partners and contractors are obliged to: (i) make available studies, reports or other documentation related to the Project; and (ii) facilitate interviews with staff involved in the Project's activities.

120. Specific M&E activities such as oversight missions will be planned between the Implementing Partner and UNDP CO, to be reflected in the Annual Work Plans. The tentative M&E plan and budget (US$ 89,243 including travel) shall provide guidance to this purpose (see also table Prodoc, p. 46-47).

Monitoring and Evaluation Plan and Budget			
GEF M&E requirements	**Responsible Parties**	**Indicative costs (US$)**	**Time frame**
Output 5.1.1			
Inception Workshop	Implementing Partner Project Technical Coordinator	9,000	Within 60 days of CEO endorsement of this project.
Inception Report	Implementing Partner Project Technical Coordinator	None	Within 90 days of CEO endorsement of this project.
Monitoring of indicators in project results framework	Project Technical Adviser National institutions/agencies will be charged with collecting results data.	None	Annually prior to GEF PIR. This will include GEF core indicators. Includes coordination with Global Programme
GEF Project Implementation Report (PIR)	Project Technical Coordinator; UNDP CO; UNDP GEF RT	None	Annually typically between June-August

Report (PIR)	of, UNDP CO, UNDP-GEF RTA		une-August
Risks monitoring (Atlas risk log)	Project Technical Coordinator	None	On-going
Monitoring of stakeholder engagement plan	Project Technical Coordinator	0	On-going
Project Board Meetings	Implementing Partner; Project Technical Coordinator	0	Annually
Reports of Project Board Meetings	Implementing Partner; Project Technical Coordinator	0	Annually
Lessons learned and knowledge generation	Project Technical Coordinator KM and Communication expert	17,000	Annually
Supervision missions	UNDP Country Office	None	Annually
Oversight missions	UNDP-GEF RTA and UNDP-GEF Directorate	None	Troubleshooting as needed
Output 5.1.2			
Monitoring ESMF/ESIA	Project Technical Coordinator Project eMobility Expert E&S Expert	19,000	Annually
Monitoring Gender Action Plan	Project Technical Coordinator Gender Expert	13,000	Annually
Output 5.1.3			
Terminal GEF Core indicators and evidence for measuring results	List name of institution/agency that will collect this data	None	Before terminal evaluation mission takes place.
Terminal Evaluation (TE) and management response	UNDP Evaluation Specialist and independent consultants.	23,500	3 months before operational closure.
TOTAL indicative COST		**US$81,500 (travel:US$ 7,743)** **Total: US$89.2**	

	43[1]	

[1] Funded from Project Component 5.

10. Benefits

Describe the socioeconomic 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)?

121. (Prodoc §149-§151) The Project will deliver social, economic and environmental benefits as a result of the envisioned technical assistance activities and the demonstration pilot. These include: (a) direct energy savings (GJ) from increased efficiency of eMobility (well-to-wheel) and associated costs savings (USD) for the EV operator; (b) reduced emissions of Other Atmospheric Contaminants (OACs) in urban areas, which reliefs public health risks associated with baseline IEC vehicle emissions; (c) development of innovative businesses contributing to economic growth and job creation; and (d) enhanced quality and user experiences for commuters in the KMTR.

122. A robust methodology for quantification of indicated socio-economic benefits in Jamaica is currently not in place; aspects such as impact on public health and business and employment (the eMobility "ecosystem") will expectedly be assessed as inputs for the national eMobility policy. The Strategic Framework for Electric Mobility (MSET, 2019) presents scenarios in function of EV penetration levels, which depends on (autonomous) market demand influenced by price incentives for EVs and energy, including tax stimuli. The proposed optimum scenario "Jamaica goes electric" would translate into 12% EV share of private vehicle fleet by 2030 and 16% EV share of the public fleet. The accumulated GHG emission reductions would amount to about 3 million tons CO2eq, by 2030.[1]

123. The direct and indirect fossil fuel savings ascribed to the GEF Project accrue to 1,761,000 GJ with an associated energy cost reduction of USD 63.0 million, over a 10-year period (2025-2035). Based on an effective annual public transport offer of 582 million km-seats, an average commuter demand of 1,800 km-seat per year[2], and a GEF causality factor of 60%, the group of passengers reached by the Project, who would be using EVs, would be about 273,000 (with and uncertainty margin of the order of +/- 50%). The direct beneficiary group consists of the UWI campus populace (14,000 women and 6,000 men, approximately).

[1] Strategic Framework for Electric Mobility (MSET, 2019), p.8.

[2] Assuming a commuter 5 times per week over 4 km, back and forth, during 45 weeks/year.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
	Medium/Moderate		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Project Information

Project Information	
1. Project Title	Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica
2. Project Number	6403
3. Location (Global/Region/Country)	LAC / Jamaica

Part A. Integrating Overarching Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Overarching Principles in order to Strengthen Social and Environmental Sustainability?
Briefly describe in the space below how the Project mainstreams the human-rights based approach
The Project will assist the GOJ to shape a national market for electric vehicles and explores opportunities for creating local added value and employment. Electric mobility avoids the tailpipe emissions of internal combustion engine (ICE) vehicles which release atmospheric pollutants in the urban environment (NOx, HC, SO2, CO and PM10), thereby contributing to improved air quality and decreased respiratory related illness in the Kingston Metropolitan Area (KMA). Typically, these negative effects are most pronounced in low-income districts. As such, providing equitable and affordable access to clean, effective and secure transport systems is one of the main goals of the GOJ and by extension, the Project. The provision of high quality transportation services and the adaptive management of electric vehicle systems to increase social security and accessibility is a key goal of the project.
Briefly describe in the space below how the Project is likely to improve gender equality and women's empowerment
The Project seeks to collect gender-differentiated data in the Kingston Metropolitan Area to shape critical transport policies and to best meet the mobility needs of all individuals regardless of their gender-identity. Input from women's groups and women-led civil society organisations will be incorporated into the design and monitoring of eMobility pilot systems to maximise their impact in the short- and long-term. Additionally, toolkits will be developed to identify methodologies and best practices. UNDP will ensure that women are proportionally represented in project execution and supervision bodies (PSC) and as beneficiaries of capacity building activities.
Briefly describe in the space below how the Project mainstreams environmental sustainability
Environmental sustainability is mainstreamed into the objectives and key outcomes of the Project. This endeavour envisions the reduction of fossil fuel consumption in Jamaica and the avoidance of typical environmental externalities of ICE vehicles (including local atmospheric pollutants). More specifically, the offset of fossil fuels from the transport sector will create significant reductions in national GHG emissions through the deployment of renewable energy sources– and the use of advanced EVs which have high well-to-wheel energy-efficiency relative to their ICE counterparts. As such, the Project will assist Jamaica in delivering on the commitments made in its Nationally Determined Contribution (NDC). The transport and energy sectors are the country's largest GHG emitters. Thus, eMobility is a strategic option for Jamaica to achieve both the NDC targets and the relevant Sustainable Development Goals. Additionally, the project proposes the creation of an e-waste recycling procedures to safeguard people (particularly technicians or mechanics) and the environment against harmful substances which may be emitted from vehicle batteries.

Part B. Identifying and Managing Social and Environmental Risks

QUESTION 2: What are the Potential Social and Environmental Risks?	QUESTION 3: What is the level of significance of the potential social and environmental risks?	QUESTION 6: What social and environmental assessment and management measures have been conducted and/or are required to address potential risks (for Risks with Moderate and High Significance)?
Note: Describe briefly potential social and environmental risks identified in Attachment 1 – Risk Screening Checklist (based on any "Ye	*Note: Respond to Questions 4 and 5 below before proceeding to Question 6*	

s" responses). If no risks have be en identified in Attachment 1 then note "No Risks Identified" and ski p to Question 4 and Select "Low R isk". Questions 5 and 6 not requir ed for Low Risk Projects.				
Risk Description	*Impact an d Probabil ity (1-5)*	*Significanc e (Low, Mod erate, Hig h)*	*Comments*	*Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assess ment should consider all potential impacts and risks.*
(Principle 1 q2) - Risk 1: Access to mobility services w ould be uneven with a strong socio-e conomic and gender bias and disfav ouring underprivileged people, a situ ation that might be exacerbated by t he introduction of eMobility solution s.	I = 3 P = 2	Moderate	Globally, transport options for lower-inco me groups and areas are typically of infer ior quality, less efficient and potentially u nsafe. Electric mobility technologies may therefore be inaccessible for certain seg ments of the Jamaican populace.[1] Give n the lack of comprehensive mobility dat a, individuals in the KMTR relying on publi c transport may actually be underserved. In summary, access to mobility services i s uneven with a strong socio-economic a nd gender bias and disfavouring underpri vileged communities. The introduction of eMobility solutions may potentially exace rbate this inequality. Notably, the COVID-19 pandemic has increased inequality ga ps and challenges the compatibility of pr esent public transport models with public health demands.	This systemic risk is addressed through the im plementation of human rights based approach es (SESA) in the development of eMobility poli cies, regulations, and incentives (throughout C omponents 1 and 3). Guidance is provided in th e ESMF. It is further acknowledged that the proposed e Mobility pilot at the University of the West Indie s (UWI) implies a bias to a (somewhat privilege d) customer group. However, the pilot allows th e PMU to leverage UWI's academic and engine ering resources to enhance the programme – t o address this bias and to benefit a wide-cross section of beneficiaries nationally. In the conte xt of COVID-19, the Project design has stepped back from large bus deployment and instead, s eeks to strengthen in-country capacities for mo bility planning to build a more climate-resilient and equitable transport sector in Jamaica.
			The lack of formal organisations represe nting end-users in the KMTR affected sta keholder engagement during the PPG. Thi s situation may potentially lead to sub-op timal project design and can be an imped iment for measuring social impact and b enefits (ex-ante and ex-post). An initial re	Inclusiveness and access to affordable and ad equate public services including transportation is already foreseen under Jamaica's Vision 203 0 – National Development Plan. With a view o n monitoring the policy development process, t he Project will apply a Strategic Environmental and Social Assessment (SESA) to address rele

(Principle 1 q4) (Principle 6 – q2) Risk 2: The lack of formal organisations representing end-users in the KMTR may potentially exclude affected stakeholders, in particular marginalized groups, from fully participating in decisions concerning the design and scope of project activities.	I = 2 P = 3	Moderate	enefits (ex-ante and ex-post). An initial research related to the territories of the remaining indigenous people of Jamaica was undertaken. The Maroons are mainly located in the hinterland areas of Accompong Town, Moore Town, Charles Town and Scott's Hall – indicating no overlaps with UWI´s area which will be the focus of demonstrative activities (this excludes checklist questions and SES requirements related to IP land and territory and Natural Resources). As an e-mobility project acting in urbanized sectors of Kingston Metropolitan Area and with demonstrative activities very focused in the UWI campus, no traditional knowledge or practices or cultural heritage, etc. will be impacted by on-the-ground project activities.	and Social Assessment (SESA) to address related risks and concerns. As a practical measure, the Project will advocate for the establishment of consultative committees to bring together key stakeholders for the KMTR mobility agenda as outlined in the ESMF. This will provide an opportunity for identification and consolidation of end-user/commuter representatives, to be included in the Stakeholder Engagement Plan (to be updated when needed). In addition, eMobility campaigns will be promoted among a broader public to foster high participation among youth. The matter of indigenous people will be addressed with SESA for upstream policy and also including the Center of Reparation Research of UWI in the comprehensive stakeholder engagement plan. The IPP and FPIC are not required for the demo sites but that will be re-confirmed during the planned assessments; and the SESA will include FPIC as determined appropriate and necessary for SES compliance in the course of that assessment.
(Principle 2 q3) Risk 3: Potential reproduction of discrimination of women regarding participation in design and implementation or access to opportunities and benefits.	I = 3 P = 3	Moderate	Globally, women tend to be more dependent on external systems and public resources to meet their transport needs than men, e.g. women are typically a majority among public bus riders. Data on gender and transport in Jamaica are lacking however impeding a precise characterisation of the local context. The PPG could not identify a formal organisation to represent women in the Project. This situation may lead to sub-optimal project design impeding women to take full benefit. It is also an impediment for measuring social impact and benefits (ex-ante and ex-post).	Gender-related considerations have been incorporated in relevant Project outputs (1.1.4, 2.1.1, 2.1.2, 4.1.1). Safeguard measures have been included in the Gender Action Plan (budget US $34,000). One cross-cutting barrier is the lack of comprehensive, gender-segregated mobility data in Jamaica. This barrier is addressed in the Project design (surveys and data clearinghouse, output 1.1.5). However, the project's continued engagement with relevant stakeholders such as women's' groups remains a concern and specific methodologies may need to be developed to address this gap. The Project will tap into academic resources in Jamaica and engage with public entities including the Bureau of Gender Affairs. Other

			The Ministry of Transport and Mining with the support of the UNDP is in the process of revising the existing Transportation policy and this endeavour (the EnGENDER project) has an explicit focus on creating gender-responsive strategies to address gender-related inequities.	key stakeholders which may help to close the data gap are MTM and JUTC. As part of oversight (Component 5), UNDP will closely monitor the project to ensure that gender is mainstreamed into key activities including the recruitment of project staff, the deployment of counterpart staff, and the provision of access to capacity building activities.
(Standard 2 q2; Standard 3 q5) - Risk 4: The physical assets, operations, and expected results of the demonstration pilot may be affected by the impacts of extreme weather events and climate change effects.	I = 2 P = 3	Moderate	Transport systems and infrastructure in Jamaica are exposed to the effects of extreme weather events, which will be exacerbated by climate change. The vulnerability of the sector has been assessed (2018) and priority issues and recommendations communicated to GOJ.[2] In this context, new eMobility systems deployed in Jamaica will have a similar exposure.	Given the limited scope of the demonstration pilot, this risk concerns a small number of vehicles and infrastructure that might get damaged or lost. As part of the ESMP, all technical designs shall meet acceptable (international) standards. The infrastructure activities will demand technical studies to assess risk reduction measures for extreme weather events. Compliance with national building code and best practices will be required from subcontractors. Importantly, the Project seeks to generate best practices for future market development.
(Standard 2 q3) Risk 5: The Project may directly or indirectly increase national social, envi	I = 4		In principle electric vehicles are more efficient than internal combustion engine vehicles (from well to wheel), hence energy savings with associated GHG emission reductions can be expected for a constant transport service. Yet, the full potential of eMobility to combat global GHG emissions is only achieved in combination with low-emission (renewable energy-based) electricity production. While Jamaica has progressed with the uptake of RE technology, there is a (systemic) risk that RE supply will lag behind E	Current policies and electricity sector planning point to the direction of an increased share of RE sources, however the considered time scale is long. Notably, the sector's recent Integrated Resource Planning (February 2020) does not yet anticipate on massive electricity demand from an eMobility sector. While energy policy is beyond direct control of the GEF Project, the lead Implementing Partner, having Climate Change and Environment under its mandate, will address this aspect in EMobility policy design to govern sector plans and policies (Component 1). The SESA will support the GOJ to structure this process. With a view on upscaling of eMobility technologies (post-project) the Project will dev

directly increase national social, environmental and economic vulnerability to climate change if investment in RE electricity generation would not materialise as anticipated (also known as maladaptive practices)	P = 1	Moderate	V market development, forcing the country to meet demand by conventional energy sources (fuel oil and progressively, natural gas) which would reduce or postpone investment in RE generation. This can be considered a case of maladaptation at the national level, as Jamaica would not exploit the full GHG emission reduction of eMobility (although it would fare better than the current baseline). Coherent energy and transport policy is paramount for a coordinated development of the eMobility market, and the electricity generation, transmission and distribution sector. An associated aspect of such integrated policy is climate resilience of the energy sector.	elop toolkits and technical assistance for mainstreaming of climate resilience into forthcoming policy instruments, including the revised National Transport Policy, eMobility Policy, and relevant technical standards (Component 3). The pilot will assess the feasibility of charging stations using solar-PV, particularly for smaller EVs and e-scooters (Component 2) and demonstrate the potential of RE systems for mobility purposes. The increase in RE-capacity is monitored in the Results Framework (GEF Indicator # 2).
(Standard 3 q7) <u>Risk 6:</u> Potential risks and vulnerabilities related to occupational health and safety.	I = 3 P = 2	Moderate	Activities under the demonstration pilot include (minor) civil works, installation and commissioning of electric equipment, and operation of eMobility vehicles. These imply a health and occupational risk.	The risk is deemed small and can be adequately mitigated if industry practices are adhered to. Preferably, labour aspects shall be anchored in contractual arrangements which will align with national and international standards and certification (ISO9000 etc.). The Project team shall insist on, or enforce, proper supervision at civil and electrical worksites, and adhere to best labour practices and environmental management processes. The Project Engineer (Component 2) will act as a compliance officer for the pilot. This is a good practice to improve contractor performance and compliance. Specific safeguards shall be further outlined in post-PAC ESIA/ESMP assigning responsibilities to UWI and contractual obligations to contractors. Compliance of Installed systems with building and safety code (including disaster risk reduction) will be enforced.
			(a) There is a risk that e-waste will accumulate on the island (Jamaica) due to the increased use of EVs. Currently, the Natio	(a) While larger batteries (from electric buses and cars) are usually downgraded and re-utilised for stationary purposes, smaller batteries ma

(Standard 7 q1 and q2) Risk 7: Generation of waste (both hazardous and non-hazardous).	I = 3 P = 2	Moderate	nal Environment and Planning Agency has a rigorous system for the exportation of e-waste. However, no local e-waste processing and recycling systems exist. (b) The civil works and the installation of electrical equipment and electric vehicles under the pilot will generate some waste. At the scale of the demonstration pilot (under direct responsibility of the GEF Project), these quantities and risks are small.	y become dispersed in the environment. Importantly, markets for downgraded devices, as well as environmentally safe waste treatment facilities are usually not available in the context of a SIDS and rely heavily on importation. This risk is addressed in Project Component 4 (4.1.2-3) with inputs from the Global Programme, in the understanding that the battery problem exists in all participating countries. The Project will support HURECC to progress national waste management policy and protocols, specifically targeting EV components and batteries in compliance with relevant Conventions. Notably, voluntary waste management schemes are already adopted by private sector groups, including car dealers (for waste lubricants and lead-acid batteries), which offers an entry point for GOJ policy. Engagement with New and Used Car Dealer Associations in Jamaica has started already during PPG. The Global Programme's community of practice will assess approaches such as extended producer responsibility (applied in several countries).[3] The Jamaica project will advocate for mainstreaming such approaches into national policy, the automobile branch and the retail sector. The current status of e-waste management in Jamaica is included in the ESMF, which further outlines procedures for monitoring this risk. (b) Although the direct environmental liabilities related to the pilot are predictably small, the ESMF requires a detailed assessment of waste management as part of the ESIA, with mitigation measures to be stipulated in the ESMP. The objective of this exercise is to systemise experien

			ective of this exercise is to systemise experien ces and prepare a template and toolkit for futur e replication and upscaling.

	QUESTION 4: What is the overall Project risk categorization?		
	Select one (see SESP for guidance)		Comments
	Low Risk	☐	
	Moderate Risk	√[4]	**The Project is characterised by a series of lowe r-range moderate risks. Downstream risks are mostly low and can be controlled by applying e stablished industry standards. Upstream risks may occur if the conditions for upscaling are n ot properly set (RE-based electricity generation, inclusive transport policy, system for battery re covery). The Project design is geared towards building these conditions and requires scrutiny during the implementation process.**
	High Risk	☐	

	QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are relevant?		
	Check all that apply		Comments
	Principle 1: Human Rights	√	1.2 Inequitable Impact; 1.4 Exclusion from deci sion making. To be addressed by a comprehen sive Stakeholder Engagement Plan and applica tion of SESA for policy components, in coordin ation with the Implementing Partner.
	Principle 2: Gender Equality and Women's Emp owerment	√	2.2 Reproduction of discriminatory mechanism s. To be addressed by Gender Action Plan.
	1. Biodiversity Conservation and Natural Res ource Management	☐	None
	2. Climate Change Mitigation and Adaptation	√	2.2 Potential impacts of climate change; 2.3 In crease of social vulnerability (maladaptation). To be addressed by ESMF/ESMP, specifically t o share policy development

			o shape policy development.
	3. Community Health, Safety and Working Conditions	√	3.3 Occupational health and safety. To be addressed by enforcing compliance with industry standards for demonstration pilot (through the Project Engineer specialist)>
	4. Cultural Heritage	☐	None
	5. Displacement and Resettlement	☐	None
	6. Indigenous Peoples	√	The IPP and FPIC are not required for the demo sites but that will be re-confirmed during the planned assessments; and the SESA will include FPIC as determined appropriate and necessary for SES compliance in the course of that assessment
	7. Pollution Prevention and Resource Efficiency		7.2 Production of waste (batteries). Extended Supplier Responsibility scheme assessed, designed and consulted. Safeguards outlined in ESMF and adopted in post-PAC ESIA/ESMP for demonstration pilot, assigning responsibilities to UWI and contractual obligations to contractors.

Final Sign Off

Signature	*Date*	*Description*
QA Assessor		UNDP staff member responsible for the Project, typically a UNDP Programme Officer. Final signatu re confirms they have “checked” to ensure that the SESP is adequately conducted.
QA Approver		UNDP senior manager, typically the UNDP Deputy Country Director (DCD), Country Director (CD), De puty Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot als o be the QA Assessor. Final signature confirms they have “cleared” the SESP prior to submittal to t he PAC.
PAC Chair		UNDP chair of the PAC. In some cases PAC Chair may also be the QA Approver. Final signature co nfirms that the SESP was considered as part of the project appraisal and considered in recommen dations of the PAC.

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SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental Risks	
Principles 1: Human Rights	**Answe r (Yes/N o)**
1. Could the Project lead to adverse impacts on enjoyment of the human rights (civil, politic al, economic, social or cultural) of the affected population and particularly of marginalized group s?	No
2. Is there a likelihood that the Project would have inequitable or discriminatory adverse im pacts on affected populations, particularly people living in poverty or marginalized or excluded in dividuals or groups? [5]	Yes
3. Could the Project potentially restrict availability, quality of and access to resources or ba sic services, in particular to marginalized individuals or groups?	No
4. Is there a likelihood that the Project would exclude any potentially affected stakeholders, in particular marginalized groups, from fully participating in decisions that may affect them?	Yes
5. Is there a risk that duty-bearers do not have the capacity to meet their obligations in the Project?	No

6. Is there a risk that rights-holders do not have the capacity to claim their rights?	No
7. Have local communities or individuals, given the opportunity, raised human rights concerns regarding the Project during the stakeholder engagement process?	No
8. Is there a risk that the Project would exacerbate conflicts among and/or the risk of violence to project-affected communities and individuals?	No
Principle 2: Gender Equality and Women's Empowerment	
1. Is there a likelihood that the proposed Project would have adverse impacts on gender equality and/or the situation of women and girls?	No
2. Would the Project potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	Yes
3. Have women's groups/leaders raised gender equality concerns regarding the Project during the stakeholder engagement process and has this been included in the overall Project proposal and in the risk assessment?	No
4. Would the Project potentially limit women'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? *For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being*	No
Principle 3: Environmental Sustainability: Screening questions regarding environmental risks are encompassed by the specific Standard-related questions below	
Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management	
1.1 Would the Project potentially cause adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services? *For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes*	No
1.2 Are any Project activities proposed within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	No

es of local communities?	
1.3 Does the Project involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	No
1.4 Would Project activities pose risks to endangered species?	No
1.5 Would the Project pose a risk of introducing invasive alien species?	No
1.6 Does the Project involve harvesting of natural forests, plantation development, or reforestation?	No
1.7 Does the Project involve the production and/or harvesting of fish populations or other aquatic species?	No
1.8 Does the Project involve significant extraction, diversion or containment of surface or ground water? *For example, construction of dams, reservoirs, river basin developments, groundwater extraction*	No
1.9 Does the Project involve utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)	No
1.10 Would the Project generate potential adverse transboundary or global environmental concerns?	No
1.11 Would the Project result in secondary or consequential development activities which could lead to adverse social and environmental effects, or would it generate cumulative impacts with other known existing or planned activities in the area? *For example, a new road through forested lands will generate direct environmental and social impacts (e.g. felling of trees, earthworks, potential relocation of inhabitants). The new road may also facilitate encroachment on lands by illegal settlers or generate unplanned commercial development along the route, potentially in sensitive areas. These are indirect, secondary, or induced impacts that need to be considered. Also, if similar developments in the same forested area are planned, then cumulative impacts of multiple activities (even if not part of the same Project) need to be considered.*	No
Standard 2: Climate Change Mitigation and Adaptation	
2.1 Will the proposed Project result in significant[6] greenhouse gas emissions or may exacerbate climate change?	No
2.2 Would the potential outcomes of the Project be sensitive or vulnerable to potential impacts of climate change?	Yes

2.3 Is the proposed Project likely to directly or indirectly increase social and environmental vulnerability to climate change now or in the future (also known as maladaptive practices)? *For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding*	Yes
Standard 3: Community Health, Safety and Working Conditions	
3.1 Would elements of Project construction, operation, or decommissioning pose potential safety risks to local communities?	No
3.2 Would the Project pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	No
3.3 Does the Project involve large-scale infrastructure development (e.g. dams, roads, buildings)?	No
3.4 Would failure of structural elements of the Project pose risks to communities? (e.g. collapse of buildings or infrastructure)	No
3.5 Would the proposed Project be susceptible to or lead to increased vulnerability to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions?	Yes
3.6 Would the Project result in potential increased health risks (e.g. from water-borne or other vector-borne diseases or communicable infections such as HIV/AIDS)?	No
3.7. Does the Project pose potential risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during Project construction, operation, or decommissioning?	Yes
3.8. Does the Project involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	No
3.9 Does the Project engage security personnel that may pose a potential risk to health and safety of communities and/or individuals (e.g. due to a lack of adequate training or accountability)?	No
Standard 4: Cultural Heritage	
4.1 Will the proposed Project result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: Projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	No

and conserve cultural heritage may also have inadvertent adverse impacts)	
4.2 Does the Project propose utilizing tangible and/or intangible forms of cultural heritage for commercial or other purposes?	No
Standard 5: Displacement and Resettlement	
5.1 Would the Project potentially involve temporary or permanent and full or partial physical displacement?	No
5.2 Would the Project possibly result in economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	No
5.3 Is there a risk that the Project would lead to forced evictions?[7]	No
5.4 Would the proposed Project possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	No
Standard 6: Indigenous Peoples	
6.1 Are indigenous peoples present in the Project area (including Project area of influence)?	Yes
6.2 Is it likely that the Project or portions of the Project will be located on lands and territories claimed by indigenous peoples?	No
6.3 Would the proposed Project potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the Project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)? *If the answer to the screening question 6.3 is "yes" the potential risk impacts are considered potentially severe and/or critical and the Project would be categorized as either Moderate or High Risk.*	No
6.4 Has there been an absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	No
6.5 Does the proposed Project involve the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	No
6.6 Is there a potential for forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources?	No

6.7 Would the Project adversely affect the development priorities of indigenous peoples as defined by them?	No
6.8 Would the Project potentially affect the physical and cultural survival of indigenous peoples?	No
6.9 Would the Project potentially affect the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	No
Standard 7: Pollution Prevention and Resource Efficiency	
7.1 Would the Project potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	Yes
7.2 Would the proposed Project potentially result in the generation of waste (both hazardous and non-hazardous)?	Yes
7.3 Will the proposed Project potentially involve the manufacture, trade, release, and/or use of hazardous chemicals and/or materials? Does the Project propose use of chemicals or materials subject to international bans or phase-outs? *For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol*	No
7.4 Will the proposed Project involve the application of pesticides that may have a negative effect on the environment or human health?	No
7.5 Does the Project include activities that require significant consumption of raw materials, energy, and/or water?	No

[1] Notably, luxury electric cars are already being imported in Jamaica while the typical choice for the average Jamaican car buyer is an imported, second hand internal combustion engine (ICE) car.

[2] Vulnerability Assessment of Jamaica's Transport Sector, prepared by Maria Fernanda Zermoglio and Owen Scott (Chemonics International Inc.), for the United States Agency for International Development (USAID) - Climate Change Adaptation, Thought Leadership and Assessments (ATLAS). Washington DC, USA. March 2018.

[3] See for example: (1) Commission Staff Working Document - On the evaluation of the Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC, European Commission, Brussels 9 April 2019. (2) United Kingdom Government: Waste Batteries: Producer Responsibilities, https://www.gov.uk/guidance/waste-batteries-producer-responsibility

[4] In alignment with UNDP SESP Procedure (2015), p.15."Projects that include activities with potential adverse social and environmental risks and impacts, that are limited in scale, can be identified with a reasonable degree of certainty, and can be addressed through application of standard best practice, mitigation measures and stakeholder engagement during Project implementation. Moderate Risk activities may include physical interventions (e.g. buildings, roads, protected areas, often referred to as "downstream activities) as well as planning support, policy advice, and capacity building (often referred to as "upstream" activities) which may present risks that are predominantly indirect, long-term or difficult to identify.

[5] 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.

[6] In regards to CO_2, 'significant emissions' corresponds generally to more than 25,000 tons per year (from both direct and indirect sources). [The Guidance Note on Climate Change Mitigation and Adaptation provides additional information on GHG emissions.]

[7] Forced evictions include acts and/or omissions involving the coerced or involuntary displacement of individuals, groups, or communities from homes and/or lands and common property resources that were occupied or depended upon, thus eliminating the ability of an individual, group, or community to reside or work in a particular dwelling, residence, or location without the provision of, and access to, appropriate forms of legal or other protections.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
PIMS 6403_Jamaica eMobility_ANNEX 8_ESMF_Dec7 final	CEO Endorsement ESS	
PIMS 6403 Jamaica eMobility Annex 4 SESP Dec7_final	CEO Endorsement ESS	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

This project will contribute to the following Sustainable Development Goal (s): SDG 7. Access to affordable, reliable, sustainable and modern energy. SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable. SDG 13. Take urgent action to combat climate change and its impacts.				
This project will contribute to the following country outcome (UNDAF/CPD, RPD, GPD): MSDF 2017-2021 - Policies and programmes for climate change adaptation, disaster risk reduction and universal access to clean and sustainable energy in place. Indicator: Percentage of new businesses in which renewable energy services account for at least 50% of the energy mix (SDG 7.2.1 - 7.2.1 Renewable energy share in the total final energy consumption).				
	Objective and Outcome Indicators	**Baseline**	**Mid-term Target**	**End of Project Target**
Project Objective Development of resilient and low emission public and private transportation systems in Jamaica.	GEF6.3 (#1) Aggregated energy saved (GJ/yr)	0 GJ/yr	0 GJ/yr	176,000 GJ/yr
	GEF6.4 (#2) Increase in installed RE capacity per technology (MW)	0.0 MW	0.0 MW	0.010 MW (10 kWp)
	GEF6 (#3) Greenhouse gas emissions mitigated (tCO2eq/yr) (a) direct; (b) indirect.	(a) 0; (b) 0 tCO2eq	(a) 0; (b) 0 tCO2eq/yr	(a) 76.2; (b) 19,900 tCO2eq/yr;
	GEF11 (#4) Number of direct beneficiaries as co-benefit of GEF investment (#m;#f)	0m; 0f	0m; 0f	20,000 (30%; 70%)
Component 1. Institutionalisation of low-carbon electric mobility.				
Outcome 1.1 The policy and institutional framework for low-emission electric mobility in Jamaica has been strengthened.	GP3.1 (#5) Qualitative rating of Jamaica's institutional capacity to promote the uptake of low-carbon electric mobility (1 to 4).[1]	0	1	3
	GP3.4 (#6) Longer-term projections investigating the nexus between low carbon electric mobility and renewable power integration are part of the national strategy on low-carbon electric mobility (status integrated RE-EV- strategy or plan: none/discussed /draft/completed)	none	draft	completed
	JA1-1 (#7) Technical Standards for electric road mobility (none/discussed/proposed/adopted).	none	proposed	adopted

	ptcd).			
	JA1-2 (#8) Number of information requests to mobility data clearinghouse (#requests/year)	0	10/year	20/year
Outputs to attain Outcome 1.1	1.1.1 Drafting the national policy for eMobility, covering the social, economic, technical and environmental sustainability dimensions. 1.1.2 Regional Support and Investment Platform assistance to policy makers and sector staff to develop eMobility policy and regulation. 1.1.3 Drafting of regulatory instruments and technical standards for eMobility systems.[2] 1.1.4 Drafting of proposals for tax policy and financial incentives for eMobility. 1.1.5 Establishment of an information clearinghouse for eMobility data to support policy design and market development.			
Component 2. Short term barrier removal through low-carbon e-mobility demonstrations.				
Outcome 2.1 eMobility demonstration pilot has been prepared, implemented and monitored to provide evidence on technical, environmental and economic performance and market potential.	GP3.2 (#9) GOJ takes a position on the economic viability of low-carbon electric mobility based on the evidence generated through the in-country demonstration project.	no	no	yes
	JA2-1 (#10) Status of pilot feasibility study and ESIA	no study	approved	implemented
	JA2-2 (#11) Accumulated distance driven by e-vehicles under pilots (km)	0 km	15,000 km	230,000 km
	JA2-3 (#12) Number of users of eMobility services and vehicles under the pilot (#m;#f)[3]	0	500	5,000
Outputs to attain Outcome 2.1	2.1.1 Development of a low-emission mobility action plan for the UWI campus in the Kingston Metropolitan Area, including the adoption of relevant methodologies and tools. 2.1.2 Implementation of a feasibility study into investment and deployment of small and light-duty eMobility systems at UWI. 2.1.3 Specification and procurement of eMobility vehicles, charging stations and supportive systems in collaboration with project partners. 2.1.4 Supervision of eMobility pilot operations including data collection and analysis for technical and operational optimisation.			
Component 3. Preparing for scale-up and replication of low-carbon electric mobility.				
Outcome 3.1	GP3.3 (#13) US$ value of new low-carbon el	US$ 0M	US$ 3M	US$ 15M

Jamaica's knowledge base, technical skills, and investors' awareness have been enhanced for accelerating the uptake of eMobility systems	ectric mobility project concepts/proposals (with letters of intent from the financiers)			
	JA3-1 (#14) Number of sector professionals and students who have successfully completed training and/or academic courses or study projects (m; f)	0m; 0f	10m; 10f	20m; 20f
	JA3-2 (#15) Number of innovative business spin-offs and/or products successfully supported	0	1	2
Outputs to attain Outcome 3.1	3.1.1 Fostering of business spin-offs related to eMobility following the Campus business incubator concept.[4] 3.1.2 Integration of eMobility concepts and technologies into academic courses and projects, taking benefit from partnerships under the Global Program. 3.1.3 Implementation of on-campus events and workshops targeting academia, government, private sector companies, investors and end-users. 3.1.4 Professional training of drivers, mechanics and first responders on use, maintenance, repair and safety of EVs and ancillary systems. 3.1.5 Early-market investment by public and private stakeholders to test EV business concepts under commercial conditions.			
Component 4. Long-term environmental sustainability of low-carbon electric mobility.				
Outcome 4.1 Guidelines have been developed and shared to ensure the long-term environmental sustainability of low-carbon eMobility.	GP3.4 (#16) GOJ endorses a scheme for the collection, re-use and/or environmentally sound disposal of used electric vehicle batteries. (none/ draft/ endorsed/ adopted/ enforced)	none	draft	endorsed
	JA4-1 (#17) Delivery of toolkits on: (i) urban EV planning; (ii) EV and gender nexus; (iii) planning of corporate EV system; (iv) economy of EV systems and vehicles.[5]	none	1 toolkit	4 toolkits
Outputs to attain Outcome 4.1	4.1.1 Crafting a suite of knowledge products and toolkits targeting policy developers and institutional users of eMobility solutions. 4.1.2 Adoption of guidelines for tracking, downgrading, re-use and recycling of batteries from electric vehicles. 4.1.3 Assessment of business models for extended supplier responsibility for eMobility infrastructure and vehicle components.			

Component 5. Knowledge management, monitoring and evaluation.				
Outcome 5.1 The Project's Knowledge Management (KM) and project monitoring and evaluation (M&E) plans have been implemented.	GP4.1 (#18) The Implementing Partner generates best practices and lessons learned on low-carbon electric mobility and shares them with the global programme.	no	yes	yes
Outputs to attain Outcome 5.1	5.1.1 Implementation of Project's Knowledge Management and Communication Strategy. 5.1.2 Implementation of monitoring and evaluation plan, environmental and social management plan, and gender action plan. 5.1.3 GEF Terminal Evaluation is conducted.			

[1] Milestones for rating levels (1 to 4) are: 1 = eMobility policy approved by IP; 2 = eMobility policy adopted by GOJ sector ministries; 3 = eMobility Technical Standards formally adopted; 4 = action plan with market incentives in place.

[2] With a focus on small electric vehicles (i.e. mini-buses, e-scooters, electric bikes, etc.) and supporting infrastructure.

[3] To be monitored daily (as part of user pattern analysis).

[4] Potential spin-offs include among others intelligent vehicle dispatch and maintenance schemes, on-campus billing systems, financing platforms and leasing schemes, integration with added-value services including business advertising, smart phone apps, etc.

[5] Indicative list.

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comments	Response UNDP (as provided by UNEP at PFD)	Reference in documents
Comments from the GEF Council		
Japan		
We anticipate that participants of these projects may be severely impacted by the COVID-19 crisis. How realistic are the published co-financing arrangements to be met, and for the industry to meet the higher operating costs - - without de facto subsidization from the GEF?	The current health crisis related to COVI-19 poses some difficult challenges for the automotive sector, but also, looking more specifically at the electric vehicles segment, it offers some opportunities. Challenges include delays related to the finali	

zation of the design of some of the national child projects, due for instance to international travel restrictions for the specialists involved in the design and the relative consultations. Broader c hallenges also include depression of demand for cars, at least in the short term, and potential shift in government priorities to focus limited national budget and workforce to more pressing health-cri sis related issues. At this point it is difficult to ma ke assumptions regarding the extent to which thi s will affect government priorities with regards to the allocation of budget and work force. What ca n be said is that there is a clear case to be made f or mobility to as a key pillar for sustainable and cl ean transportation investments in the context of economic recovery plans. Opportunities: Accordi ng to today's knowledge, there seems to be a corr elation between air quality and COVID-19, whereb y COVID-19 incidence and mortality are significan tly higher in areas that have high levels of local ai r pollution. This includes particulate matters (e.g. PM2.5, PM10)1 as well as N2O from both mobile (e.g. trucks and cars) and stationary (e.g. coal po wer stations) emission sources2. Since electric mobility has the potential to significantly contribu te to improved urban air quality, we assume that i t will play an important role in countries' strategie s to respond to the COVID-19 pandemic.

Similarly, a shift to electric mobility will significan tly reduce the dependency of countries to import petroleum petrol fuels. It therefore increases resil ience against restrictions or price spikes resultin g from international crisis. While during COVID-19 vehicles sales have plummeted by half or more, e lectric vehicles sales have been relatively less aff ected. Analysts from Bloomberg New Energy Fina nce have estimated that the electric segment of c ar sales will continue to outperform in terms of gr owth the traditional cars one as we move past th e crisis, even though oil prices at a historic low wi ll create some negative headwinds.
However, orders of buses are likely to suffer delay s if public perception of mass transit as unsafe d oes persist. Furthermore, in terms of green recov ery, clean mobility is expected to play a key role in getting the global economy back on track. Contin ued social distancing measures will have an impa ct on how we use transportation services, and in

	particular public transportation, but certain mode s of public transport are expected to grow, in parti cular in low and middle-income countries. These modes include 2&3 wheeler taxis, or usual taxis a nd ride-hailing providers using passenger cars, to reduce close contact with higher numbers of ride rs. For many of these modes good electric altern atives are available. Based on current trends and signals it is expecte d that after COVID-19 the shift to electric mobility would continue, if not increase. Many city govern ments around the world are looking at opportuniti es to take advantage of the significant reduction i n urban congestion linked to the COVID-19 mobili ty restrictions to introduce permanent limitations to the use of private vehicles, especially if internal combustion engines. Such measures will not only reduce local air pollutants (such as particulates P M2.5 and PM10, but also N2O) and carbon emiss ions but can also increase resilience of transport systems against the current - and any potential fu ture - health crises. The contribution of low-carbo n mobility, including electric mobility, to a more re silient economy will be further integrated in the Pr ogramme and highlighted throughout the training components to be delivered to participating coun tries.	
What happens to the funds/projects if some participants cease to become going concerns (=i.e. bankruptcy)?	The information presented in the project docume ntation (PIFs and PFDs) represents the best avail able information available at the time of the sub mission to Council, following the technical review from the GEFSEC. Some level of change in the pr oject design and in the availability of the amount of co-financing estimated ex-ante is possible and sometimes even desirable, considering the additi onal in depth design analysis conducted during th e project preparation phase, including through the PPG-funded activities, between the submission o f PIFs/PFDs and the submission of the relative C EO ER. Co-financing arrangements and amounts specified in PIFs/PFDs are best-case estimations that GEF Implementing Agencies and National Ex ecuting entities or participating actors provide for the formulation of the project proposals. These up-front estimates are assessed as part of the GEFSEC review process in terms of their relev ance and adequacy vis-à-vis the scope and object ive of the proposed Project/Program activities. O nce the PIF/PFD is approved by Council, as part o f the detailed design process, Agencies and actor	

	f the detailed design process, Agencies and actor s listed as other providers of co-financing amount s are asked to reassess and formally confirm that the co-financing volumes which had been include d in the PIF/PFD have been approved by the com petent authority within each specific organizatio n. This is formalized through the submission of c o-financing confirmation letters. In case a specifi c entity is no longer able to provide the previously stated co-financing amount, either in full or in par t, generally Implementing Agency and GEFSEC w ould work together to assess if the stated co-fina ncing is essential to achieve the project/progra m's objective. If so, GEFSEC and Agency assess if the expected amount of co-financing that is no longer available can be replaced by existing or additional co-finan cing from other actors. In case the co-financing is deemed essential, and there is no possibility to s ource such funds that are considered necessary t o achieve the stated objectives, GEFSEC and Age ncy would consider whether to revise the approve d project/program, and if not possible/advisable t he project/program would not receive CEO Endor sement. Given that the development phase will t ake around 12 months, and that the COVID crisis might trigger some government support to accel erate the further uptake of electric vehicles, as w e have seen in France, for example (see quote bel ow) , we hope that the co-finance might not be su ch an issue in a year from now, when the CEO end orsement documents will be due for submission. In any case, if planned investments and/or co-fin ance becomes an issue, agencies will work with t he project developers to identify other sources of co-finance that can substitute the initial set of co-financiers, while keeping the project scope. If this is not possible, the developers will try to re-adjust the scope to respond to available co-finance that is still aligned with the project objectives. If this f ails as well, then the developers might wish to eit her postpone the project or discuss with the coun try if the project should/can go ahead.	
We raised at the last council our interest in verifying the a bility of GEF and its accredited agencies to conduct indep endent audits of such contributions, including verifying an d assessing the abilities of the involved parties to meet th e co-financing obligations of this project. We recognize th at this process --- along with many other due diligence pro cedures --- could be increasingly impaired by the latest CO	In addition to the explanation provided above on t he dynamics of co-financing, co-financing is repo rted on a yearly basis, based on progresses relate d to the sourcing and use of co-financing amount s. In the case of the e-mobility Programme, the Le ad Implementing Agency is UNEP. For each proje ct implemented by UNEP, the Project Manager ha	

VID-19 crisis. Detailed explanations on how the Secretari at plans to handle these types of issues would be appreci ated (preferably in writing to be posted on the GEF websit e, as it is not clear from the existing material and guidelin es on the website)	s responsibility to seek signed co-finance reports from each co-financier of that given project. Whil e the co-financiers are not audited, their signed (b y the authorized authority in each entity providing co-financing) co-finance reports are available for the mid-term and terminal evaluators, so that the evaluation process can assess if that given GEF p roject reached or not the co-finance amounts whi ch had been estimated up-front.	
We would also like to stress the need for transparency an d balanced involvement of private sector providers in any of these corporate projects (particularly highly cyclical se ctor projects such as the ones included in this work progr am in the steel and automobiles sectors), especially amid the COVID crisis, given that all such industry participants i ndiscriminately face severe business conditions. Projects should be carefully constructed and communicated, so th at they are not deemed to infringe upon rules against sub sidization of particular entities, thereby "reinforcing the m arket power of some targeted companies at the expense of other firms" (as per the rules). For example, "to de-risk i nvestments in ...." in the project description/ objectives i mplies the potential of subsidization, highlighting the need for transparency in their construct and execution, s o that they are visibly in line with GEF rules and regulation s and the Private Sector Engagement Strategy to be adopt ed at this Council session. This type of crystal-clear com munication/ governance insurance measure is essential f or the GEF to credibly raise funding for private sector-driv en projects in a tough financial environment.	We certainly acknowledge the importance of the point being raised here: all projects must be caref ul to run clear, fair and transparent procurement p olicies, which Agencies have in place for GEF proj ects. The recently adopted MINIMUM FIDUCIARY STANDARDS FOR GEF PARTNER AGENCIES Polic y (GA/PL/02, of Dec 19, 2019), which covers both the Agency's internal procurement policies and pr ocurement by recipients of funds, provides that: Specific GEF Partner Agency policies and guidelin es promote economy, efficiency, transparency an d fairness in procurement through written stan dards and procedures that specify procuremen t requirements, accountability, and authority to ta ke procurement actions. As a minimum, these pol icies and guidelines provide for: - Open competition and define the situations in w hich other less competitive methods can be used; and - Wide participation through publication of busine ss opportunities; descriptive bid/ proposal docu ments that disclose the evaluation criteria to be u sed; neutral and broad specifications; non-discri minatory participation and selection principles; a nd sufficient time to submit bids or proposals. UNEP is the GEF agency leading the global e-mob ility programme and will take on this guidance in t he development of the global project and its own child projects and will also pass it along to all oth er Implementing Agencies (UNDP, UNIDO, DBSA a nd EBRD). Of course, the participation of private s ector partners and entities is key for the e-mobilit y programme and UNEP and the other Implement ation Agencies will continue to seek their support and participation in the program. The Program ob jective is to promote a shift towards electric mobi lity and away from Internal Combustion Engines, and as such all projects will be working with priva te sector partners that are actively working in this space. In this context, it may also be useful to ref	

	er to the GEF-7 Programming Directions, para 12 1, as they refer to the Climate Change Focal Are a: 121. To take advantage of the GEF's comparative adva ntage, programming under this objective does no t prioritize direct support for large-scale deploym ent and diffusion of mitigation options with GEF fi nancing only. Rather, GEF-7 resources should be utilized to reduce risks and enhance enabling env ironments in order to facilitate additional investm ents and support by other international financing institutions, the private sector, and/or domestic s ources to replicate and scale up in a timely mann er. The global e-mobility program is responding to the GEF's grant role to support innovation and tec hnology transfer at key early and middle stages o f development, focusing on the demonstration an d early deployment of innovative technologies to deliver sustainable energy solutions that control, reduce, or prevent GHG emissions.	
Germany		
Germany approves the addendum to the global programm e that contributes to the adoption of e-mobility by strengt hening the technical and financial capacities of countries and taking into account different local prerequisites and r equirements. Suggestions for improvements to be made during the draf ting of the final project proposal: The introduction of e-busses to local public transportatio n fleets differs from other e-mobility forms, e.g. from heav y duty long-distance trucks, when it comes to technical as pects, charging infrastructure and the role of public / priv ate investments. Given the unique involvement of public s takeholders in the purchase and operation of e-busses as well as the significant effect e-busses can have in terms o f GHG-emission reductions in urban centres, this subject deserves a great amount of attention. Germany therefore proposes, that the significance of the acceleration of ebu s adoption be reflected in the program structure, by creati ng an additional working group focused on e-busses in pu blic transportation.	Many countries have prioritized the introduction o f electric busses in their country projects. Often a s part of their efforts to introduce mass transit/ b us rapid transit systems. There will be a key inter est in developing tools about the introduction of e -busses in developing country operating environ ments. There are also many lessons learned and examples (good and bad) in all regions that need sharing (for example the Chile and South Africa p ilots). On the other hand, no country projects hav e prioritized electric trucks in their projects. Gene rally, this sector is seen as the last sector to switc h, after busses, 2&3 wheelers and light duty vehic les (with the exception of the smaller delivery tru cks like vans and so). Therefore, our thinking is to focus the HDV working group on busses. With po ssibly (probably) a smaller sub-group focusing on electric trucks. So rather than having a busses su b-group, we want to focus the HDV working group on busses and have a sub-group on trucks.	
Germany welcomes that information exchange and knowl edge management are a substantial part of the program me. We suggest establishing a close working relationship to the new TUMI (Transformative Urban Mobility Initiative) E-Bus mission. The"TUMI E-Bus Mission" follows a similar logic and approach in supporting cities in the uptake of e- busses. As the e-bus implementation in public transport i s largely dependent on an involvement of city level decisi	UNEP already has existing working relations with the Transformative Urban Mobility Initiative. Coor dination with and involvement of the TUMI initiati ve in the global e-mobility programme will be add ed to the project document (especially through th e activities implemented as part of the Regional S upport and Investment Platforms)	

onmakers, the TUMI E-Bus Mission can contribute to the proposed programme by feeding in local perspectives and requirements.		
Canada		
We recommend that there be some consideration to mitigating the environmental impacts of electric vehicles, particularly where facilities for managing batteries don't exist.	Component 1 of the global e-mobility project includes a Global Thematic Working Group on "Electric vehicle charging, grid integration, renewable power supply and battery re-use, recycling and safe disposal". This Working Group's main objective will be to develop and make available knowledge materials that support governments in their ambitions for advancing a sustainable roll out of electric mobility, including policy instruments to ensure the sustainability of the battery supply chain and the end-of-life treatment of batteries. It also aims at the facilitation of discussions between regulators, recyclers and battery / vehicle manufacturers to better understand and enhance battery design to improve recyclability of batteries, especially with regards to economic viability. In addition, Component 4 of the country child projects is usually focused on the long-term environmental sustainability of low-carbon electric mobility, which include outputs/activities to ensure/promote the environmentally sound management of used batteries (i.e. collection, re-use, recycling and disposal).	
-		
United States		
Within Bangladesh, we recommend additionally coordinating with the State Minister for Power, Energy, and Mineral Resources, and the Dhaka North City	Comment taken and shared with UNDP project proponents in charge of the Bangladesh child project. This recommendation will be considered during the proposal development phase of the Bangladesh e-mobility project.	
Within Sri Lanka, there was very minimal reference to the project's stakeholders. We look forward to seeing much more clearly defined information on stakeholders and their engagement in the next stage of proposal development.	Comment taken and shared with UNEP project proponents in charge of the Sri Lanka child project. Engagement of project stakeholders will be further elaborated during the proposal development phase of the Sri Lanka e-mobility project.	
Germany		
Germany welcomes the proposal aiming to support countries to design and implement electric mobility programs as part of an overall shift to sustainable, low carbon transport sector. Germany welcomes the proposal as the first global inter-agency electric mobility programme and appreciates that the project clearly aims at supporting the rapid introduction of electric mobility in GEF recipient countries, herby making a contribution to the low carbon transition i	Almost all of the Country Child Projects are geared towards the introduction of electric 2&3 wheelers (and sometimes e-passenger cars) as well as e-buses into private or government owned public transportation fleets through: 1) Awareness raising, capacity building and institutionalization of e-mobility; 2) Short term barrier removal through demonstration of e-mobility; 3.) Scale-up and replic	

n the transport sector. At the same time, Germany has the following comments that it suggests be addressed in the next phase of finalizing the project proposal: Suggestions for improvements to be made during the draf ting of the final project proposal: Germany welcomes that the project foresees a clear role for the private sector as a supplier for electro mobility technologies. However, given that private sector investments in electric mobility will be key, Germany would welcome the inclusion of activities th at specifically directed at spurring private investments in electric mobility (from the demand side). For instance, so me firms have switched parts of their operations to electri c fleets. These types of opportunities could be considered within the PIF.	ation through development of e-mobility policies, business models and financial mechanisms; and 4.) Support of environmental sustainability throug h battery re-use / end-of-life considerations and i ntegration of renewable power for vehicle chargin g. The Country Child Projects therefore target to s pur e-mobility demand in the project countries. T he Regional Support and Investment Platforms u nder the Global Programme will create market-pla ce events whereby the current as well as potentia l new projects meet with financiers (development banks, venture capital, green funds) and e-mobilit y manufacturers. The idea is to bundle demand f or EVs and EV supply equipment and to raise inte rest from manufacturers in regions of the world, which are not yet in the focus of manufacturers, b ut have a great market potential. The Global Wor king Groups and the Regional Supply and Investm ent Platforms are a means of private sector parti cipation, and invites all major EV and EV supply e quipment manufacturers to participate in events, tasks groups, etc. This also includes bringing tog ether multinational EV and EVSE manufacturers with the vibrant mobility service provider start-up scene in low and middle-income countries. Many Country Child Project also include work streams t o incentivize the local assembly and manufacturi ng of e-vehicles, such as e-motorcycles and e-3w heelers.	
Germany welcomes the comprehensive and overall well-s tructured project design. To further facilitate an overview of the project´s intended activities, Germany welcomes th e inclusion of quantitative indications in the description of component 3 on how many pilot projects, regulatory mea sures etc are planned.	Each country child project includes a project resu lts framework with quantitative indicators and en d-of-project targets to measure the number of pil ot projects, regulatory measures, etc., achieved/d eveloped within the framework of the GEF projec t. However, at the time of submission of the Glob al Child Project, not all Country Child Projects (an d in particular those 10 Country Child Projects su bmitted as part of the second round) have been fi nalized, and thus the exact amount of policies pla nned, business models envisaged and financial mechanisms to be set-up cannot not be provided.	
While the proposal provides a comprehensive overview of highly relevant initiatives and programmes, Germany welc omes including existent initiatives such as the Transform ative Urban Mobility Initiative Annex B.4 – Responses to C ouncil comments 8 and the C40 Cities Finance Facility as well as upcoming initiatives such as TUMIVolt to enable e xchange of experiences as well as potentials for future co llaboration. This is especially relevant considering the pla	UNEP has working relations with both TUMI as w ell as C40 (in particular through the “Zero Emissio n Bus Rapid-deployment Accelerator” (ZEBRA) ini tiative), and coordination with and involvement of both initiatives in the global e-mobility programm e, especially through the activities implemented a s part of the Regional Support and Investment Pl atforms, will be added to the project document.	

nned future expansion of the proposed project to countries like Nigeria and Mexico which are partner countries to above mentioned initiatives.		
Germany welcomes the proposal´s reliance on IEA scenarios to lay out the project approach. To even further increase the proposal´s line of argument, Germany would welcome a very brief explanation on why the proposal focuses on the IEA´s B2DS and not on the 2DS scenario when describing the programme´s focus. This could for example be provided on page 26 in the first paragraph.	Work funded by the GEF working towards Climate Change Mitigation is related to the UNFCCC and the Climate Agreements achieved as part of the Conference of the Parties (COP). The Paris Agreement's central aim is "to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius". The IEA Beyond 2 Degree Scenario (B2DS) reflects this. Language can be added as suggested.	
United States		
Feasibility. The core of this proposal for Armenia deserves further scrutiny. The claim of 5,000 electric vehicles does not fit with other statistics, for example press reports citing the Minister of Nature Protection as saying that 30 electric vehicles were imported into Armenia in 2018. While there may have been a several-fold increase in electric vehicle imports in Armenia since 2016, those imports would have started from extremely low levels. That Armenia would manufacture electric vehicles does not track with the fact there is no real manufacturing industry even for traditional petroleum fuel vehicles at present. Due to the ratcheting duties caused by incremental adoption of the Eurasian Economic Union (EAEU) common external tariff, Armenia will face steadily increasing prices for imports of cars from outside the EAEU, complicating the adoption of such technology. We encourage more background investigation before its basic feasibility can be established.	Regarding the question on Armenia, unfortunately there is a mistake with the short description of the Armenia child project baseline in Table 2 of the PFD. This will be corrected during the Child Project development and a note will be attached to the PFD to that effect. The 5,000 EVs mentioned and the local manufacturing actually belong to Ukraine. The US Council comment is right and Armenia imported about 30 EVs in 2018 (https://energyagency.am/en/page_pdf/tsragri-anvanoum). The project feasibility in Armenia will be further analyzed during development, but the government has prioritized the promotion of electric vehicles as one of the transport measures in their NDC. Armenia recently waived the VAT on EVs to stimulate the EV market (https://energyagency.am/en/category/noroutyounner-ev-mijocaroumner/elektromobilneri-nermoutsoumy-kazatvi-aah). In general, high import duties for vehicles can be an opportunity rather than a barrier for EV import. In case these duties are waived or reduced for EVs (to some extent that is already the case with the VAT exemption for EVs in Armenia), it provides a meaningful monetary incentive for customers to buy electric vehicles. EV market uptake in Norway is largely due to import and registration tax exemptions for EVs, while import of conventional cars is subject to high taxes. Yerevan has instituted an exemption of parking fees for EV's and has deployed some recharging infrastructure. Armenia already has a low emissions factor of about 0.4 tons of CO2/MWh and the introduction of EV's in Armen	

	ia would be able to reduce emissions with such a grid profile, and Armenia has introduced several p olicies to incentivize renewable power generation investments. For example, projects have been im plemented or have been committed to improve e nergy transmission efficiency and reliability, and i nvestment in renewables is taking off. This GEF p roject aims to demonstrate light duty vehicles in a government fleet in Yerevan, and in 2019, 23 ch arging stations will be installed through a GEF-6 f unded Small Grant Programs implemented and le d by UNDP. Promoting electric vehicles together with renewable energy will improve energy efficie ncy and further reduce CO2 emissions, air polluti on and energy dependence in Armenia. This will be in full alignment with the countries' NDC and it s strong commitment to the introduction of clean and sustainable energies.	
Norway – Denmark		
We put great emphasis on cutting GHG emissions throug h electrification of the transport sector. We are of the opin ion that if all take concerted action, it will drive down cost s because of scale production. Every country has to choose their own path. However, an i mportant lesson so far is that one needs to tax emission s. You need carrots and sticks. In line with general GEF pri nciples of an enabling policy framework, one should pay a ttention to relevant tax policies when designing GEF progr ams, including policies for reducing fossil fuel subsidies.	The Child Country Projects all include work on th e development of adequate policy frameworks to support the uptake of e-mobility – including regul atory, fiscal and other local measures. For examp le, some of the country projects include outputs o n fiscal reforms in order to base registration and / or import taxation for vehicles on CO2 emissions or fuel consumption. In some of the countries (i. e. in some of the SIDS), work will be brought forw ard to liberalize the power market and to allow th e supply of power by independent power produce rs, which facilitates the introduction of renewable power generation and breaks the monopoly of su bsidized petroleum fuel powered electricity gener ation.	
Comments from STAP		
The e-mobility program has been developed based on a s et of 17 child projects, as well as synergies with the EC So lutions Plus program. Partnership with the International E nergy Agency gives the proposal a high level of rigor in ter ms of metrics of energy costing and efficiency measurem ent criteria. The proposal is also supported by relevant st udies from applicable development agencies. The public- private partnership aspect of the project is convincing an d likely to deliver the overall desired impact - if well- imple mented. Comment 1: Key barriers to the scaling of e-mobi lity have been recognized in the child projects. However, t here are also some system factors around e-mobility that deserve attention, and which should be highlighted as bar	Reply 1: The project recognizes the issues around provision of raw materials for battery production. Nonetheless, it is not the focus of the project to e nsure availability of these materials and subsequ ent battery supply. It seems to be understood tha t availability of resources such as lithium, cobalt, nickel and copper and their transformation into re serves (classification based on IEA Global Electri c Vehicle Outlook [GEVO] 2019) is not constraine d by the natural resource base but rather by the p ace of investment to un-tap these resources (see IEA GEVO 2019). The project seeks for accelerati on of EV demand, and therefore acceleration of d	

riers to upscaling. The material needs of e-mobility infrast ructure in terms of the availability of battery storage techn ology, and the link between the price of key metal compon ents needs to be specified more clearly. The project has s et up a “batteries working group” to assure a reliable supp ly of batteries through recycling and criticality assessmen ts, but how such a working group would ensure supply is not clearly articulated. The proposal notes a connection w ith the Global Battery Alliance of the World Economic Foru m which will help to avoid redundancies and build a wide private sector alliance. The project proponents should als o monitor the Roland Berger “E-Mobility” Index in terms of key lessons from countries that have achieved high rankin gs in this index. The Australian government has also set u p a new Cooperative Research Centre on Batteries which could be an important resource	emand for batteries. It is believed that such an ac celerated demand will lead to the necessary inve stment in battery production capacity and hence the provision of raw materials. Nonetheless, the p roject will put focus on the development of regula tion and schemes for collection of used EV batter ies for re-use, recycling and safe disposal, mainly through the International Energy Agency (IEA) led Global Thematic Working Group on “Charging infr astructure, grid integration, low-carbon power su pply and batteries”. The project aims at facilitatin g re-use and recycling of used EV batteries throu gh “design for recyclability” of EV batteries to ens ure that a trajectory leading to some sort of circul ar economy can be taken in the future. Developm ent of adequate policies will play a major role in t he stipulation of high recycling rates to ease pres sure on raw material demand and to increase sus tainability of e-mobility as a whole. This also incl udes the development of guidelines and agreeme nts with regards to the social and environmental standards for the sourcing of these materials. Pri vate sector alliances such as the mentioned Glob al Battery Alliance of the World Economic Forum can help with the facilitation of such agreements and will be included in the design of the relevant operational parts of the Global Child Project. Simi larly, literature and indices such as the mentioned Roland Berger “E-Mobility” Index will be included t o the extent possible within the work of the releva nt Working Groups. It needs to be noted that the Basel and Stockholm Convention Regional Centre for the Asia and Pacific Region in China (BCRC-S CRC China, hosted by the School of Environment of Tsinghua University) will be part of the GEF Glo bal E-Mobility Programme. The Basel Convention regulates the international trade of waste, which might play a key role in the area of used EV batter y recycling since large scale battery recycling is li kely to depend on international shipping of used EV batteries and / or battery components.	
Comment 2: Clearly the E-mobility program has positive i nteractions with the Sustainable Cities Impact Program because much of the high-density implementation and climate benefits of e-mobility would be realized in an urba n context. There needs to be good coordination between t he two programs.	Reply 2: For countries that have both an e-mobilit y and a Sustainable Cities project (i.e. India, etc.), close coordination will be undertaken during proj ect implementation to ensure synergies. Whenev er the sustainable cities projects organize event s/workshops on urban mobility, the e-mobility pro ject team / proponents will be invited to participa te.	

Comment 3: A core challenge will be to ensure that the source of electricity for the e-mobility platform is low carbon to maximize the GHG reduction benefit. All calculations for GHG emissions (cars, buses versus trains etc.) need to be evaluated in terms of life-cycle analysis methodologies to ensure full systems-wide GHG benefits and ensure that impacts are internalized.	Reply 3: GHG emission saving potentials for all Country Child Projects are evaluated based on 1.) the current local carbon footprint of grid electricity; and 2.) prospects to reduce the average carbon footprint of grid electricity based on commitments and pledges to mitigate climate change. Many of the low and middle-income countries included in the Global E-Mobility Programme already have power mixes based on high shares of low carbon electricity such as hydro, wind, solar PV and nuclear power. This is true for many of the Country Child Projects in Latin America, Africa, Eastern Europe and West Asia. For Country Child Projects with relatively high grid emission factors such as India, most of the SIDS, Indonesia, South Africa, etc. projects have been designed in a way to ensure that sufficient amount of low carbon power will be integrated in the electricity mix used to power the demonstration vehicles to yield net climate benefits. As a general “rule of thumb” a carbon footprint threshold for grid electricity of around 800 to 900 gCO2/kWh is assumed to mark the line above which additional measures are necessary to reach net reductions of greenhouse gas emissions. Compared to alternative, technology based transport GHG mitigation measures such as the large scale use of biofuels as well as the use of potentially low carbon fuels such as hydrogen and synthetic fuels, it is believed that the direct use of electricity constitutes the most efficient means of decarbonizing transportation, alongside implementation of “avoid” (avoid transport demand) and “shift” measures (shift transport demand to more efficient means of mass transport as well as non-motorized transport). It is therefore necessary to introduce e-mobility now, in order to be prepared for upscaling once mitigation targets in the relatively low-abatement cost power sector have been achieved.	
Comment 4: The program will generate both climate mitigation and air pollution reduction benefits. If possible, the expected health benefits from air pollution reduction (for example, premature death prevention and Disability-Adjusted Life Years - DALYs) should be estimated during project development. This will provide a more detailed information on the environmental and socio-economic benefits from the GEF’s investment.	Reply 4: The air pollution reduction and associated expected health benefits will not be measured/quantified by the projects through GEF funding. However, if the countries wish to undertake these estimates, they will be welcome to do it through co-finance contributions	
Comment 5: There is detailed evidence of multi-stakeholder engagement, particularly for training programs, and oth	Reply 5: E-mobility has the potential to increase energy justice and to support the development of l	

er activities which connect with the OECD s multi-stakeholder engagement processes. It would be helpful to acknowledge that e-mobility has implications for “energy justice ”, because growth of this sector has largely been in high-income markets, especially for electric cars.	ocal value chains. While petroleum-based fuels are imported in most of the Country Child Projects, electricity is generated locally, with the potential to include high shares of locally generated renewable power. Introduction and up-scaling of e-mobility has therefore the potential to increase energy security and to hedge against the price volatility of the global petroleum fuel market. In many of the Country Child Projects, consumer prices of petroleum fuels are regulated by government and price spikes in the global supply chain has immediate effects on countries budgets. Total cost of ownership of electric vehicles, in particular when used in fleets such as public transportation fleets (buses, taxis, 2&3 wheeler taxis) are already lower than for conventional vehicles today in many of the Child Country Projects. The large-scale introduction of EVs in such fleets can therefore lead to better economics of public transport services, which in turn can lead to better service and lower cost of transportation for the end consumer. In addition, the provision of e-mobility applications such as electric 2&3 wheelers in least developed countries can un-tap synergies with rural electrification based on renewable micro and mini-grids (e,g, based on solar PV & electricity storage). Last but not least, the relatively less complex nature of electric vehicles can lead to the creation of green jobs in the local assembly and manufacturing of EVs, notably electric 2&3wheelers.	
Comment 6: STAP recommends that project proponents review the following study: Sovacool, B. K., Kester, J., Noel, L. & de Rubens, G. Z. Energy Injustice and Nordic Electric Mobility: Inequality, Elitism, and Externalities in the Electrification of Vehicle-to-Grid (V2G) Transport. Ecological Economics 157, 205–217 (2019).	Reply 6: We take note of this recommendation. This will be shared with project proponents and the global thematic working groups.	
Comment 7: E-vehicle technology is rapidly evolving: it will be important therefore to keep track of and incorporate innovations in the field. University partners in academia would be recommended in this regard. A few key academic partners are noted such as University of California Davis and Technical University of Dennmark. These institutions and others should be involved in the M&E program.	Reply 7: The GEF Global E-Mobility Programme will be implemented in close collaboration with the European Commission funded Solutions Plus project. The Solutions Plus project, which started implementation in January 2020, and which has a total budget of about 18 million EUR, is targeting e-mobility demonstration projects in 9 low and middle-income cities world-wide, and includes replication activities of these demonstration projects in a number of additional cities and countries. UNEP is responsible for the development of replication projects in 8 cities worldwide. It has been agreed that EC Solution Plus funds will be included in 5	

	GEF Country Child Projects (around 60k to 80k USD per replication project) to procure charging equipment and to provide targeted support to local innovators with the installation and operation of this equipment. Similar to UNEP, DTU is a consortium member of the EC Solution Plus project and is mainly responsible for impact assessment and data collection and analysis of the project. UNEP will make sure that impact assessment and data collection and analysis will be closely coordinated between the GEF E-mobility Programme and the EC Solution Plus project and that all tools and materials as well as project outcomes and lessons learnt will be shared between both projects. In fact, the GEF and the EC Solutions Plus project target the joint and complementary development of tools, training materials, and events. Academic partners may also include the University of California, Davis, which is a long-standing partner in UNEP's Global Fuel Economy Initiative (GFEI) through the Sustainable Transportation Energy Pathways Program directed by Lew Fulton.	
Comment 8: A recent study which may be helpful in considering some of the pitfalls of e-mobility is also referenced below: Onat, N. C., Kucukvar, M., Aboushaqrah, N. N. M. & Jabbar, R. How sustainable is electric mobility? A comprehensive sustainability assessment approach for the case of Qatar. Applied Energy 250, 461–477 (2019).	Reply 8: We take note of this recommendation. This will be shared with project proponents and the global thematic working groups	
2. Stakeholders. Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers? The energy justice aspect of this program should be closely monitored as e-mobility uptake continues to favor higher income households	Please refer to our response to the energy justice comment in the 1st section above (reply 5).	
3. Gender. Have gender differentiated risks and opportunities been identified, and were preliminary response measures described that would address these differences? Gender sensitivity analysis and action plans built into program. The uptake of electric motorcycles disproportionately by men for cultural reasons is noted as a useful example.	All country child projects as well as the global child project include a gender analysis and a gender action plan (in PART II section 3. Gender Equality and Women's Empowerment of the CEO Endorsement Document) to mainstream gender during project implementation	
8. Knowledge Management. What overall approach will be taken, and what knowledge management indicators and metrics will be used? University partnerships could be better leveraged for knowledge management. Clearer role delineation of university and research partners would be a positive development	Please refer to our response in relation to UCD and DTU in the 1st section above (reply 7).	

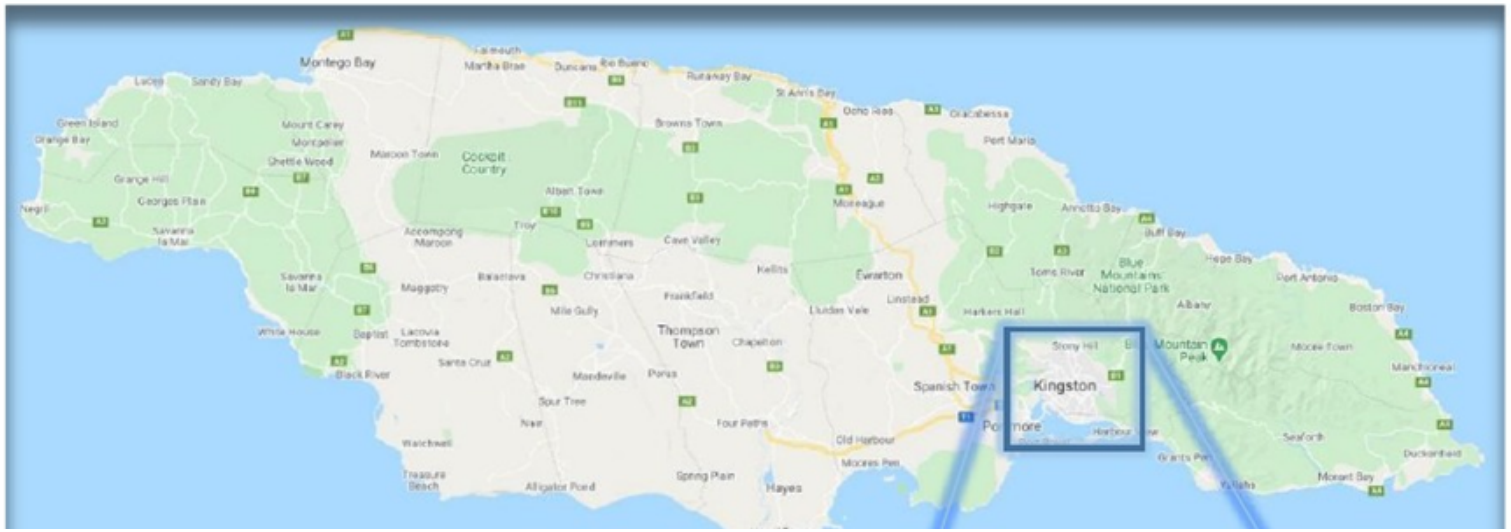
ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

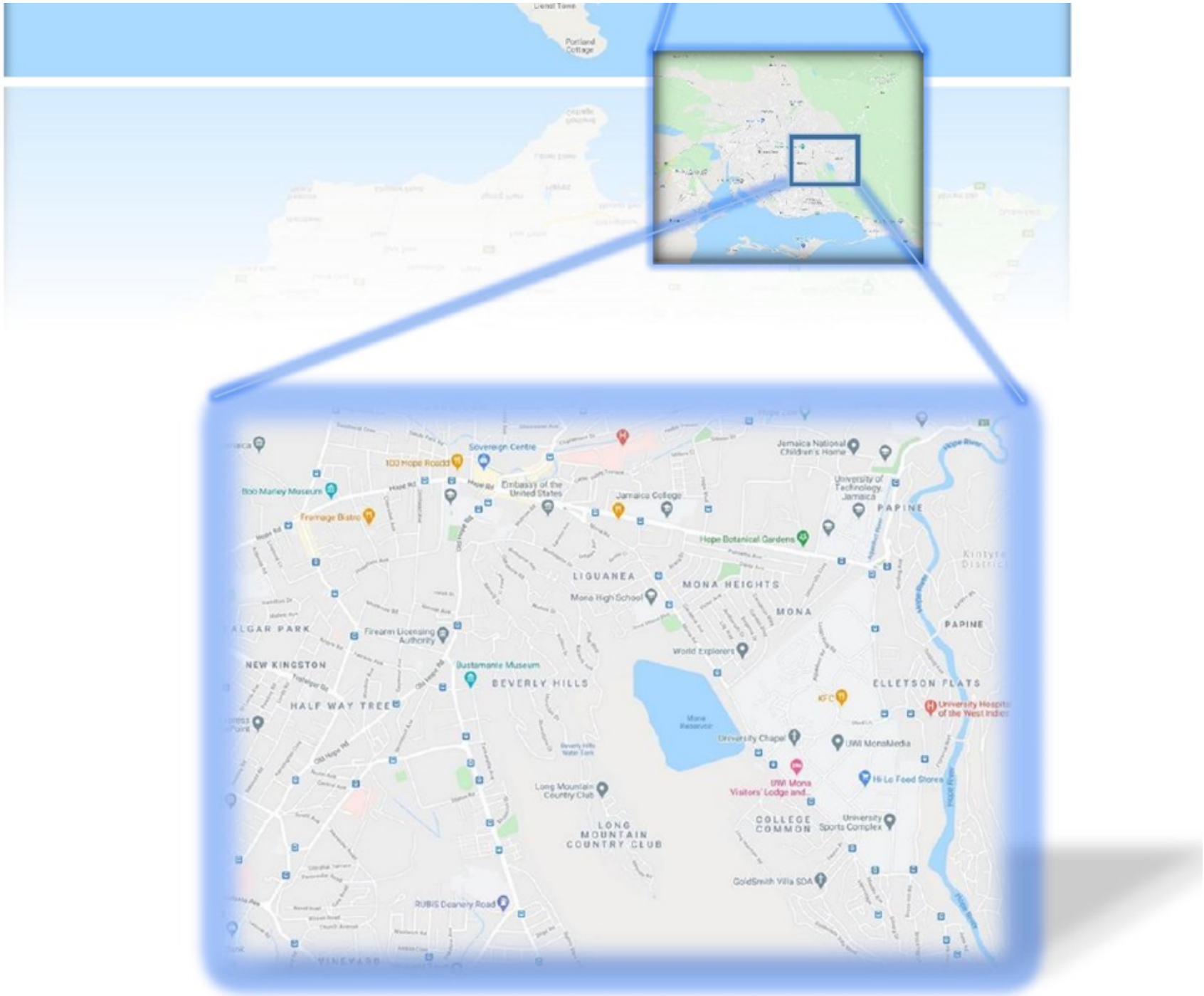
Project Preparation Activities Implemented	*GETF/LDCF/SCCF Amount ($)*		
	Budgeted Amount	*Amount Spent To date*	*Amount Committed*
Project preparation grant to finalize the UNDP-GEF project document for project Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica	50,000	42,178.39	57.55
Total	50,000	42,178.39	57.55

ANNEX D: Project Map(s) and Coordinates

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

For reference, please see the next figure.




Portland Cottage
Sovereign Centre
100 Hope Road
Bob Marley Museum
Embassy of the United States
Jamaica College
Jamaica National Children's Home
University of Technology, Jamaica
PAPINE
Fromage Bistro
Hope Botanical Gardens
LIGUANEA
MONA HEIGHTS
Mona High School
MONA
PAPINE
ALGAR PARK
Firearm Licensing Authority
World Explorers
NEW KINGSTON
Bustamante Museum
BEVERLY HILLS
ELLETSON FLATS
HALF WAY TREE
KFC
University Chapel
UWI MonaMedia
Hi-Lo Food Stores
Long Mountain Country Club
COLLEGE COMMON
University Sports Complex
LONG MOUNTAIN COUNTRY CLUB
GoldSmith Villa SDA
RUBIS Deanery Road
VINEYARD

Jamaica eMobility Project (PIMS6403)– Area of Intervention			
	national territory	indicative impact area	eMobility pilot area
Description	whole of Jamaica	East Kingston and Mona area	UWI Mona Campus and vicinities in cluding UTech campus
Coordinates (UTC)		(17.989 and 18.050; North)	(17.994699 and 18.025299 North)
		(-76.779 and -76.734 West).	(-76.733142 and -76.753484 West)

ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure Category	Detailed Description	Component (USDeq.)							Total (US Deq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency)
		Component 1	*Component 2*	*Component 3*	*Component 4*	*Sub-Total*	*M & E*	*PMC*		

										[1]
Equipment	1k$ - Office furniture for PTC.	1,000				1,000			1,000	HURECC
Equipment	3k$ (1.1.1) - One laptop, printer and digital camera for PTC. 10k$ (1.1.5) - systems for eMobility data clearinghouse.	13,000				13,000			13,000	HURECC
Equipment	1k$ - Office furniture for PEE.		1,000			1,000			1,000	HURECC
Equipment	393k$ (2.1.3) - equipment eMobility pilots for as per technical specifications (vehicles, charging stations, data loggers)		393,000			393,000			393,000	39 HURECC
Equipment	12k$ (2.1.1) - ICT hardware (PC work station and monitor) and specialised software (GIS) for mapping of mobility data and scenario development and analysis. 6k$ (2.1.4) - ICT hardware and software for real-time monitoring of EV under demonstration pilot including data communication costs.		18,000			18,000			18,000	HURECC
Equipment	1k$ - Office furniture for PMU					-		1,000	1,000	HURECC
Equipment	4.5k$ Three (3) laptops, printer and digital camera for PMU.					-		4,500	4,500	HURECC
Contractual services-Individual	127k$ (1.1.1: 85k$ - 1.1.2: 5k$ - 1.1.4: 15k$ - 1.1.5: 22k$) - One policy expert at P3-level for 4-yr period) to assume the role of Project Technical Coordinator (PTC) with responsibilities including: (i) lead consultant to the Executive (HURECC) for policy development; (ii) lead consultant for tax policy and incentives; (iii) engagement with GOJ stakeholders, market actors and CSOs; (iv) drafting of Terms of Reference for consultancies and procurement of services; (v) quality assurance and overall supervision of contracted activities; (vi) engagement with Global Programme (GP) partners for peer review of proposals, analysis of project approaches, and participation in GP events in Jamaica and abroad; and (vii) compilation of proposals and presentations to stakeholders. 31k$ (1.1.3) - One mobility expert at P3-level to assume the role of Project eMobility Expert (PEE) for: (i) development of EV regulatory instruments and technical standards; (ii) lead consultant for initiating Technical Consultative Committee in collaboration with MSET, OUR, MTM, IAT, BSJ, and representatives from civil society and private sector; (iii) drafting of TO	158,000				158,000			158,000	15 HURECC

	in civil society and private sector; (iii) drafting of TO R and supervision of contracted services; and (iv) co mpilation of proposals and presentations to stakeho lders.									
Contractual services-Individual	105k$ (2.1.1: 15k$ - 2.1.2: 20k$ - 2.1.3: 27k$ - 2.1.4: 43k$) - One mobility expert (Project eMobility Exper t - PEE) for: (i) team leader for demonstration pilot d esign and implementation in collaboration with UWI staff and Project Engineer (PE); (ii) drafting of TOR f or contracted services (studies related to feasibility analysis and ESIA); (iii) leading feasibility study proc ess with Pilot Technical Unit and contributing to rep orts; (iv) technical specification of EV equipment an d systems; (v) drafting of TOR and supervision of co ntracted services; (vi) participation in procurement a nd supplier selection process; (vii) supervision of pr oducts, goods and services delivered by subcontract ors; (vii) lead consultant for monitoring of pilot and analysis of operational data; (vii) responsible for ES MP monitoring and screening; (viii) identification of operational issues and initiation of remedial actions; (ix) identification of opportunities for enhancement and/or upscaling of the pilots; and (x) progress repo rting to PSC.		105,000			105,000			10 5,000	HU RE CC
Contractual services-Individual	75k$ (3.1.1: 15k$ - 3.1.2: 10k$ - 3.1.3: 20k$ - 3.1.5: 30k$) - One policy expert (Project Technical Coordin ator - PTC) for: (i) leading the eMobility business dev elopment process and participate in evaluation mee tings with counterparts; (ii) drafting Terms of Refere nce for curriculum development in cooperation with UWI partners; (iii) liaison with sector and other relev ant stakeholders; (iv) mobilisation of inputs and res ources from the Global Programme; and (v) supervis ion of the process and reporting to PSC.			75,00 0		75,000			75,000	HU RE CC
Contractual services-Individual	26k$ (4.1.1: 16k$ - 4.1.2: 7k$ - 4.1.3: 3k$) One mobil ity expert (PEE) to: (i) lead the process, drafting of T OR and supervision of contracted services; (ii) partic ipation in stakeholder meetings; (iii) drafting of final proposals for submission to PSC and IP.				26,000	26,000			26,000	HU RE CC
Contractual services-Individual	36.26k$ - Contractual Services: Project Technical Co ordinator for project management activities, as per t erms of reference. 57.6k$ - Contractual services: Project Finance and Administrative Officer, as per Terms of Reference (3 years, 3/5 part-time) 38.4k$ - Contractual services: Project Procurement Specialist, as per Terms of Reference (3 years, 2/5 p art-time).					-		132,260	132,260	HU RE CC
	20k$ (1.1.3) – One contract with specialised consult ancy firm or institution for design of regulatory instr									

Contractual services-Company	ancy firm or institution for design of regulatory instruments and inputs for technical standard development. 30k$ (1.1.4) - One contract with specialised consultancy firm or institution for design of tax policy proposals and financial incentives. 25k$ (1.1.5) – One contract with the University of the West Indies (UWI) for design, implementation and operation of eMobility clearinghouse.	75,000				75,000			75,000	HURECC
Contractual services-Company	25k$ (2.1.1) - One contract with specialised firm for: (i) technical assistance for mobility scenario analysis; (ii) capacity building on mobility scenario analysis and planning; (iii) training and support services for mobility analysis software. 60k$ (2.1.2) - One contract with specialised firm for development of feasibility study for eMobility demonstration pilot, including: (i) Environmental and Social Impact Assessment and Plan (ESIA/ESMP); (ii) technical design studies; (iii) legal counselling; and (iv) detailed budgeting. 60k$ (2.1.3) - One or more contracts with specialised firms for installation of EV charging stations and auxiliary systems, warranties and after-sales services (as per technical specifications). 50k$ (2.1.4) - One contract with the University of the West Indies (UWI) for (i) day-to-day operation and monitoring of eMobility pilot; and (ii) collection and analysis of operational data.		195,000			195,000			195,000	HURECC
Contractual services-Company	108k$ (3.1.1: 43k$ - 3.1.2: 40k$ - 3.1.3: 25k$) - One contract with national university (UWI) for: (i) support to selected small companies (“start-ups”) for development of high-potential eMobility business propositions; (ii) integration of eMobility concepts into curriculum, courses and student projects; and (iii) preparation and hosting of events and workshops. 38k$ (3.1.4) One contract with specialised training supplier for EV vocational training.			146,000		146,000			146,000	HURECC
International Consultants	8k$ (5.1.1) - One international M&E expert to support the IP during the Project’s inception phase including: (i) detailing Project M&E Plan including indicators and milestones; (ii) update the first annual work plan (AWP) and procurement plan; (iii) provide guidance to IP on roles and responsibilities; (iv) provide continuity for stakeholder engagement; and (v) support IW preparation process. 18k$ (5.1.2) - One international Social and Environmental Safeguards Expert for: (i) periodic supervision of ESMF implementation; (ii) periodic SESP rescreening; and (iii) systematisation of lessons learnt and recommendations for enhancement.					-	49,641		49,641	HURECC

	23.641k$ (5.1.3) - One independent international ex pert to conduct the GEF Terminal Evaluation.									
Local Consultants	12k$ (1.1.5) - One contract with national consultant to collect and consolidate mobility data.	12,000				12,000			12,000	HU RE CC
Local Consultants	90k$ (2.1.2: 15k$ - 2.1.3: 25k$ - 2.1.4; 50k$) - One na tional expert to act as Project Engineer (PE) for: (i) t echnical design of eMobility pilot in close collaborati on with Project Team and UWI; (ii) technical specific ation of EV equipment and systems; (ii) participatio n in procurement and supplier selection process; (iii) supervision of deliveries and installations; (iv) monit oring of pilot and analysis of operational data; (v) fa ct-finding for ESMP monitoring and screening; (vi) id entification of operational issues and initiation of re medial actions; and (vii) identification of opportuniti es for enhancement and/or upscaling of the pilots.		90,000			90,000			90,000	HU RE CC
Local Consultants	42.359k$ (4.1.1) - One or more contracts with nation al consultants to support knowledge development a nd toolkit preparation; 43k$ (4.1.2: 28k$ - 4.1.3: 15k$) One or more contrac ts with national consultant for: (i) review of EV batte ry management systems in use globally; (ii) analysis of EV supply chains in Jamaica; (iii) field research in cluding interviews and meetings with market actors; (iv) drafting of guidelines for local EV battery manag ement and presentation to GOJ; and (v) preparation of proposal for extended supplier responsibility mod el for eMobility batteries and components in Jamaic a.				85,359	85,359			85,359	HU RE CC
Local Consultants	17k$ (5.1.1) - One national expert for knowledge ma nagement and communication strategy design. 14k$ (5.1.2) - One national gender expert for: (i) peri odic supervision of Gender Action Plan implementat ion; and (ii) identification of issues and recommend ations for enhancement.					-	31,000		31,000	HU RE CC
Travel	11k$ - Costs of domestic travel (air tickets, land tra vel, fuel, DSA); 75k$ (1.1.2) - Costs international travel and DSA for participants in events and activities organised under the Global Programme.	86,000				86,000			86,000	HU RE CC
Travel	13k$ - Costs of domestic travel (land travel, fuel, DS A).		13,000			13,000			13,000	HU RE CC
Travel	2k$ - Costs of domestic travel (land travel, fuel, DSA)			2,000		2,000			2,000	HU RE CC
Travel	5k$ - Costs of domestic travel (land travel, fuel, DS				5,000	5,000			5,000	HU RE

Travel	A).				5,000	5,000			5,000	RE CC
Travel	8.602k$ - Mission costs (international travel and DSA) for international consultants. Costs of domestic travel (land travel, fuel, DSA).					-	8,602		8,602	HU RE CC
Travel	2.5k$ - Costs of domestic travel (land travel, fuel, DSA)					-		2,500	2,500	HU RE CC
Other Operating Costs	10k$ - Printing of policy and regulation proposals; AV material for presentation to stakeholders; printing of documents and learning material for use under Global Programme events.	10,000				10,000			10,000	HU RE CC
Other Operating Costs	9k$ - Printing of technical design and studies; printing of communication leaflets; development of AV material (video) of eMobility pilot		9,000			9,000			9,000	HU RE CC
Other Operating Costs	7k$ - Printing of brochures and posters; electronic media for events and promotion.			7,000		7,000			7,000	HU RE CC
Other Operating Costs	8k$ - Printing of manuals, proposals, and guidelines.				8,000	8,000			8,000	HU RE CC
Other Operating Costs	22k$ - Professional services for annual auditing of project financial status, delivered outputs, and financial, asset and human resources management.					-		22,000	22,000	HU RE CC
Grand Total		**355,000**	**824,000**	**230,000**	**124,359**	**1,533,359**	**89,243**	**162,260**	**1,784,862**	

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the

Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).