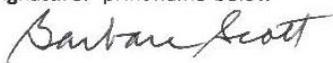
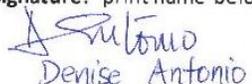




<b>Project title: Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica</b> (Child Project under Global Programme to Support Countries with the Shift to Electric Mobility)		
<b>Country(ies): JAMAICA</b>	<b>Implementing Partner (GEF Executing Entity): Ministry of Economic Growth &amp; Job Creation (MEGJC)</b>	<b>Execution Modality: Full National Implementation (NIM)</b>
<b>Contributing Outcome (UNDAF/CPD, RPD, GPD):</b>  <b>UNDP Strategic Plan 2018-2021 Output:</b> Key signature solution 5 (Close the energy gap); IRRF 2018-2021 Indicators: Tier 1 – Impact Indicator 5 (CO2 emission per unit of value added); Tier 2 – Output Indicator: 2.5.1 (Solutions developed, financed and applied at scale for transformation to clean energy and zero-carbon development).  <b>SDGs:</b> 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  <b>United Nations MSDF 2017-2021 Outcome:</b> 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).  <b>GEF CCM 1-2:</b> Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility.		
<b>UNDP Social and Environmental Screening Category: B (Moderate)</b>	<b>UNDP Gender Marker: 2</b>	
<b>Atlas Award ID: 00124680</b>	<b>Atlas Project/Output ID: 00119439</b>	
<b>UNDP-GEF PIMS ID number: 6403</b>	<b>GEF Project ID number: 10289</b>	
<b>LPAC meeting date: 12 August 2021</b>		
<b>Last possible date to submit to GEF: 13 December 2020</b>		
<b>Latest possible CEO endorsement date: 13 June 2021</b>		
<b>Project duration in months: 48 months</b>		

<b>Planned start date: 13 December 2021</b>	<b>Planned end date: 12 December 2025</b>
<b>Expected date of Mid-Term Review: (N/A)</b>	<b>Expected date of Terminal evaluation: 12 September 2025</b>
<p><b>Brief project description:</b> The Project will enable the demonstration of electric vehicles (EVs) in Jamaica to determine technical and economic feasibility and to collect operational experiences for future upscaling. The Project will address identified barriers for market uptake through the components: (i) design of eMobility policy, technical standards, tax policy and financial incentives; (ii) implementation of electric mobility (eMobility) demonstration pilot; (iii) enhancement of in-country knowledge base, technical skills and awareness; and (iv) preparation of conditions for long-term environmental sustainability including EV battery management.</p> <p>A demonstration pilot at the University of the West Indies (UWI) Mona, Kingston will encompass the deployment of small electric buses, light-duty vehicles (LDVs), electric scooters and bikes, as part of an integrated plan for on-campus and campus-related mobility needs. As part of the Project’s Knowledge Management strategy, collection of baseline data and analysis of operational performance is key for long-term sustainability and understanding mobility needs according to socio-economic strata and gender. The pilot experiences will help Jamaica to validate business models for eMobility.</p> <p>The Project will contribute to a national eMobility ecosystem support, including curriculum development, technical training, and business development contributing to economic growth and green job creation. Under the umbrella of the UNEP/GEF Global Programme, technical assistance and capacity building will be tailored to Government of Jamaica (GOJ) stakeholders. Management approaches for waste EV batteries, including Extended Supplier Responsibility, will be assessed, and proposed for implementation.</p> <p>The Project delivers direct and indirect GHG emission reductions (19.9 kton CO2eq per year) by saving fossil fuels for road transport (176,000 GJ/year). The direct beneficiaries are about 20,000 students at UWI (of which 70% females) and 173,000 in the Kingston Metropolitan Transport Area (KTMR). The Project seeks produce social and economic benefits through the reduction of operational costs, reduced local pollution levels, and improved quality and access to mobility services for lower income commuters in which females are predominant.</p>	
<b>FINANCING PLAN</b>	
GEF Trust Fund grant	USD 1,784,862
<b>(1) Total Budget administered by UNDP</b>	<b>USD 1,784,862</b>
<b>CO-FINANCIERS THAT WILL DELIVER PROJECT RESULTS INCLUDED IN THE PROJECT RESULTS FRAMEWORK (FUNDS NOT ADMINISTERED THROUGH UNDP ACCOUNTS)</b>	
Ministry of Economic Growth and Job Creation(MEGJC)	USD 4,000,000
Ministry of Transport and Mining (MTM) and Jamaica Urban Transport Company (JUTC)	USD 1,164,500
The University of the West Indies Mona (UWI)	USD 1,700,000
ATL Automotive Holdings Ltd	USD 2,000,000
Stewart Auto Sales Ltd	USD 1,810,000
Tropical Battery Co Ltd	USD 500,000

United Nations Development Programme (UNDP)	USD 300,000
<b>(2) Total confirmed co-financing</b>	<b>USD 11,474,500</b>
<b>(3) Grand-Total Project Financing (1)+(2)</b>	<b>USD 13,259,362</b>
<b>SIGNATURES:</b>	
<b>NOTE: IF THE PROJECT DOCUMENT IS IN FRENCH OR SPANISH, THE FINAL PROJECT DOCUMENT MUST BE CLEARED BY THE RTA BEFORE SIGNATURE.</b>	
Signature: print name below  BARBARA SCOTT	Agreed by Government Development Coordination Authority <sup>1</sup>
Signature: print name below 	Agreed by Implementing Partner <sup>2</sup>
Signature: print name below  Denise Antonio	Agreed by UNDP <sup>3</sup>
<b>Key GEF Project Cycle Milestones:</b>	
<b>Project document signature:</b> within 25 days of GEF CEO endorsement <b>First disbursement date:</b> within 40 days of GEF CEO endorsement <b>Inception workshop date:</b> within 60 days of GEF CEO endorsement <b>Operational closure:</b> within 3 months of posting of TE to UNDP ERC <b>Financial closure:</b> within 6 months of operational closure	

<sup>1</sup> Other evidence of government agreement may be accepted in lieu of a signature, unless the programme country government requires a signature.

<sup>2</sup> Not required when UNDP is the implementing partner (i.e. DIM implementation modality). If a UN Agency is the implementing partner, and has signed a SBEEA with UNDP, then the Government Development Coordination Authority, UNDP and UN Agency sign the project document. If an IGO is the implementing partner, and has signed a SBEEA with UNDP, then the Government Development Coordination Authority, UNDP and IGO sign the project document. If a CSO/NGO is the implementing partner, the Government Development Coordination Authority and UNDP sign the project document and attached it to the Project Cooperation Agreement to be signed by the CSO/NGO and UNDP.

<sup>3</sup> For NIM projects this is the Resident Representative. For DIM projects in a single country this is the Resident Representative. For global, regional DIM projects this is BPPS.

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## LIST OF ACRONYMS AND ABBREVIATIONS

APR	Annual Progress Report
AWP	Annual Work Program
CAPEX	Capital Expenditure
CARICOM	Caribbean Community and Common Market
CC(M)	Climate Change (Mitigation)
CDR	Combined Delivery Report
CO	Country Office (UNDP)
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2eq</sub>	Carbon Dioxide Equivalents
CPAP	Country Program Action Plan
DPS	Direct Project Services
DSA	Daily Service Allowance
EE	Energy Efficiency
EOP	End-of-Project
ERC	Evaluation Resource Centre
EU	European Union
EV	Electric Vehicle
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GOJ	Government of Jamaica
HQ	Headquarter (UNDP)
IDB	Inter-American Development Bank
ICE	Internal Combustion Engine
ICT	Information and Communication Technology
IEA	International Energy Agency
IP	Implementing Partner
IPCC	Intergovernmental Panel on Climate Change
IR	Inception Report
ITA	Island Traffic Authority
IW	Inception Workshop
JPSCo	Jamaica Public Service Co
JUTC	Jamaica Urban Transport Company
KMA	Kingston Metropolitan Area
KMTR	Kingston Metropolitan Transport Region
KSAMC	Kingston and St. Andrew Municipal Corporation
kWh	kilowatt (kW)-hours
LOA	Letter of Agreement
LPAC	Local Project Appraisal Committee
MEGJC	Ministry of Economic Growth and Job Creation
MEPS	Minimum Energy Performance Standards
MFPS	Ministry of Finance and Public Service
MRV	Measuring, Reporting and Verification
MSET	Ministry of Science, Energy & Technology
MTM	Ministry of Transport and Mining

MTR	Mid-term Review
MW	Megawatt (1 x 10 <sup>3</sup> kW)
MWh	Megawatt (MW)-hours (1 x 10 <sup>3</sup> kWh)
MYWP	Multi-Year Work Plan
M&E	Monitoring and Evaluation
NDC	Nationally Determined Contributions
NEP	National Energy Policy
NIM	National Implementation Modality
NMVO	Non-Methane Volatile Organic Compound
NPD	National Project Director
NTP	National Transport Policy
OAC	Other Atmospheric Contaminant
OIMT	Office of Information Management and Technology
OFP	Operational Focal Point
OPEX	Operational Expenditure
O&M	Operation & Maintenance
PA	Project Assistant
PAC	Project Appraisal Committee
PE	Project Engineer
PEE	Project Emobility Expert
PIF	Project Identification Form
PIMS	Project Information Management System
PIOJ	Planning Institute of Jamaica
PIR	Project Implementation Review
PM	Project Manager
PMU	Project Management Unit
POPP	Programme and Operations Policies and Procedures
PPG	Project Preparation Grant
PRODOC	Project Document
PSC	Project Steering Committee
PTC	Project Technical Coordinator
PTU	Pilot Technical Unit
PV	Photovoltaic
RE(T)	Renewable Energy (Technology)
RCU	Regional Coordinating Unit
RSIP	Regional Support and Investment Platform
RTA	Regional Technical Advisor
SBAA	Standard Basic Assistance Agreement
SBP	Strategic Business Plan
SDG	Sustainable Development Goals
SESA	Strategic Environmental and Social Assessment
SESP	Social and Environmental Screening Procedure
SFEM	Strategic Framework for Electric Mobility
SRF	Strategic Results Framework
SME	Small and Medium Enterprise
TA	Technical Assistance (GEF)
TE	Terminal Evaluation (GEF)
TNC	Third National Communication
TOR	Terms of Reference

TRAC	Target for Resource Assignment from the Core
T&D	Transmission and Distribution
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention for Climate Change
USD or US\$	United States Dollar
UTech	University of Technology
UWI	University of West Indies
WTW	Well-to-Wheel

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## II. DEVELOPMENT CHALLENGE

### Introduction

1. Globally, the transport sector is responsible for about one-fourth of energy-related CO<sub>2</sub> emissions, expected to grow to one-third by 2050. Moreover, the transport sector is a main contributor to short-lived GHGs, especially black carbon (soot) and other atmospheric contaminants (OACs) including NO<sub>x</sub>, SO<sub>2</sub>, CO, and non-methane volatile organic compounds (NMVOCs). The United Nations Environment Assembly, at its fourth session in March 2019<sup>1</sup>, adopted the first ever UN sustainable mobility resolution that calls on all countries to switch to sustainable mobility, including electric mobility (eMobility).
2. The Intergovernmental Panel on Climate Change (IPCC), in its October 2018 report states that to achieve a target of 1.5 °C, all new units added to the global vehicle stock would need to be electric vehicles (EVs) from 2035 onwards, which would mean that by 2050 conventional vehicles with internal combustion engine (ICE) would be completely phase-out. The International Energy Agency (IEA) has developed several scenarios to assess the impact of electric mobility on the global temperature. The shift to eMobility must be accompanied by a decarbonisation of electricity production. The IEA's *Beyond 2°C Scenario (B2DS)* requires well-to-wheel (WTW) GHG emissions to be reduced by 83% by 2060 as an average for the whole land transport sector.<sup>2</sup>
3. In its *Global EV Outlook 2019*, the IEA sketches the rapid progress made globally on EV technology, policy approaches and business models.<sup>3</sup> Due to changing demographics and economic growth, by 2050 two out of three cars will be found in the current lower- and middle-income countries. As such, the global transformation of eMobility extends to low- and middle-income countries. Especially in lower-income countries, the upfront cost of EVs and the absence of a developed supply chain (“ecosystem”) are significant challenges.

### Energy and transport sector in Jamaica

4. 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 (Figure 1). 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 the predominant fuel for electricity generation (4,098.4 kboe<sup>4</sup>; 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%), see Figure 2. The introduction of natural gas is of recent years in Jamaica.<sup>5</sup> 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%), which would imply that petroleum products would be fully phased out for electricity generation within 20 years from now.<sup>6</sup>
5. Jamaica has refinery capacity for crude oil equivalent to 36% of primary demand, from which fuel oil, transport fuels (gasoline, diesel, jet fuel) and residue products (bitumen, asphalt) are obtained; the larger share of oil derivatives is imported 10,480 kboe per year (50.8% of primary supply) including gasoline (15.4%), diesel oil (10.2%) and fuel oil (24.1%). About one-third (31%) of total fuel oil consumption is imported by the bauxite and alumina industries (5,247.3 kboe per year). Fossil coal (2.1%) is imported for clinker production by the cement industry, while natural gas accounts for 2.5% of total energy use. Total petroleum imports by the refinery

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<sup>1</sup> UNEP/EA.4/Res.3. Source: <https://environmentassembly.unenvironment.org/>

<sup>2</sup> Source: <https://www.iea.org/reports/energy-technology-perspectives-2017>

<sup>3</sup> *Global EV Outlook 2019 – Scaling-up the transition to electric mobility*, IEA International Energy Agency, May 2019.

<sup>4</sup> 1 kboe = 1000 barrels oil equivalent (boe). 1 boe is equivalent to 6.12 GJ (gigajoule) and to 1.70 MWh (megawatthour).

<sup>5</sup> The 194-MW Old Harbour plant in St. Catherine was brought online December 18, 2019, about a year after conversion of the combined-cycle Bogue Power Plant at Montego Bay from automotive diesel (80-MW turbines and 40-MW steam cycle).

Sources: <http://www.jamaicaobserver.com/article/20191225/ARTICLE/191229859/1606> and [http://myjpsco.gccnow.com/about\\_us/pp\\_bogue.php](http://myjpsco.gccnow.com/about_us/pp_bogue.php).

<sup>6</sup> Source: Jamaica Integrated Resource Plan 2018, p.145.

(Petrojam) and marketing companies in 2019 accrued to USD 1,461 million; including the bauxite sector, the total imports are USD 1,618 million.<sup>7</sup>

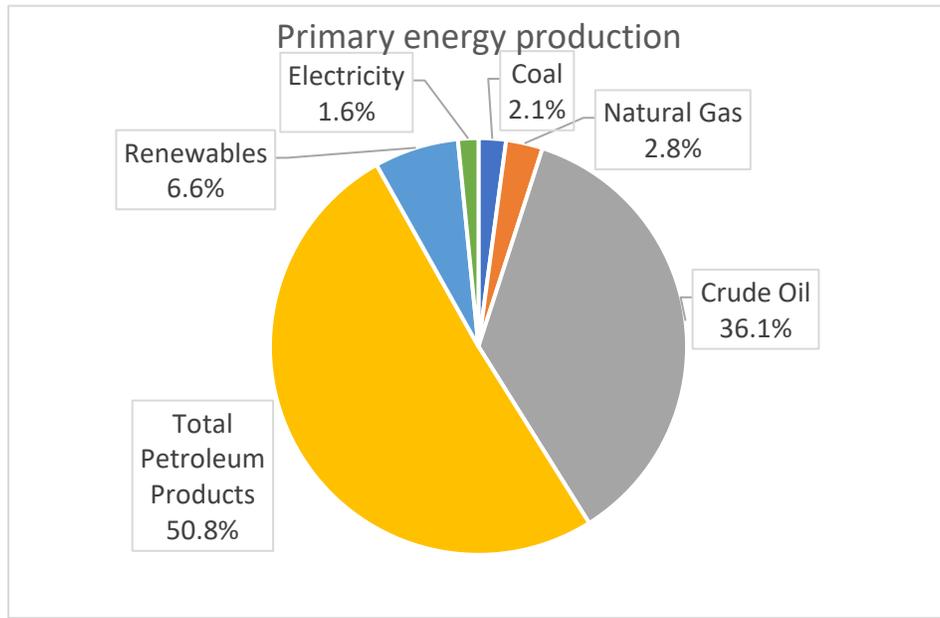


Figure 1 Primary energy production in Jamaica (2018). Total primary energy is 20,639 kboe. Figure based on: Energy balance Jamaica, 2018 (MSET).

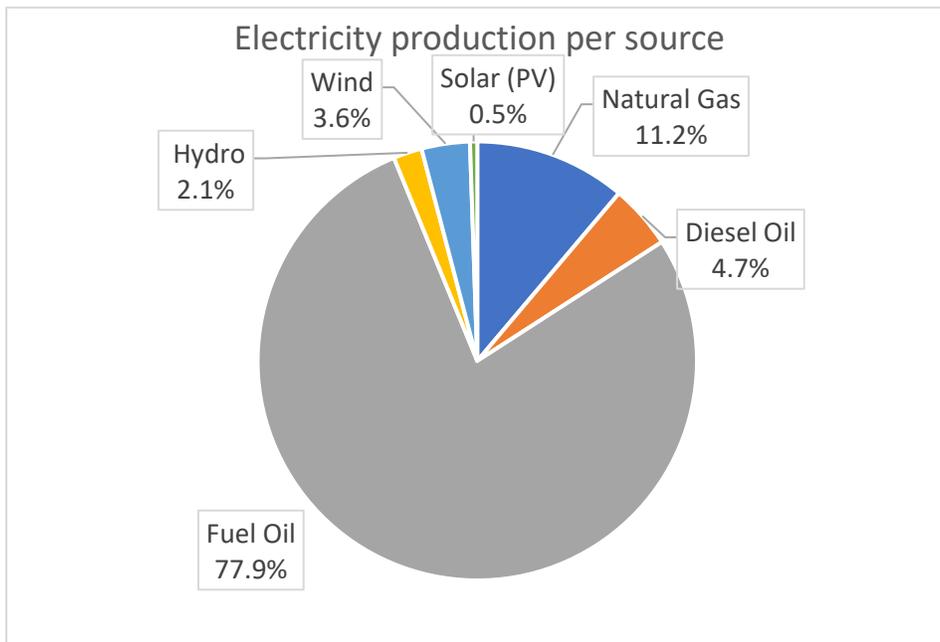


Figure 2 Share of primary energy sources in total electricity production. Total energy inputs for electricity generation are 5,260 kboe. Figure based on: Energy balance Jamaica, 2018 (MSET).

<sup>7</sup> Source: Jamaica Energy Statistics 2019, Ministry of Science, Energy and Technology (MSET).

6. Figure 4 depicts national petroleum consumption for energy generation (energy transformation) and final energy services. Road transport makes up 35.8% and total consumption and electricity generation 24.4%. Bauxite and alumina (30.3%) is another major consumer. The electric energy available for final uses is 2,006 kboe, which is 46.2% of the inputs used by the sector (4,347 kboe) including from RE sources. As such, total electricity supply represents 11.9% of final energy use (16,917 kboe), which is just one-third of conventional road transport fuels.<sup>8</sup>

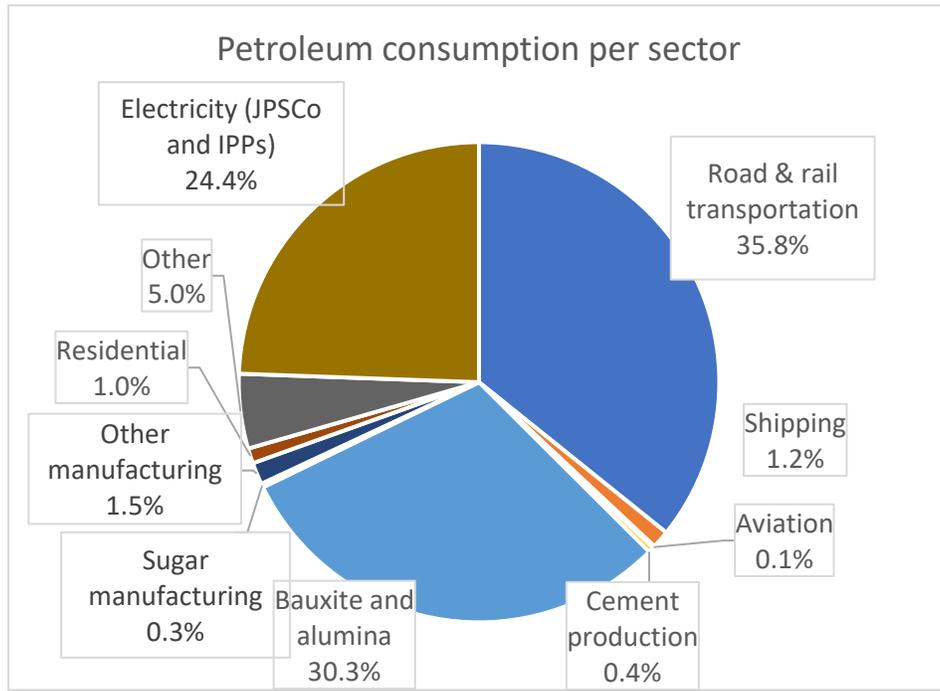


Figure 3 Petroleum consumption for electricity generation and final services, including bauxite. Total consumption is 17,793 kboe. Figure based on: Energy balance Jamaica, 2018 (MSET).

7. Given the presence of aged thermal power plants in the national system electricity generation costs are substantial in Jamaica, ranging from approx. US\$ 0.21 per kWh for large consumers (Rate 70) to US\$ 0.30 for the residential sector (Rate 10). Prices over 2016-2018 increased annually by 10-20% (in US\$) but dropped in 2019. With the increase of natural gas, higher conversion efficiencies and the expansion of RETs, the IRP 2018 points at future avoided generation costs of the order of 9 to 10 US\$ct/kWh (although this may not be fully reflected in the tariffs). Short-term planning aims at increasing the RE capacity from 193 MW (2019) to about 320 MW (wind power and solar PV) by 2025 with 140 MW battery storage being foreseen to absorb short-term power fluctuations.<sup>9</sup>
8. 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.<sup>10</sup> A recent overview of GHG emission levels from the transport sector was published in Jamaica's Third National Communication (TNC, 2019). Total emissions (2012) amounted 1,726,320 ton CO<sub>2</sub>, of which gasoline accounted

<sup>8</sup> Source: Jamaica Energy Balance 2018, Ministry of Science, Energy and Technology (MSET).

<https://www.mset.gov.jm/document-category/statistics-data/>

<sup>9</sup> Source: Integrated Resource Plan Jamaica Electricity Sector 2018. MSET, February 2020, p.145-149.

<sup>10</sup> Source: Jamaica 2030 – National Development Plan, GOJ, 2009, p. 182.

for 74% and diesel 26%. Methane (CH<sub>4</sub>) emissions were 484 ton and N<sub>2</sub>O 171 ton. The transport and electricity sectors combined make up two-thirds (67%) of national GHG emissions as shown in Figure 4.

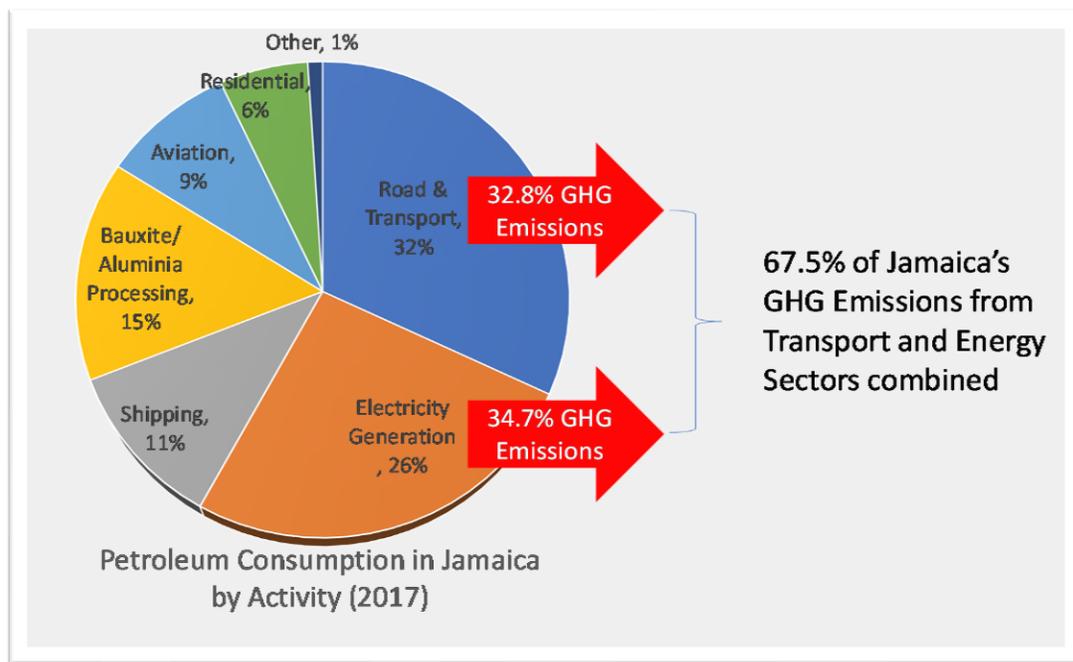


Figure 4. Petroleum consumption per economic sector in Jamaica. Fuel use for transport and electricity generation accounts for 67.5% of Jamaica's GHG emissions. Source: Jamaica Energy Balance 2018, MSET.

### Policy and governance framework

9. Jamaica has developed several policies and regulations that seek to reduce air pollution and emissions. 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".
10. 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. Further, Jamaica has revised the Motor Vehicle Emissions Standards; the Petroleum Quality Control Act (1990)<sup>11</sup>; and the Air Quality Regulations (1996) of the then Natural Resources Conservation Authority (NRCA)<sup>12</sup>. One of the features of the air quality regulation is a licensing system based on air pollutant discharge levels.<sup>13</sup> The Road Traffic Act (2018) establishes the Island Traffic Authority (ITA) as a Statutory Body.<sup>14</sup> The duties of the ITA include several of the functions that are now delegated and executed by

<sup>11</sup> Which provides fuel quality requirements addressing sulphur content and phasing out of Methyl tert-butyl ether (MTBE).

<sup>12</sup> In 2001 NRCA was absorbed by the National Environment and Planning Agency (NEPA), 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>.

<sup>13</sup> Source: Third National Communication (2019), p. 40.

<sup>14</sup> The Island Traffic Authority (ITA) was previously established as the Road Traffic Control Authority, with a defined Board and branches (Traffic Area Authorities) in each parish. The 2018 Act redefines the ITA as a body corporate, to be led by a Director-General of Road Traffic, as detailed in the Seventh Schedule of the Road Traffic Act (2018).

the Tax Administration of Jamaica (TAJ) and the National Works Agency (NWA), among other agencies and institutions.

11. 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.<sup>15</sup>
12. 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).<sup>16</sup> 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 current Strategic Framework seeks the optimal development and full-benefit deployment of eMobility on the Jamaican society, for consideration of the GOJ.
13. 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.
14. In 2015, a new Electricity Act was approved which updated and consolidated legislation concerning generation, transmission, distribution, supply, dispatch and use of electricity, as well as connected matters. It redistributed responsibilities within the electricity sector involving MSET and the Office of Utilities Regulation (OUR), allowing for independent setting of tariffs, among others. It defines the position of the utility Jamaica Public Services Co (JPSCo)<sup>17</sup> and its role as Single Buyer in the market; importantly the Act creates the figures of electricity self-suppliers and Independent Power Producers (IPPs) and their relation to the Single Buyer. Moreover, the Act anticipates on expansion of RE-based generation, driven by MSET, for which specific feed-in tariffs can be set. The 2015 Electricity Act was an important step forward towards diversification and accelerated investment in Jamaica’s power sector. The changes in the energy sector framework however, require ongoing strengthening of sector institutions including human and technical capabilities.
15. Begin 2020, MSET published the updated Integrated Resource Plan for the electricity sector.<sup>18</sup> 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.<sup>19</sup>

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<sup>15</sup> MTM Strategic Business Plan, p5 offers a listing of MTM priorities at outcome level.

<sup>16</sup> Technical Cooperation Number JA-T1172 – Sustainable Transport and Renewable Energy-powered Electric Mobility.

<sup>17</sup> Currently, JPSCo is 80% owned by private investors and 20% by the State. Given high electricity costs in the country, there is a tendency among large businesses to become self-suppliers and disconnect from the grid.

<sup>18</sup> Source: Integrated Resource Plan Jamaica Electricity Sector 2018. MSET, February 2020.

<sup>19</sup> Doubling (100% increase) of electricity production would be needed to replace diesel fuel; gasoline replacement would imply 200% increase of electricity production.

## Transport services

16. The number of vehicles certified to operate on Jamaica's roads was 469,262 in 2018.<sup>20</sup> The vehicle fleet more than doubled between 2014 and 2017 and is dominated by gasoline-powered private vehicles (70%) followed by heavy-duty vehicles (HDVs, 21%) and motorcycles (8%).<sup>21</sup> MTM is responsible for the delivery of public transport and also determines the bus fares. The public bus operator in the Kingston Metropolitan Transport Area (KMTR) is state-owned company JUTC, which responds to MTM.
17. Servicing of the JUTC routes in the KMTR is conducted from the Rockfort, Portmore and Twickenham Park depots with the main hub in Halfway Tree. In 2018, JUTC operated 122 bus routes by an average bus run-out of 371 units with a total seating capacity of 25,600 (2018). It provided access to transport services for over 250,000 people daily, across a network that stretches for 2,747 km. The bus route network includes 43 passenger terminals and 855 bus stops.<sup>22</sup> Between 2010 and 2015, the JUTC fleet consumed approx. 16 million litres of diesel fuel at a cost for the GOJ of US\$10 million annually (approx. 1% of the country's annual oil bill).<sup>23</sup> JUTC's revenue stream is persistently insufficient for recovery of operational costs.
18. Besides JUTC, private companies offer a variety of bus and taxi services.<sup>24</sup> In 2018, approximately 35,680 vehicles, with seating capacity of 260,508 were licensed to provide public transport services. Of the total seats, Contract Carriage, Rural Stage Carriages and Route Taxis contributed the highest number of seats.<sup>25</sup> Informal taxis also exist; in 2018, MTM started a campaign offering non-registered taxi drivers to legalise, resulting in a large increase of public passenger vehicles (PPVs) in the KMTR.
19. 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. (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<sup>26</sup> 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.
20. 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 upgrading 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. In any case, 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.

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<sup>20</sup> Economic & Social Survey Jamaica 2018

<sup>21</sup> Tax Administration of Jamaica, 2018.

<sup>22</sup> Source: Vulnerability Assessment of Jamaica's Transport Sector, 2018

[https://www.climatelinks.org/sites/default/files/asset/document/20180328\\_USAID-ATLAS\\_Vulnerability-Assessment-of-Jamaica-Transport-Sector\\_final.pdf](https://www.climatelinks.org/sites/default/files/asset/document/20180328_USAID-ATLAS_Vulnerability-Assessment-of-Jamaica-Transport-Sector_final.pdf)

<sup>23</sup> Supporting Regulatory Capacity for the Use of Natural Gas and Energy Diversification in the Caribbean Region (RG-T2694)

<sup>24</sup> Public passenger vehicles, including: (1) Route Taxi: may carry passengers paying separate fares along a designated route and can stop to pick up or let off passengers along the route. Route taxis must have 10 seats or less. (2) Contract Carriage: vehicle used for carrying passengers for hire or reward under an expressed or implied contract, for the use of the vehicle as a whole and for an agreed rate or sum. (3) Hackney Carriage: vehicle used for carrying passengers for hire or reward and which stands or plies for hire on thoroughfares or places frequented by the public. The vehicle should carry no more than three passengers who should be traveling together. (4) Stage Carriage: vehicle used for carrying passengers for hire or reward, at separate fares for each passenger, and which travels stage by stage along a designated route, by stopping to pick up or set down passengers at designated stops along the route. The vehicle must have a seating accommodation for no less than eleven (11) passengers.

<sup>25</sup> Economic & Social Survey Jamaica 2018

<sup>26</sup> Either because bus units are economically obsolete, or because they were financed and donated by others.

21. 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).

#### **Mobility situation at the University of the West Indies (UWI)**

22. The University of West Indies (UWI) is located in Mona, Kingston 7. The institution has a presence throughout the Caribbean region, including St. Augustine (Trinidad and Tobago) and Cave Hill (Barbados), as well as open campuses on several islands. The population of students and staff members at Mona is approximately 21,400. In 1997, the University introduced a shuttle bus service exclusively for students, currently linking the Mona Campus to the business centres of Papine and Liguanea from Monday to Saturday. Additionally, students are transported from the Campus to their homes in the nearby communities from 9 pm to 2 am. The current bus system has three fixed routes that provide service on weekdays from 7.30 am to 10.30 pm. As such, the Mona Campus plays a pivotal role defining transport movements in the KMTR.
23. The UWI's Master Plan (2016-2026)<sup>27</sup> envisions a competitive, agile and inclusive academic institution to become globally recognised. The Plan's guiding principles include the development of a sustainability strategy and reduction of its GHG footprint. Challenges exist concerning the age and condition of building stock, land limitations in view of fast growth of the campus population, and key utility services including stormwater collection and drainage, water supply, energy, on-campus mobility and commuter traffic. Recently, the UWI has implemented a 7-MW LNG power plant to supply the campus; the excess heat is used for district cooling based on absorption chiller technology.
24. The transport system at UWI would need an integral upgrade of road quality and rolling stock; moreover in the context of the physical redesign of the campus including new academic buildings, commercial areas and covered parking spaces. In 2019, a special student project investigated mobility needs related to the Mona campus.<sup>28</sup> A survey was administered to the student population to determine bus usage patterns, bus stop preferences, willingness to pay for expanded service, time spent on walking, reliability of the current bus system. It was found that the current bus system is no longer sufficient; it formally runs according to a timetable but in practice the service has become unreliable. Distances at the 264-ha Mona Campus are long and walking times can be 30 minutes and more.
25. A growing share of the student population are commuters from Kingston and St. Andrew, St. Catherine, Clarendon and St. Thomas. The University has a taxi stand at the back gate located towards the end of John Golding Road at the roundabout. The taxi stand is very small and does not have enough space for the drivers to park, thereby blocking the entrance and hindering roundabout traffic. In response, a proposal was made covering 5 new bus routes connecting UWI Mona with the University of Technology (UTech), the hospital and the library. A mobile app was devised for registered students to check in and to track bus location and waiting times in real-time. Also modifications to the taxi stand were designed.
26. The Master Plan envisions increased multimodal access to the campus through bicycle and bike parking bays, thus encouraging the use of other than personal motor vehicles. It also sets forth a campus-wide shuttle system for students, staff and visitors. The student project recommended to assess the feasibility of eMobility to reduce the UWI's greenhouse gas (GHG) footprint.

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<sup>27</sup> See Project Document, Annex 20.

<sup>28</sup> UWI Faculty of Engineering, Special Investigative Project CVNG3015 "The Magical School Bus", by Alison Collins, Danielle Simpson, Alex James, David Hall, Yunkang Liu; advisor Dr. Thomas, May 2019.

## Development challenges and barriers

27. Notwithstanding its global potential and progress made so far, the uptake of eMobility is hampered by a series of challenges and barriers which - to more or lesser extent – are present in most countries worldwide. These extend to: (i) policy framework and institutional capacity; (ii) availability of technology including EVs, charging infrastructure, and deployment thereof; (iii) business models and skills for delivery of eMobility; (iv) access to finance for public and private eMobility users; and (v) access to information for planning, end-of-life strategies for EV components and batteries, and investment decisions. Jamaica, as a Small Island Development State (SIDS) further faces systemic constraints including the modest market size, high migration of skilled workforce.
28. (i) Policy and institutional capacity. eMobility demands a coordination of transport policy (under MTM) and electricity policy and planning (MSET). The switch from diesel and gasoline to electric charging brings along a loss in 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 further 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. However, so far no specific policy and regulation has been adopted for eMobility.
29. 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.
30. (ii) Availability of technology. Electric mobility technology is challenging for Jamaica as EVs and auxiliary systems have to be imported from industrialised countries. The required skill set is not yet in place in the absence of experiences under local conditions, and specific training and research programmes. An integrated eMobility ecosystem shall cover electricity generation and distribution, 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.
31. With a view on public bus transport, operators including JUTC need to develop new approaches for the effective dispatch of rolling stock, as for EVs this 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.<sup>29</sup> Given the systemic approach needed, Jamaica may 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.
32. A systemic barrier 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 operational costs and revenues. This situation can be linked to the status of Jamaica as a lower middle-income country with most people lacking the purchase power to pay for a high-quality service. 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.
33. (iii) Business models and delivery skills. Electric mobility requires 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).<sup>30</sup> Key agents include first response professionals (police, fire fighters, ambulance personnel),

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<sup>29</sup> 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.

<sup>30</sup> Pages 41 ff.

vehicle maintenance and repair technicians. Confidence and safety aspects can be anchored in the value chain through validated training programmes and certification of candidates.

34. Similarly, eMobility deserves research and analysis by universities and private and public sector agents. Notably, eMobility shall be deployed as part of a systemic and comprehensive approach to mobility challenges.<sup>31</sup> To this purpose, the SFEM proposes incentivising R&D&I projects, which may build linkages between disciplines including engineering, social sciences, urban planning, economics, and policy. Electric mobility however can 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.
35. 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 EV. 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.
36. (iv) Access to finance. High upfront costs make EV prohibitive for the majority of private consumers, even though life-cycle costs are usually lower. Downward market penetration would entail mitigating the higher upfront costs which are prohibitive for most individuals in Jamaica. 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).
37. Institutional buyers such as bus operators have more options and 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 rely 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 the EV bus system. 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 possibility to develop an attractive business case for investors and customers.
38. (v) Access to information for planning and investment decisions. 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 several 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 SBP.
39. It is unknown to what extent geo-referenced, socio-economic data is available to authorities and bus companies for planning of bus routes and vehicle specifications in function of local mobility demands. Information limitations would limit 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<sup>32</sup> and the C40 Cities<sup>33</sup> 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.

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<sup>31</sup> 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.

<sup>32</sup> See: <https://www.thegef.org/topics/sustainable-cities>

<sup>33</sup> See: <https://www.c40.org/>

40. 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, possibly supported by (tax) incentives. Presently, there is little know-how about EV products in the market, including new and used car dealers, car finance, lease, and assurance companies, and customer organisations.

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### III. STRATEGY

#### Problem statement and development objective

41. The objective of the Project is defined as follows: "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 in Jamaica to determine the conditions for social, technical, economic and environmental sustainability." Short-term, prioritised challenges include: (a) policy design and regulation of key aspects including technical standards and waste management; (b) strengthening of the "EV ecosystem" by building skills and competences, and by supporting "smart" business development; and (c) increase market confidence and reducing perceived risks. Challenges related to finance and the envisioned, parallel greening of electricity generation, typically require a longer time horizon than available under the Project.

#### Approach and theory of change

42. 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). Four thematic working groups will be established to generate knowledge and policy tools on the following eMobility topics: (i) electric light-duty vehicles (LDVs); (ii) electric heavy-duty vehicles (HDVs: buses and trucks); (iii) electric two- and three-wheelers; and (iv) electric vehicle charging infrastructure, grid integration, renewable power supply and batteries.<sup>34</sup>
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 reduce risk perception and obtain operational data under local conditions; (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 caused by EV batteries and components.
44. The theory of change is to address the root causes of fossil-fuel dependency in the transport sector in the participating countries (including Jamaica) and reduce the associated social, economic, and environmental externalities. This is achieved by promoting a switch from ICE vehicles towards EVs (eMobility) thereby reducing fossil fuel demand by the sector. Specific interventions are targeted to accelerate the processes towards the uptake of eMobility, both at the national scale (Jamaica) and globally (promoting markets, lowering EV costs and contributing to the global base of knowledge and best practices).
45. More specifically, the approach followed by the Jamaica Project is described in the next paragraphs following the framework for EV buses by the World Resources Institute (WRI)<sup>35</sup>. Figure 5 outlines the key steps towards actionable goals and targets (left side, orange) and subsequent large-scale ("commercial") adoption. This

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<sup>34</sup> For the Global Programme's organisational structure and theory of change, see Annex 19.

<sup>35</sup> Source: "How to enable Electric Bus Adoption in Cities Worldwide – a Guiding Report for City Transit Agencies and Bus Operating Entities", by X. Li, C. Gorguinpour, R. Sclar, S. Castellanos, World Resources Institute – Ross Center, Washington DC, USA. ISBN 978-1-56973-959-4.

framework is also applicable to other EV types, the main differences being the choice of policy instruments and targeted market actors.<sup>36</sup>

46. As visualised in Figure 5, the planning phase of EV adoption comprises five steps: (i) to consider the existing policy landscape; (ii) to conduct and initial analysis to understand costs, benefits, stakeholders, and constraints; (iii) to plan and implement a structured pilot project with defined objectives; (iv) to collect local financial and operational data to update the initial cost-benefit analysis (CBA) and assess designs and specifications; (v) to explore financing needs and options; and (vi) to set actionable and time-bound targets for long-term and large-scale adoption.
47. The Project envisions a demonstration pilot composed of individual EVs (such as bikes, e-scooters and cars), shared EVs (buses and vans), and light-duty vehicles (LDVs). The purpose of the pilot is to collect and analyse relevant data, parameters and operational experiences to move towards upscaling, involving the following steps (Figure 5, right section): (vi) formalise and implement a long-term infrastructure plan for EVs; (vii) formalise and implement a procurement plan adjusted to city (or: operator) conditions and financial instruments to mitigate costs and risks; (viii) to provide training to EV operators based on international best practices and local experiences; and (ix) to plan for the end-of-use of the EVs, especially the batteries.

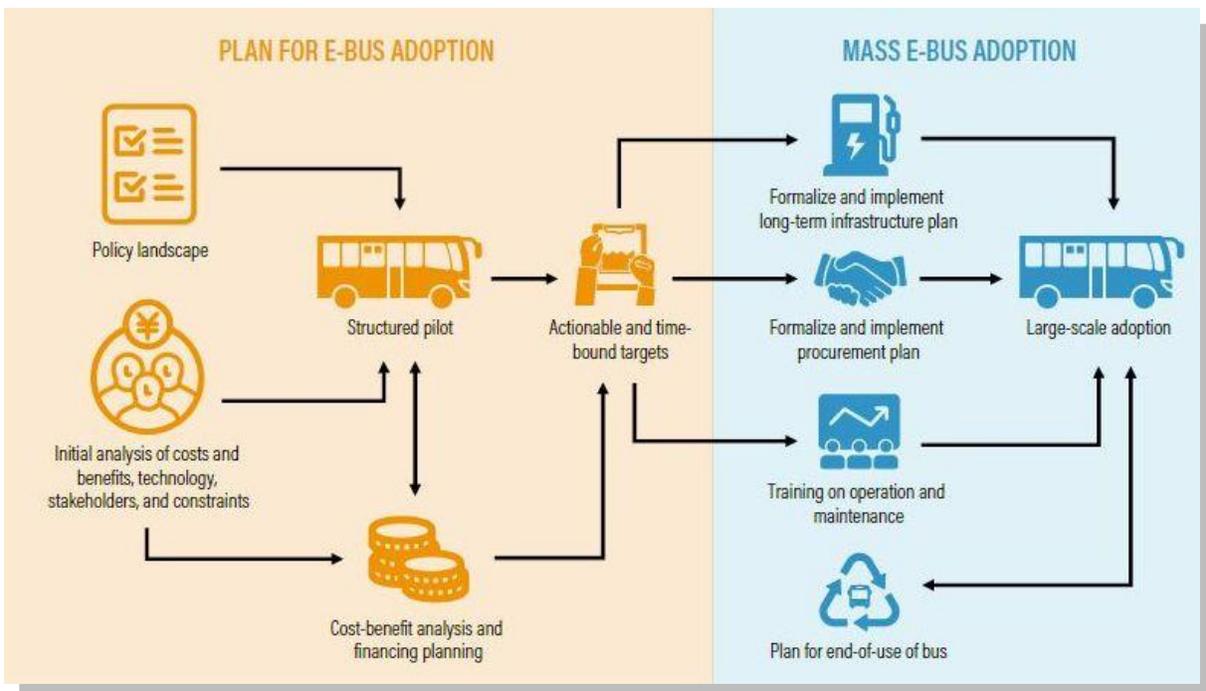


Figure 5 Key steps towards planning and mass adoption of EVs (for the example of EV-buses. The planning steps are depicted at the left (orange section), preparation for large-scale adoption of EVs at the right (blue). From WRI, p.5.

## IV. RESULTS AND PARTNERSHIPS

### Project components

48. The Project “Supporting Sustainable Transportation through the Shift to Electric Mobility in Jamaica (PIMS 6403)” will pursue its objective through the following components:

<sup>36</sup> For EV buses, the focus will be on procurement and financing models to target the small group of bus operators, while for private EVs market incentives and regulation are sought to influence the (much larger) universum of individual customers.

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.
49. The envisaged Project outcomes and outputs are described in the following paragraphs. At the end, Figure 7 provides a schematic presentation of the proposed Project outputs indicating their relation to the identified challenges and their contribution to the immediate objective (theory of change).

***Component 1. Institutionalisation of low-carbon electric mobility.***

**Outcome 1.1 The policy and institutional framework for eMobility in Jamaica has been strengthened (GEF US\$ 355,000; co-finance US\$ 2,450,000).**

50. 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. This outcome responds to a range of short and medium term barriers prioritised during stakeholder consultations. 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. This Project component will assist the GOJ to ensure cross-cutting aspects of eMobility are adequately addressed in sector policies and regulation.
51. 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, which in turn, impact upon operational availability. Conventional bus operators (such as JUTC in Jamaica) are rarely familiar with electrical systems and the impact of battery autonomy on vehicle dispatch strategies.
52. **The risks identified under the Social and Environmental Screening Procedure (SESP) point to potential conflicts with social and environmental safeguards. Related to policy and market introduction of eMobility, specific mention is given to: (1) a human rights approach to ensure inclusiveness and equitable access to the benefits of the Project, both short- and long-term; (2) incorporation of gender-oriented elements in policies and action plans, as to avoid any discriminatory effects; moreover, and (3) avoidance of maladaptation to climate change by increasing electricity demand from EVs without parallel expansion of low-emission electricity generation. While acknowledging that underlying principles and actions are fully integrated in Jamaica's Vision 2030 – National Development Plan, UNDP and the IP will ensure that safeguards are monitored by applying a Strategic Social and Environmental Assessment (SESA) throughout Component 1.**
53. 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 Latin America and Caribbean Regional Support and Investment Platform (RSIP); (ii) GOJ's institutional capacities to promote eMobility have increased; (iii) the electricity sector's planning integrates RE generation and eMobility (iv) technical standards (including ESS) for electric road mobility have been developed and adopted; and (v) updated data on urban mobility have been collected and verified and incorporated in an information clearinghouse.

***Output 1.1.1 Drafting the national policy for eMobility, covering the social, economic, technical and environmental sustainability dimensions (GEF US\$ 95,000; co-finance US\$ 1,150,000).***

54. The purpose of this output is to draft a national eMobility policy and to 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.
55. Social aspects include inclusive coverage of various socio-economic strata, considering that lower-income commuters typically rely on public transport systems with females making up the larger share of this group; accessibility of public transport to users with physical disabilities is also a concern. eMobility presents itself as an opportunity to obtain multiple social benefits by implementing measures to increase service quality and

prevent violence and criminal acts. Another aspect, as of 2020, is increased resilience to systemic challenges, including the COVID-19 pandemic, as well as the effects of climate change.

56. The technical sustainability dimension is particularly relevant for mass transport systems (in Jamaica: public bus transport) as investments are typically long-term. Since technology is evolving rapidly, the lifecycle of investments is also affected. Governments would need to anticipate on technological possibilities that may become reality within 5-10 years from now offering: (a) reduced CAPEX per bus unit; (b) reduced cost per kilometre and passenger (km-pp); (c) increased in range (autonomy) per battery and bus weight; and (d) innovative charging methods, such as wireless. Non-battery technologies such as fuel cell and hydrogen engines may break through.
57. The design of the charging infrastructure for eMobility encompasses technical, economic and environmental dimensions. The load increase from EV charging represents a major challenge for electric grid operators worldwide. Strengthening the capacity of transmission and distribution (T&D) networks is paramount as well as changes “behind the meter”. An increased share of low-emission generation is also essential to reap the full environmental benefits of eMobility. Decentralised RETs can supply low-emission electricity at, or close to, the point of demand, while large-scale RETs assist in reducing the GHG-intensity of the overall electricity sector. The transition of the electricity system requires very substantial investments and takes time to develop.
58. This output will support the policy development process, as for example outlined in the Strategic Framework for Electric Mobility. It will make available expert support through the Project Technical Coordinator (qualified policy expert with outstanding project management skills - PTC) to provide tailored advice, liaise with stakeholders, and shape and implement a national agenda towards integration of eMobility into sectoral policies. The PTC will draw upon UNDP’s comparative advantage to engage at the highest level to foster dialogue and coordination between national agents and the international community. The GEF funds will be used for: (i) hiring of national or international expert to act as Project Technical Coordinator for envisioned 4-year period.<sup>37</sup>

***Output 1.1.2 Regional Support and Investment Platform assistance to policy makers and sector staff to develop eMobility policy and regulation (GEF US\$ 85,000; co-finance US\$ 200,000).***

59. This output covers technical assistance activities foreseen under the GEF Global Programme through the designated Latin America and the Caribbean Regional Support and Investment Platform (RSIP), the Mario Molina Centre in Chile (CMMCh). The RSIP has the following functions: (1) it acts as a community of practice; (2) it offers an eMobility marketplace; (3) it establishes a helpdesk and performs site visits; and (4) it acts as a training centre for eMobility. The RSIP will provide technical and investment support, develop communities of practice, and execute training programmes based on the needs of the country projects. Training will be tailored to the demands and key issues within the regions (i.e. the Caribbean) and may be general or focused on specific technologies.
60. The events will take benefit from the materials developed by the global thematic working groups. The Centre will set up a help-desk facility to provide on-demand support to the GOJ and designated project partners participating in the Project. As an initial estimate, the regional platforms will host two events annually and invite three participants from each child project country. The exchange of knowledge and best practices between peer countries (South-South) is a core element of the Global Programme and will include aspects particularly relevant for SIDS such as Jamaica.
61. GEF resources will be available for: (i) cost of Project Technical Coordinator (PTC) to act as focal person for the RSIP; and (ii) travel expenses for Jamaican individuals (focal persons and other assigned experts) to cover the costs of participation in Global Programme events.

***Output 1.1.3 Drafting of regulatory instruments and technical standards for eMobility systems<sup>38</sup> (GEF US\$ 60,000; co-finance US\$ 400,000).***

62. This output will support the GOJ to pursue a number of regulatory instruments to foster the deployment of eMobility in Jamaica. The Project will push forward the adoption of Technical Standards for eMobility system

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<sup>37</sup> Note: total budget to cover PTC cost is distributed over several project outputs.

<sup>38</sup> With a focus on small electric vehicles (i.e. mini-buses, e-scooters, electric bikes, etc.) and supporting infrastructure.

components. National standards can draw on existing international standards (IEC, IEEE standards) to be adapted to local conditions and requirements. Standards and testing protocols are required for charging installations, components of electric cars, buses for public transport, and smaller EV such as e-scooters and e-bikes. The scope of work may extend to the electricity supply side to prevent overloading of the T&D grid, as well as to vehicle-to-grid systems (electric vehicles with bi-directional charging stations and optional PV panels and batteries). Technical standards shall ensure compatibility with current electric devices and warrant state-of-the-art performance, **compliance with environmental regulation, and safety and public health protection**.

63. An important aspect is certification of compliance with applicable standards by test laboratories accredited by Jamaica. Component suppliers (turn-key) system integrators may be required to present a Quality Assurance certification (such as ISO 9000 series), while certification of personnel skills may be a requisite with a view on corporate liabilities.
64. The current private EV car market targets wealthier customers who can afford high product costs while the supply of cheaper EVs on the market is still small. In fact, second-hand cars make up a large share of car imports in Jamaica and the sector has a demonstrated interest in importing used hybrid cars (such as Toyota Prius) and electric cars (such as Nissan Leaf). The sector has asked for clear guidelines and technical standards to bring these affordable products on the market.
65. New EV types (electric two- and three-wheelers, mini-cars, etc), public charging stations and waiting lanes are new elements of the mobility landscape and may not be defined yet in relevant legislation including traffic regulation, urban planning and public works infrastructure. This void needs to be addressed as unambiguous definitions are the cornerstone for sector regulation, the application of tax schemes, market transactions such as vehicle sales and insurance policies, and the identification of informal or illegal situations, among others.
66. A specific barrier to be addressed is the definition of an EV charging tariff. In 2019, JPSCo presented a proposal to the Office for Utility Regulation (OUR) based on a cost-analysis and a profit margin, while keeping cost-per-kilometre attractive for the EV users.<sup>39</sup> The tariff is for a standard EV car model. A more thorough analysis is still needed to assess demand growth scenarios, include the effect of incentives and taxes on the calculations, and differentiate to other vehicles including (public) passenger buses, and heavy- and light-duty EVs.
67. This output will be led by the Project eMobility Expert (PEE), who will be recruited to develop the technical outputs of the Project and be responsible for the demonstration pilot (Component 2). GEF funds under this output will be used for: (i) costs of the Project eMobility Expert (PEE) to lead and supervise the process and for drafting of technical documents; (ii) contractual services to provide specialised consultancies for assessment and design of regulatory instruments.

***Output 1.1.4 Drafting of proposals for tax policy and financial incentives for eMobility (GEF US\$ 45,000; co-finance US\$ 400,000).***

68. This output will support the GOJ to adopt a framework to: (i) assess the impact of EV on GOJ's fiscal budget once tax revenues from conventional fuel sales will decline; (ii) to evaluate alternatives for EV taxation; and (iii) to assess the need for 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.
69. Since both fuel and electricity prices are high in Jamaica, a strong business case for electricity depends on vehicle type and cost (CAPEX), utilisation rate (km/yr) and the tariff setting for EV charging. Financial incentives can bring a shift to accelerate market introduction assuming that the CAPEX of EVs continues to decline over the next decade. Several countries have promoted EVs by offering subsidies on purchases; however, such subsidies tend to favour the introduction of heavy EV cars which would not be imported otherwise and target the top of the market penetration pyramid. Subsidies for small- and middle-class EV cars in combination with relaxed credit schemes for people who would otherwise purchase a cheaper ICE car, tend to be more effective and inclusive.
70. Another approach is to focus on the OPEX by subsidising the EV charging tariff – this would typically favour customers who use their vehicle intensively, such as transport companies and parcel delivery services (logistical

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<sup>39</sup> Proposed EV charging tariff of about US\$ 0.42 per kWh.

services), as well as some public services (Constabulary Force, Mail Services, medical services). Noting that diesel fuel for bus public operator JUTC is subsidised, a review of current fossil fuel prices should be included in such analysis. Rather than incentivising the EV, experiences in other countries indicate that subsidising the roll-out of a charging infrastructure is more effective as public money addresses two barriers simultaneously: (1) increased territorial coverage improves the utilisation rate of EV charging infrastructure; and (2) investment costs for the investor are directly reduced. Both effects translate into a reduced cost of the kWh delivered.

71. Minimum Energy Performance Standards (MEPS) can offer a holistic approach to incentivise the vehicle market in Jamaica. MEPS are an effective policy measure to curtail the entry of inefficient vehicles on the market and accelerate fleet renewal. MEPS could give continuity to previous work in Jamaica under the UNEP/GEF Global Fuel Efficiency Initiative (GFEI)<sup>40</sup>, and have been under consideration by GOJ but not pushed forward so far.<sup>41</sup> In Mexico, MEPS were introduced in 2013 with technical advice from the Mario Molina Centre.<sup>42</sup> The existence of a robust verification mechanism is a condition for the successful application of MEPS.
72. Importantly, the reduced consumption of fossil fuel by the transport sector would translate into decreasing tax revenues for the State. This aspect of the EV transition is acknowledged already by many Governments. Countries which have reached a relatively high share of EVs are phasing out CAPEX subsidies but so far, no country has created an alternative taxation system. This output will assist GOJ to tap into approaches and experiences worldwide and assess the options for Jamaica.
73. GEF funds under this output will be used for: (i) costs of Project Technical Coordinator (PTC) to lead and supervise the process; and (ii) contractual services to provide specialised consultancies for legal and market assessments to design tax instruments and financial incentives.

***Output 1.1.5 Establishment of an information clearinghouse for eMobility data to support policy design and market development (GEF US\$ 70,000; co-finance US\$ 300,000).***

74. This output pursues the collection, verification and consolidation of mobility-related data for (indicatively) the Kingston Metropolitan Transport Area, and storage thereof in a databank accessible to third parties (a so-called information clearinghouse). This output addresses the need for comprehensive, reliable, and updated information in the sector. One of the causes of the information barrier is the complex institutional framework governing the road transport sector, including overlapping functions and mandates, and constraints in terms of budget, staff, and automated systems.
75. Reliable data is key for effective policy design and monitoring of the impact of policy measures. For the KTMR, there is the challenge to assess mobility demand and supply in relation to geographic coverage and to understand to what extent the various socio-economic strata are served. It is acknowledged that JUTC and its franchisees lose ridership to hackney carriages and informal taxis (the so-called “robots”) but there is no detailed understanding of the choices made by transport users (which may vary according to the purpose of the journey, and is probably gender-related). **The information clearinghouse will establish a gender-segregated data base to characterise mobility patterns and commuter needs, envisioned to start with the UWI populace and corridors serving the Mona Campus, to be expanded in function of possibilities and resources (as per PSC guidance).**
76. Within the scope of the GEF Project, the focus will be on collecting sufficient data to understand mobility demands in specific areas or corridors of the KTMR in terms of volume, quality, frequency, and transport modality.<sup>43</sup> This information will feed into the design of eMobility concepts to ensure effectiveness, technical and economic viability, and social acceptance. It is envisioned to start the clearinghouse with a view on the development of a mobility plan underpinning the demonstration pilot serving the UWI campus (Component 2).

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<sup>40</sup> Implemented in Jamaica by the University of Technology (UTech).

<sup>41</sup> The GFEI set the target of 4.2 lge/100 km for new vehicle fuel economy by 2030. The global average vehicle fuel economy was 7.1 lge/100km averaged by 2013. This value was reached by Jamaica in 2017, indicating that an additional effort is needed.

<sup>42</sup> <https://www.wri.org/our-work/top-outcome/government-mexico-introduces-latin-america%E2%80%99s-first-ever-fuel-efficiency>.

<sup>43</sup> E.g. bus, van, private car, scooter, bicycle, walking.

77. The Project will progressively engage with sector entities, local authorities (the Kingston and St. Andrew's Municipal Corporation - KSAMC)<sup>44</sup> and stakeholder groups (CSOs) to further expand the database. Options for an exit strategy include hand-over to a Government entity, or continued operation by UWI based on cost recovery through a subscriber system, among others.
78. GEF funds will be used for: (i) costs of Project Technical Coordinator (PTC) to lead and supervise the process; (ii) one contract with national consultant to collect and consolidate mobility data; (iii) one contract to a national institution (UWI) for design, implementation and operation of the information clearinghouse; and (iv) costs of ICT systems and database software (servers, back-up devices and internet integration for hosting of the clearinghouse). Cofinance will be provided by UWI (conditioned computer space, ICT infrastructure, ICT specialists, assigned staff and students).

***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 (GEF US\$ 824,000; co-finance US\$ 1,800,000).**

79. 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, KSMAC, and private sector associations.
80. It is stressed here that the components of EV mobility systems are approaching technical maturity worldwide, but the challenge is system integration, which is always client-specific (geographical area, road conditions, climate, usage and deployment patterns, cost and quality criteria). While at PIF a demonstration pilot with EV buses at JUTC was envisioned, the PPG evidenced that this was not realistic under the Project's timeframe. Systemic barriers and technical, managerial and financial challenges in the sector would interfere with the purpose of the GEF demonstration pilot to generate useful and positive experiences with EVs in Jamaica and produce specific operational data and lessons. As a result, the PPG team and GOJ partners proposed to organise the pilot in a more controlled environment (UWI), taking benefit of the available academic resources and the common ground found in MEGJC's objectives and the UWI's Master Plan 2016-2026. The scope and approach of the pilot is still wide enough to produce useful results, including business models, for other stakeholders in the country, including the JUTC.
81. Based on the findings, cost and benefit analysis (CBA) can be carried out with greatly improved accuracy for a range of EVs. The obtained information is relevant for: (a) technical specification of EVs for fleet renewal; (b) justification 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.
82. The use of distributed renewable energy (solar PV and battery storage) can 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.
83. Based on the initial analysis and the data collected through the pilot a more realistic assessment of approaches, technical status and deployment constraints can be made. Subsequently, the cost-benefit analysis can be fine-tuned and TCO parameters determined with increased accuracy, and the technical, operational and financial risks can be better specified and evaluated. 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

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<sup>44</sup> See: [https://www.localgovjamaica.gov.jm/local\\_govt\\_entity/kingston-st-andrew-municipal-corporation-ksamc/](https://www.localgovjamaica.gov.jm/local_govt_entity/kingston-st-andrew-municipal-corporation-ksamc/)

sustainability. The monetisation of GHG emission reductions and other environmental and social benefits may be part of a comprehensive cost-benefit analysis.

84. This component will provide technical assistance for conceptual design; feasibility study following a due diligence process; procurement and installation; design of the EV test programme; and operation under real-life conditions. The pilot will focus on small EVs including buses, light-duty vehicles (LDVs) and two-wheelers. An indicative proposal for the pilot is provided in Annex 11. 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.
85. While implemented at UWI, the results of the pilot are relevant for other mobility stakeholders including public and private bus operators. Each EV mode will be designed having technical, social, environmental and economic sustainability in mind, which implies the development of a conducive business model. To this purpose, the Project will draw on inputs from the Global Programme. Notably, LDVs and cargo bikes are quickly being adopted for urban and last-mile logistics, and the pilot will depart from these experiences. LDVs are also relevant for transport of small groups: experiences to serve the UWI hospital can be used by public and private ambulance services. With a view on suitability (as well as budget constraints and risk mitigation) medium-size buses and shuttles will be deployed at UWI. Yet, this experience still provides a robust framework for demonstrating the deployment of EV buses and develop sustainable business models. Through Components 3 and 5, the Project actively seeks to reach out to JUTC and other transport suppliers to share these experiences.
86. 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; and (iv) social and environmental implications of eMobility deployment assessed and corresponding standards defined.

***Output 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 (GEF US\$ 55,000; co-finance US\$ 300,000).***

87. This output will assist the UWI to: (i) understand mobility patterns in relation to the Mona Campus; (ii) quantify mobility demand and current trends complementing the earlier survey by the UWI in 2019<sup>45</sup>; (iii) develop scenarios to assess the effectiveness of traffic measures and transport services, including eMobility solutions; and (iv) **gain proficiency in the use of mapping and analytical tools to evaluate the technical, economic, social and environmental merits of mobility plans.** Based on the insights obtained, the UWI will prepare an action plan in support of its targets as spelled out in its Master Plan.
88. Notably, UWI shuttle services currently reach Liguanea Plaza to the West. Papine (East of the campus) is only served by the large taxi stand at the Back Gate. According to the UWI survey, most students transport themselves (72%) while the remainder relies on shuttle and bus services. There is an identified need for transportation between the Mona campus, the UWI hospital and other clinics in KMA and other parts of Jamaica, as well as for students with special needs to move across the campus. The current service no longer matches transport needs of the UWI population and the service has become erratic (it has become the “Magical Bus”).
89. Initial studies by UWI highlight the opportunity for greening the transport services but support is needed for conceptualisation and definition of business cases for eMobility. Notably, the UWI’s Office of Student Services and Development (OSSD) owns six (6) buses while private operators offer transport under contract with UWI. It is envisioned that the UWI mobility plan will serve as a template for other areas in the KMTR and demonstrate how state-of-the-art technologies such as EV, charging stations, and effective traffic management measures can be integrated. Therefore, events will be organised for sharing of progress and consultation with key stakeholders.
90. **This output will complement existing information, assist UWI in scoping the boundaries of its mobility plan, and estimate the inputs parameters for quantitative studies and simulations, and social and environmental assessments for developing an inclusive mobility plan.** The development of the mobility plan shall serve as a platform for staff involvement and special investigative projects for students. Simulations can include analysis

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<sup>45</sup> See footnote 28.

of electric infrastructure, deployment of electric vehicles, charging scenarios, impact of traffic management measures, **transport demand scenarios differentiated according to social strata and gender**; as well as evaluation of the impact of technological and cost parameters. **Activities stipulated in the Gender Action Plan (such as non-mixed focal groups) will be incorporated in the process; the draft mobility plan will be reviewed by the Project's Gender Expert (see output 5.1.2).**

91. The GEF resources can be used for: (i) costs of the Project eMobility Expert (PEE) to lead the process and for technical backstopping; (ii) contract with national institution (UWI) to develop mobility action plan; (iii) contract with one national consultant for gender-disaggregated data collection in KMTR corridors serving the UWI; (iii) procurement of software licences for data mapping, mobility planning and scenario analysis including basic training; (iv) procurement of ICT equipment (PC work station and monitor). Guidance from the RSIP is expected for technical specification and methodological support; and (v) local travel costs.

***Output 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 (GEF US\$ 100,000; co-finance US\$ 200,000).***

92. The Project output 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 (e-scooters and e-bikes) in function of CAPEX, OPEX and utilisation rate. To ensure a due diligence process, the feasibility study will include a (scaled) Environmental and Social Impact Assessment (ESIA) and address identified issues through an Environmental and Social Management Plan (ESMP). **Aspects deserving attention are waste management (including batteries), occupational safety and health, gender aspects and criteria during project design, technical specification and operation, and social inclusiveness.**<sup>46</sup>
93. The process will be led by the Project's eMobility expert (PEE). Regular working sessions will be held with designated UWI staff to discuss progress and evaluate emerging alternatives and opportunities. The Project will hire a national consultant (project engineer - PE) to assist UWI in the process and carry out conceptual and technical studies. The UWI staff, PEE and PE together form the Pilot Technical Unit (PTU), with the PE envisagedly based at the UWI. Based on an initial scoping and analysis (a pre-feasibility study), **a specialised firm or institution will be contracted for developing the full feasibility study, including ESIA and budgeting.** Pro bono services for the delivery of Green Energy Solutions have been offered by UNDP's Office of Information Management and Technology (OIMT) in Copenhagen, Denmark, and are available to the Project if requested by the IP.
94. Outsourcing of the feasibility study is envisioned to avoid biases in the appraisal process and to take benefit from the consultant's expertise. Regular meetings will be held to provide feedback and for narrowing down towards the final proposal. The throughput time of this output is estimated at 9-12 months, during which the project Team will brief the PSC. The final feasibility study report will be presented by the Consultant to the PSC to clarify any issues and questions, and shall be considered as an important milestone for the GEF report.
95. The base case of the eMobility pilot would be the replacement of some of the buses and shuttles by EVs. Additions include: (1) the integration of PV-panels, possibly with battery storage, into the EV charging infrastructure; (2) the deployment of light-duty EVs for the internal mail service; (3) rental e-scooters and e-bikes for the campus population; and (4) addition of some electric cars for specific uses such transport between the UWI campus and the hospitals, or for students with special needs. The importance of decentralised RETs for EV charging was emphasised by MSET, urging the Project to demonstrate this concept.<sup>47</sup> Tentatively, the Project will showcase a 10-kW PV system for charging of two/three wheelers and light cars campus transport. An opportunity for upscaling exists at UWI combining the planned new parking building roof with PV energy production and EV charging lots.
96. The GEF funds will be used to cover: (i) cost of eMobility Expert to lead and supervise the feasibility study and for technical backstopping to UWI; (ii) cost of Project Engineer (national consultant); (iii) **contractual services with specialised firm or institution for implementing feasibility study and ESIA for UWI eMobility pilot.**

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<sup>46</sup> For further details, please refer to the Project's ESMF, Annex 8.

<sup>47</sup> Project Document review by MSET, October 2020.

**Output 2.1.3 Specification and procurement of eMobility vehicles, charging stations and supportive systems in collaboration with project partners (GEF US\$ 509,000; co-finance US\$ 1,000,000).**

97. This project output will procure equipment and associated services for the implementation and operation of the EV demonstration pilot. GEF funds are available to cover incremental costs and ensure that the objectives of the pilot will be met. Under supervision of the PEE and the PE, the PTU will detail the technical specifications and produce documents for tendering the EV systems. Procurement will be done by the UWI following a competitive and transparent bidding and selection process. Supplier contracts shall include clauses for performance monitoring, servicing and training of UWI drivers and maintenance staff. The preparation of the RFP requirements and the subsequent review and assessment of the proposals received will include a third-party expert to verify that the subsidy does not exceed the incremental costs of the EVs compared to conventional vehicles of similar performance. Indicatively, the deployed EVs are as in Table 1.
98. **The functional and technical specifications used in procurement documents will be screened on gender aspects prior to approval.**
99. GEF co-investment will prove valuable for procuring add-ons to the basic set-up, notably: (i) data acquisition systems for battery performance monitoring; (ii) data acquisition systems for monitoring of EV operational parameters; (iii) systems for vehicle tracking and data collection on bus routes. Approaches to data collection will be assessed during pilot design and specified and budgeted accordingly. In addition, GEF funding is available for rehabilitation of bus stops to improve customer experience and security; and for subscription systems based on smart billing and rental schemes.

DEMONSTRATION PILOT – DEPLOYED ELECTRIC VEHICLES (INDICATIVE)						
TYPE	NUMBER	DISTANCE	TOTAL DISTANCE	TOTAL ENERGY SAVINGS	UNIT CAPEX	TOTAL CAPEX
		(km/yr)	(km/yr)	(GJ)	(USD)	(USD)
Medium-size bus	2	25,000	50,000	684	115,000	230,000
LDV (gasoline)	4	20,000	80,000	291	35,000	140,000
motorcycle	10	10,000	100,000	358	3,000	30,000
Totals	16	-	230,000	1,132	-	400,000

*Table 1 Deployment of EVs under demonstration pilot (tentative). For more details see Annex 11.*

100. GEF funds will be used for: (i) cost of eMobility Expert (PEE) to lead and supervise the process, draft technical specifications, participate in selection process, reception of equipment, supervision of installation activities, **purview of safeguard policies and procedures**; (ii) cost of Project Engineer (PE, national consultant) for technical reviews, engagement with suppliers, daily supervision of field work, reporting and quality assurance; (iii) one or more contracts with suppliers for procurement of EV equipment following the incremental cost principle; and (iv) contractual services for system installation.

**Output 2.1.4 Supervision of eMobility pilot operations including data collection and analysis for technical and operational optimisation (GEF US\$ 160,000; co-finance US\$ 300,000).**

101. The EV buses will be operated under UWI’s mandate, liability and insurances. UWI shall make available the drivers and be responsible for route planning and dispatch of the EVs within the framework of the pilot. The Project team will provide overall guidance to the partners to ensure that the demonstration pilot will meet its objectives and envisioned information is obtained. The PTU can propose modifications and enhancements to the test programme if deemed appropriate, to be submitted for approval to the PSC.
102. Data collection and analysis is a key element of the pilot which involves communication costs (mobile data connection for multiple EV units), maintenance and periodic testing of data acquisition systems, and periodic analysis and reporting of the collected information. Other aspects include the detection of anomalies, both internal (related to the EV units) and external (particular situations and accidents) to the pilot, complementary to routine UWI supervision and reporting. To the extent possible, the demonstration pilot shall run under controlled conditions at any moment. **Data collection extends to the characterisation of mobility patterns and customer experiences, disaggregated per gender and socio-economic strata. Analysis thereof may confirm**

**the validity of the assumptions underpinning the mobility plan and of the specifications used for the EV systems deployed.**

103. GEF resources are available for: (i) cost of eMobility Expert (PEE) to lead and supervise the demonstration pilot including trouble shooting, enforcement of safeguards, identification of opportunities for enhancement, and reporting.; (ii) cost of Project Engineer (PE, national consultant) for execution of EV bus pilot including data collection and data processing, and day-to-day monitoring; (iii) one or more contracts with specialised firms or institutions for analysis of test results and recommendations for enhancement; (iv) costs of data communication services.

### ***Component 3. Preparing for scale-up and replication of low-carbon electric mobility.***

**Outcome 3.1 Jamaica's knowledge base, technical skills, and investors' awareness have been enhanced for accelerating the uptake of eMobility systems (GEF US\$ 230,000; co-finance US\$ 5,549,500).**

104. 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. 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. 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.

105. Outreach to the GOJ, private sector and society is foreseen through the organisation of thematic workshops, professional training 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. As momentum in the market will progressively build up, early-market investment by private and public entities is expected to occur in the second half of the Project (2024-2025). Cofinance to this purpose has been secured.

106. 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.

***Output 3.1.1 Fostering of business spin-offs related to eMobility following the Campus business incubator concept<sup>48</sup> (GEF US\$ 60,000; co-finance US\$ 205,000).***

107. This output aims to foster innovative business opportunities related to eMobility. Worldwide, the transition to EVs is seen as an enabler for the deployment of smart mobility solutions including shared EV car and e-bike schemes, on-demand transport, public transport card systems, and personalised information and advertisement services. For electric mobility, one can add smart charging billing systems; integration with decentralised RE generation (PV) and battery storage; Vehicle-to-Grid (V2G) technologies; vehicle tracking; optimisation of deployment strategies; artificial intelligence to optimise battery and vehicle performance. Attractive on-campus opportunities may include: integration of bus time tables with student agenda's, service interruptions, alert services, and more.

108. The eMobility sector presents an opportunity for Jamaica and other Caribbean countries to develop new businesses in the field of business-to-business (B2B) and business-to-customer (B2C) services, including sectors such as ICT and light industries. These businesses are driven by technical know-how and entrepreneurship, hence high-quality human resources. The business scale and generally lean infrastructure requirements can make such endeavours feasible in Jamaica to serve the national and regional markets.

109. The Project will support small enterprises (including start-ups) to further develop high-potential business opportunities. It will follow the business incubator approach by engaging with the UWI's Mona Entrepreneurial and Commercialisation Centre (MECC), through the Office of the Principal. Tentatively, a funding window will

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<sup>48</sup> 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.

be established under which applicants can submit proposals for financial support, which will be evaluated and ranked according to predefined criteria (**including gender balance**). It is the intention to mainstream the funding window with UWI/MECC's internal procedures, with the GEF Project participating in defining the specific objectives and taking seat in the selection process.

110. Under guidance of the MECC, the Project will seek partnerships with the private sector (notably JUTC, JPS and telecom providers), government programmes for R&D&I and business development, and collaboration with regional institutions such as the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE). The RSIP is expected to provide entry points for partnerships and regional collaboration through its marketplace and community of practice functions.
111. GEF funds will be used for: (i) costs of Project Technical Coordinator (PTC) to initiate the process and participate in evaluation meetings with counterparts; (ii) contract with national institution (UWI) according to defined scope of work.

***Output 3.1.2 Integration of eMobility concepts and technologies into academic courses and projects, taking benefit from partnerships under the Global Program (GEF US\$ 52,000; co-finance US\$ 150,000).***

112. This output encompasses support to UWI to integrate aspects of eMobility into its academic curriculum, research programme and student projects. Project support will range from technological aspects such as principles and design of EV vehicles and components, systemic analysis of mobility systems and their integration into urban planning, challenges for the energy infrastructure related to EV, to policy design, public acceptance and behavioural change.
113. Identified relevant faculties at UWI include the Faculty of Engineering, Faculty of Science & Technology; and Faculty of Social Sciences. Existing engineering studies which might integrate eMobility aspects include Highway Engineering, Transportation Engineering, Electrical Machines I and II, and Renewable Energy Systems. The Faculty also has Special Investigative Projects and Undergraduate Research activities which can be linked to specific technological topics, such as battery and e-controller tests and design; battery management strategies; data logging and remote monitoring, and GPS positioning of vehicles.
114. The Project will make available resources such as teaching methods, manuals, and laboratory software and offer expert services following the train-the-trainer approach. The Project will encourage a partnership between UWI and the RSIP under which academic staff can be trained on specific subjects (**including gender-oriented concepts and experiences in mobility**). The UWI Mona campus in Jamaica can further draw on work on eMobility being done by its campuses in St. Augustine, Trinidad and Tobago, and Cave Hill, Barbados.<sup>49</sup> Curriculum proposals are to be submitted to the Board of Undergraduate Studies (BUS) for approval.
115. Notably, students in the Faculties of Engineering, Social Sciences and Science & Technology are eligible for internships with external entities. The UWI has a number of partnerships (MOUs) including with the private sector. The Faculty of Engineering further hosts student chapters of professional organisations including the IEEE and the Jamaica Institution of Engineers, which may facilitate learning and interaction on topics related to eMobility. Based on a preliminary assessment, likely 5 students would participate in undergraduate research related to eMobility. It is estimated that 20-30 students could be interested in coursework and research (capstone or thesis projects), notably from the departments Electric Power Engineering, Electronics Engineering, and Physics.
116. GEF funds under this output will be used for: (i) costs of Project Technical Coordinator (PTC) to initiate and support the process; (ii) contractual services to the UWI to execute a specified set of activities.

***Output 3.1.3 Implementation of on-campus events and workshops targeting academia, government, private sector companies, investors and end-users (GEF US\$ 50,000; co-finance US\$ 220,000).***

117. The majority of the public has little awareness of the potential and benefits of EVs. Some car dealers offer EVs for customers with high purchase capacity, but the bulk of the car market is for cheaper – and often second-hand, ICE cars. There is strong interest from the group of used car dealers to import (used) hybrid and full-

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<sup>49</sup> For Trinidad and Tobago, see: <https://sta.uwi.edu/news/releases/release.asp?id=22026>;  
for Barbados: <https://c-serms.org/events/electric-mobility-workshop/>

electric cars. However, the sector is awaiting clear regulation and commercial banks and financiers have not entered the market yet.<sup>50</sup>

118. This output will connect stakeholders from the growing EV market to support the evolution of a national “EV ecosystem”. The context of the UWI campus is deemed highly suitable to organise market and thematic events, including expert workshops on technology, policy, and social and gender aspects. It is also appropriate for hosting high-profile events with participation of national and regional government staff. It provides a platform for the Project to present its achievements and discuss remaining challenges. It is foreseen to engage with national and regional networks including the CARICOM EV Working Group<sup>51</sup>, the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), private sector associations, and donor-funded programmes (such as funded by GIZ and IDB).
119. It is envisioned to organise one (1) larger annual event (3 in total), such as a 1-day conference or business fair; as well as one or two smaller (1-2) thematic meetings per year. The events will be organised by the UWI with support from Project staff and may be combined with activities scheduled under the Global Program. The events are an integral part of the Project’s Knowledge Management strategy (see Component 5).
120. GEF funds will be used for: (i) costs of Project Technical Coordinator (PTC) for liaison with stakeholders and to supervise the process; (ii) contractual services to the UWI for preparation and hosting of events and workshops; and (iii) printing of promotional material, electronic media, etc. Cofinance resources cover the use of UWI premises, and office facilities and business support facilities.

***Output 3.1.4 Professional training of drivers, mechanics and first responders on use, maintenance, repair and safety of EVs and ancillary systems (GEF US\$ 38,000; co-finance US\$ 200,000).***

121. The GEF Project will contribute to building a supportive ecosystem for eMobility in Jamaica. Technicians, mechanics and first responders (such as fire brigades) need knowledge and hands-on training for maintenance and repair of electric vehicles and charging infrastructure. Occupational health and safety hazards are a concern as the sector is not used to work with high-voltage systems and batteries, and specific knowhow and handling procedures are not in place. So far, only car agencies in the luxury segment have access to specialised training as a requisite to be authorised to sell EVs in Jamaica.<sup>52</sup> This is a too small basis for large-scale market uptake.
122. Prospective EV bus drivers must be trained to become familiar with the characteristics of EV buses and to maximise their technical and economic potential including energy savings. Training is also acknowledged to be important to foster acceptance of the technology among drivers.
123. This component will deliver professional and vocational training 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 including taxi associations, public and private vehicle users such as parcel delivery services, postal services, and more. Funding for training is available through parallel projects (e.g. IDB and Canadian Embassy) but is not always confirmed and/or limited to training of trainers. GEF funds will be used on an as-needed base to supplement parallel funding.
124. GEF funds will be used for: (i) one or more contracts with specialised training experts or firms for implementing specified training activities

***Output 3.1.5 Early-market investment by public and private stakeholders to test EV business concepts under commercial conditions (GEF US\$ 30,000; co-finance US\$ 4,774,500).***

125. 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. However, regulatory barriers, high costs and the lack of an

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<sup>50</sup> Among other aspects, maximum age allowed for imported EVs and certificate of fitness for each imported vehicle. Current rules for car imports can be retrieved from: <https://www.tradeboard.gov.jm>.

<sup>51</sup> See: <http://www.sustainablesids.org/wp-content/uploads/2018/12/UTT-e-Mobility-in-CARICOM-IRENA-COE-Conf-2018.pdf>

<sup>52</sup> Note that upto 2020, EVs imported in Jamaica were full hybrids and plug-in hybrids. In 2021, the first authorised sales of EVs are expected. Given high retail prices and tax regime (30% + VAT), sales are limited to the luxury brands, but agencies look forward to the appearance of more accessible models for the market, and a more favourable tax regime.

ecosystem are impeding market uptake. The GEF Project, among parallel initiatives, will contribute to de-risking of the technology and to demonstrate business models and financing schemes for a variety of EV modes and charging models. Substantial co-financing has been secured by the Project corroborating market interest. The GOJ, through MTM has reiterated its commitment to introduce EV buses with JUTC under the Project's time horizon (see attached cofinancing letter), as announced during 2020. Once a series of policy and technology barriers are addressed, investors can move towards early-market investment (scale-up) as outlined in the graph below. The Project assumes that private and public sector investment will start after 2023 but notable market impact will occur post-project (after 2025).

## EV market transition in low and middle income countries

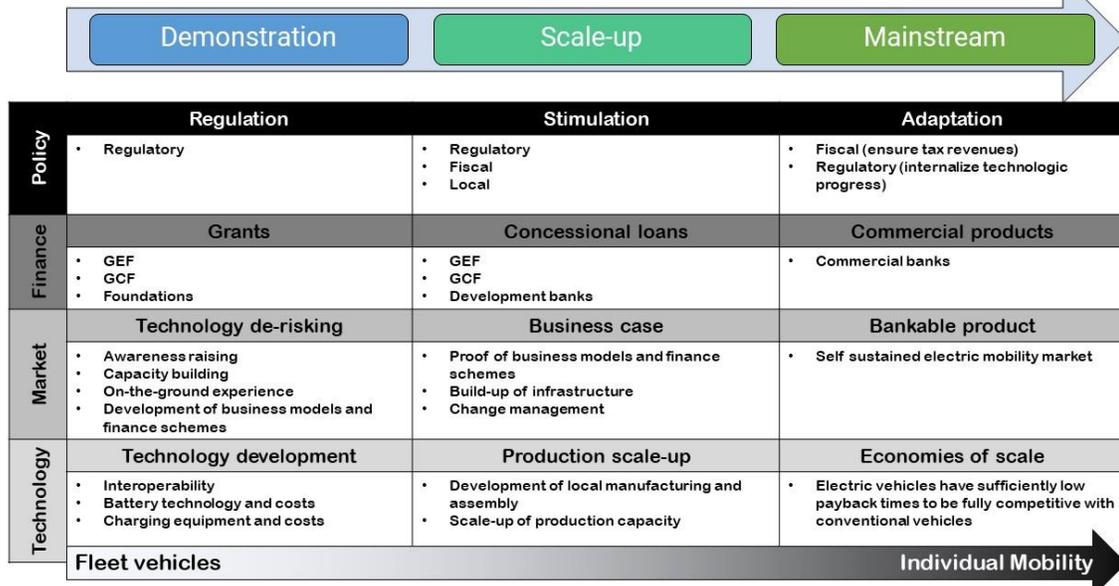


Figure 6 EV Market transition model (from Global Programme PFD). Investment in EVs and ancillary services by public and private mobility actors is expected to take place towards the end of the “Demonstration Phase” (Year 3 and 4 of the GEF Project).

### 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 (GEF US\$ 124,359; co-finance US\$ 950,000).

126. The objective of this component is to address environmental challenges for eMobility in Jamaica, specifically the management of hazardous waste including Li-based EV batteries, and the required expansion of national RE capacity for electricity generation. 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. The toolkits will absorb the lessons and experiences gathered during the Project and draw in guidance, roadmaps and methodologies provided by the Global Programme.

127. This component will look into options for addressing the accumulation of degraded 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.

128. 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.

**Output 4.1.1 Crafting a suite of knowledge products and toolkits targeting policy developers and institutional users of eMobility solutions.<sup>53</sup> (GEF US\$ 64,359; co-finance US\$ 300,000).**

129. This output will collate knowledge, information, experiences, and lessons learnt from the Jamaica Project and the Global Programme to produce a series of “knowledge products and toolkits”. Tentatively, the knowledge kits will be crafted according to identified nexus including: **(i) eMobility in relation to urban planning, which is crucial for effective and efficient deployment of EVs and to ensure that target populations are adequately served; (ii) eMobility and gender, to address aspects such as violence and harassment in public space, gender-oriented functional and technical specification, consultation mechanisms to collect and address end-user viewpoints, and enforcement of quality standards for public transport including women and individuals with accessibility constraints;** (iii) fact sheets to present consolidated information and business cases for a range of EVs such as electric buses, light-duty vehicles, private cars and e-scooters and bikes; and (iv) a roadmap for public and private organisations to identify and plan corporate eMobility schemes. Overarching aspects are: potential savings on operational costs (fuel costs and taxes), reduction of corporate GHG footprint, renewal of corporate vehicle fleets.

130. GEF funds will be used for: (i) costs of the Project eMobility Expert (PEE) to lead the process and for technical backstopping; (ii) hiring of one or more national consultants for collating information and designing toolkits; and (ii) costs of printing and electronic media development. This output will take benefit from expertise and materials provided by the Global Programme. The activities foreseen under this output will be integrated into the Project’s KM framework (see Component 5).

**Output 4.1.2 Adoption of guidelines for tracking, downgrading, re-use and recycling of batteries from electric vehicles (GEF US\$ 40,000; co-finance US\$ 200,000).**

131. This output will look into options for addressing the accumulation of wasted batteries from EV in Jamaica. Downgraded EV batteries are still useful for stationary applications such as grid-connected electricity storage, or for vehicles with a less demanding duty cycle such as forklifts etc. In SIDS however, alternative applications are often limited given the small market size. The Project will seek assistance from the RSIP to draw in experiences from peer countries to reduce e-waste, as well as opportunities for addressing battery recycling through a regional approach in the Caribbean.

132. This output will build upon policy development in Jamaica in the field of solid waste. Notably, the GOJ developed the National Policy for the Environmentally Sound Management of Hazardous Wastes (Green Paper) in December 2017, which was submitted for public consultation a year after. The policy responds to Jamaica’s obligations including under the Basel Convention, the Rotterdam Convention, and the Strategic Approach to International Chemicals Management (SAICM).

133. A challenge for Jamaica is the absence of local battery manufacturers or recycling companies, which makes exportation and overseas transport of used batteries mandatory. Legal arrangements must be set up to avoid that batteries are categorised as electronic waste. NEPA is in charge of supervising exports including issuance of licenses for exporters. Previous experience is available for management of lead acid batteries which imply a substantial environmental pollution and public health hazard, but there is little knowledge about management of Li-based batteries. Under guidance of the Global Programme, this output will support MEGJC to further detail waste management policies, develop battery waste management protocols including regulatory aspects and trade management in adherence to the applicable Conventions.

134. GEF funds will be used for: (i) hiring of national consultant for development of guidelines and procedures for EV battery management and recycling; and (ii) engagement with relevant stakeholders from public and private sector.

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<sup>53</sup> Such as: educational and business campuses, small government entities such as Jamaica Post, National Water Commission.

**Output 4.1.3 Assessment of business models for extended supplier responsibility for eMobility infrastructure and vehicle components (GEF US\$ 20,000; co-finance US\$ 450,000).**

135. Extended supplier or manufacturer responsibility, is a business approach in which a supplier obliges himself to retake a product or system at the end of its useful life.<sup>54</sup> Typically, the end-user has formal ownership of the product from the moment of purchase until its return and acceptance by the producer. This mechanism can be applied to EV batteries given the residual value of the materials. An alternative arrangement is leasing of the batteries, under which these remain property of the supplier while used by the customer.
136. While large EV batteries are still valuable, the uptake of e-bikes and e-scooters would bring large numbers of smaller batteries on the market, which may get dispersed in the environment or disposed inadequately. Notably, two-wheelers are not only sold by certified agents but also by large retailers and shopping malls and even by internet for home delivery. Extended supplier responsibility is a proven approach to return environmentally harmful devices into the value chain. It can be organised by a single supplier or manufacturer; but also by a group of companies through a foundation or other entity.<sup>55</sup>
137. With support from the Global Programme, this output will assess the options for Jamaica for battery recollection schemes and engage with the market to gauge willingness to participate. GEF funds will be used for: (i) hiring of national consultant for market analysis and design of proposals for extended supplier responsibility schemes; and (ii) engagement with market agents.

**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 (GEF US\$ 89,243; co-finance US\$ 125,000).**

138. 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.

**Output 5.1.1 Implementation of Project's Knowledge Management and Communication Strategy (GEF US\$ 27,000; co-finance US\$ 80,000).**

139. This output pursues a framework guiding knowledge production and communication activities throughout the Project. It aims to ensure coherence in messaging the broader public, Government stakeholders and international cooperation entities. The framework will be set up during the first 6 months of the Project and involve consultations with GOJ partners, the UWI, the Global Programme (UNEP), and partner agencies. Once consolidated, the framework and envisioned Project milestones will be presented, for example at a campus event (see output 3.1.4).
140. Specific objectives of the Project's KM strategy include: (i) capture of lessons learnt; (ii) accessibility of information about Project achievements to external stakeholders; (iii) securing IP's and UNDP's role as conveners and facilitators of policy dialogue and knowledge; (iv) transfer of knowledge and tools to target groups including policy makers, investors and private sector; (v) provide a structured approach to KM to facilitate hand-over of project results to national partners (exit strategy); and (vi) **identify gaps in engagement with project stakeholders in particular vulnerable people and informal groups, who may require tailored communication approaches, media, or channels.** The analysis, recommendation and proposed actions under the KM and communication strategy will inform the design of activities under Components 1-4.
141. Importantly, a credible and positive message is key to secure end-user acceptance of eMobility, for example through frequent radio spots targeting the numerous taxi (hackney carriage) drivers. Other supportive activities

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<sup>54</sup> It is applied for example by several manufacturers of printer toner cartridges who run a global return system. The system is maintained through the value of the materials recovered from the used devices.

<sup>55</sup> Examples are: the collection of used printer toner cartridges free-of-charge for the customer (such as by Hewlett Packard); recollection of used batteries (typically by a branch); sector covenants for environmentally responsible management of used lubricant (Jamaica car dealers).

can be radio interviews and podcasts discussing positive impact of EV on family budget, corporate expenditures, driving experience, urban pollution levels and public health – both in general and in the context of COVID-19. Other media include TV spots, advertisements on public buses, etc. Parallel funding for market promotion is expected to become available through other donor programmes, the GOJ, JPS and JUTC. With respect to the demonstration pilot, the Project will define a detailed communication plan targeting the UWI campus population and related stakeholders in the KTMR.

142. The following table summarises the outputs tagged 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

*Table 2 List of outputs under Project knowledge management (KM) framework.*

143. GEF resources are available for: (i) hiring of national consultant for design, consultation, and presentation of KM and Communication Strategy; and (ii) costs of audio visual material, radio spots, podcasts, etc.

***Output 5.1.2 Implementation of monitoring and evaluation plan, environmental and social management plan, and gender action plan (GEF US\$ 34,000; co-finance US\$ 45,000).***

144. This output will assist the IP during the start-up phase of the Project to operationalise management tools including the M&E Plan, understanding project risks and assumptions, use of the Risk Log, preparation of the first Annual Work Plan, streamlining of project implementation processes with GOJ procedures, and documenting thereof in a Project Operations Manual (POM). Another task is finalisation of the Terms of Reference of key project staff and consultancies in dialogue with UNDP and the IP. A short-term consultancy is envisioned to guide the IP through the inception phase to put the Project on track. This consultancy may be initiated by UNDP CO to prevent potential start-up delays, for example if recruitment of the PM would be delayed. Importantly, this short-term consultancy will culminate with the approval of the IR, AWP and annexes by the PSC, at which time the PM must be on board.

145. As per the SESP, the Project’s overall risk profile is Moderate; in response, an ESMF and Gender Action Plan were prepared, and a (scaled) ESIA/ESMP is required for the pilot project.<sup>56</sup> In order to ensure impartial supervision of the ESMF, the Project will recruit an external ES Safeguards Expert, who will review the ES management plans and participate in ES reviews and re-screenings as part of the annual PIR exercises. Similarly, a Gender Specialist will be recruited to operationalise and socialise the Gender Action Plan, and participate in annual reviews and re-screenings on gender aspects. Valuable inputs and experiences are also expected to be fed into the safeguard process from the GEF Global Programme through the RSIP.

146. Summarising, GEF funds will be used for: (i) hiring of an international M&E expert to support Project inception processes; (ii) national or international ES safeguards expert; and (iii) national gender specialist.

***Output 5.1.3 GEF Terminal Evaluation is conducted (GEF US\$ 28,243; co-finance US\$ 0).***

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<sup>56</sup> The ESIA/ESMP is not mandatory but proposed under the Project as a framework for a due diligence process and to provide a template for future replication of eMobility projects at a larger scale.

147. This project output consists of the GEF terminal evaluation (TE), to be carried out by an independent international consultant. The TE will be conducted during the last three months before operational closure of the Project.

148. GEF funds will be used for: (i) hiring of international, independent evaluation expert for implementing the TE; and (ii) travel costs.

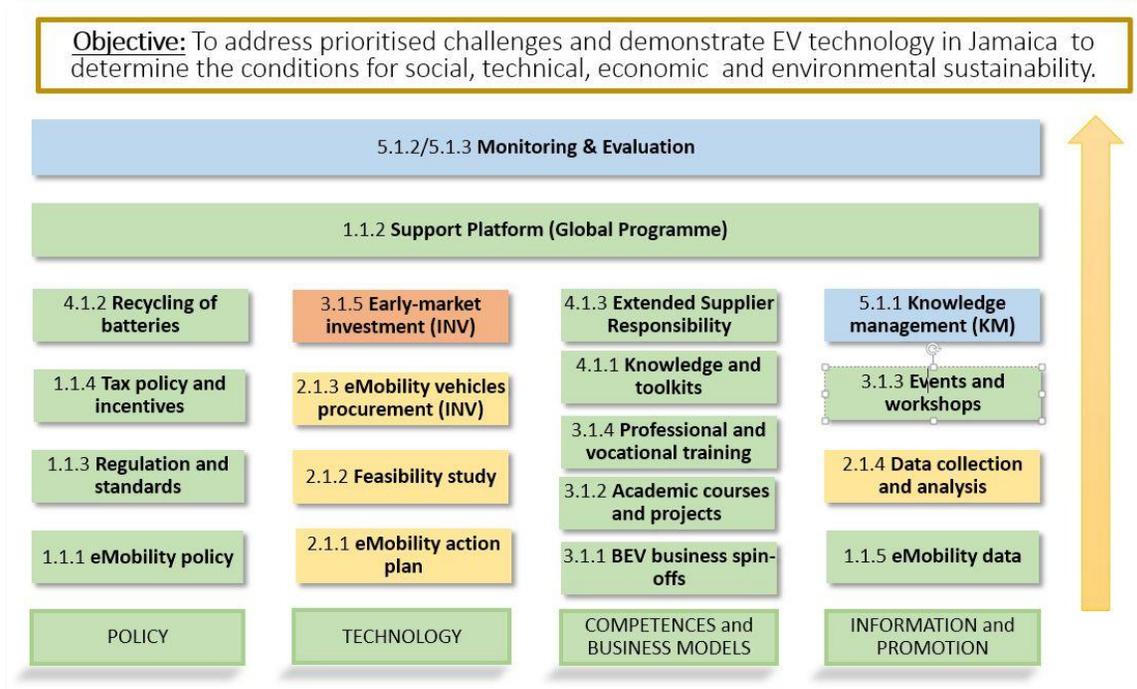


Figure 7 Schematic presentation of project outputs indicating their contribution to the immediate objective (theory of change). The Jamaica Project seeks to address short- and medium term challenges in the domains policy, technology, competences and business models, and information and promotion.

### Expected results

#### Socio-economic and environmental benefits

149. 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, WTW) and associated costs savings (USD) for the EV operator. (B) Reduced emissions of Other Atmospheric Contaminants (OACs) in urban areas, which relieves related public health risks due to baseline IEC vehicle emissions. (C) Innovative business development contributing to economic growth and job creation. (D) Enhanced quality and user experiences for commuters.

PROJECT SUMMARY OF BENEFITS	
Project beneficiaries from eMobility services	direct: 20,000 people UWI campus (70% women; 30% men)
	indirect: 273,000 people <sup>57</sup>
Annual energy savings (GJ)	direct: 662 GJ/yr
	indirect: 176,000 GJ/yr

<sup>57</sup> Figures for indirect benefits are after application of GEF causality ratio of 60%.

Annual monetary savings for mobility provider (USD)	direct: USD 24,000/yr
	indirect: USD 6,300,000/yr
Annual GHG emission reductions (tCO2/yr)	direct: 76.2 tCO2/yr
	indirect: 19,900 tCO2/yr

*Table 3 Key socio-economic and environmental benefits of the Project.*

150. Table 3 summarises the benefits that will be monitored by the Project (impact indicators). The calculation is based on a standardised methodology developed by UN Environment for the Global Programme.<sup>58</sup> The total direct GHG reductions are modest (76.2 tCO<sub>2</sub>e/yr) given the small scale of the demonstration pilot. Over a 10-year period, accumulated benefits are of the order of 762 tCO<sub>2</sub>e. 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. The direct beneficiary group counts about 20,000 individuals (campus population at The UWI Mona).
151. In order to estimate the indirect benefits of the Project, it is assumed that 10 years after Project termination, EVs for passenger transport (large buses, medium-size buses and 2-wheelers) will have a market penetration of 30%. For light-duty vehicles, this is assumed to be 20%.<sup>59</sup> 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<sub>2</sub>. Based on an effective annual transport offer of 582 million km-seats, an average commuter demand of 1,800 km-seat per year<sup>60</sup>, and a GEF causality factor of 60%, the group of passengers who would be using EVs, would be about 273,000. The uncertainty margin in the results is estimated at about +/- 50%. More details are provided in Annex 12.

### **Risks and assumptions**

152. The PPG team has identified six (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 detailed 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 mandatory Environmental and Social Management Framework (ESMF) and corresponding Management Plans, and to the Gender Action Plan.
153. The risks identified at SESP concern human rights (risk #1 and #2), gender (risk #3). The introduction of eMobility solutions may potentially exacerbate social inequality; there is awareness that the COVID-19 pandemic tends to increase equality gaps. In response, the Project design has stepped back from large bus deployment (proposed at PIF) to focus on in-country capacities for mobility planning (Risk #1). Inclusiveness is further addressed by implementing the Stakeholder Engagement Plan and a tailored communication strategy targeting a broader public to foster higher participation of youth (Risk #2). These risks are posed as social.
154. Gender aspects have been identified in relation to most of the proposed Project outputs. Safeguard measures have been proposed in response in the Gender Action Plan, which will be the reference framework throughout Project execution. Notably, a cross-cutting barrier is the lack of comprehensive, gender-differentiated mobility data in Jamaica (Risk #3). As part of oversight (Component 5), UNDP will closely monitor that gender is effectively mainstreamed into project activities.
155. The risks #4-7 concern SESP environmental sustainability and safety standards. Risk #4 concerns the exposure of physical assets, operations, and expected results of the demonstration pilot to the impacts of extreme weather events and climate change effects and is considered as climate risk. 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. Climate Risk (#5) flags lagging of low-emission electricity generation to meet demand from the EV market, forcing the country to recur to conventional energy sources (fuel oil and progressively, natural gas), which would reduce or postpone investment in RE generation. With a view on eMobility upscaling (post-project) the Project will develop toolkits

<sup>58</sup> Available at: <https://www.unenvironment.org/resources/toolkits-manuals-and-guides/emob-calculator>

<sup>59</sup> Hence average EV share in the market will be 15% and 10% respectively over this period.

<sup>60</sup> Assuming a commuter 5 times per week over 4 km, back and forth, during 45 weeks/year.

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).

156. Risk #6, assessed as an operational one and considered “low”, is related to occupational health and safety, which can be addressed by following a due diligence process and ensuring technical specifications and risk management is in compliance with industry standards. 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.
157. Environmental Risk #7 concerns waste generation, notably the introduction and posterior dispersion into the environment of EV batteries. This risk was duly acknowledged in the design of the Global Programme, in the understanding that the battery problem exists in all participating countries and in particular in SIDS. The Project will support MEGJC to progress national waste management policy and protocols, specifically targeting EV components and batteries in compliance with relevant Conventions. 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.

#### 158. Climate Risk Screening

Sensitivity to climate change, and its impacts (vulnerability assessment) :<sup>61</sup>

“1) A highly heterogeneous topographic environment: Jamaica has an extensive coastline and rugged mountains that are subject to landslides, extreme weather (inclement weather) and seismic events, as well as a diverse network of rivers and streams. These all contribute to its vulnerability to hydro-meteorological hazards, which impact the transport sector, people and economic activities.

2) Limited scheduling and financing of infrastructure maintenance.

3) Unregulated land use change and outdated construction codes: Sidewalks, pavement, roads and other impermeable surfaces have reduced the absorptive capacity of the landscape, exacerbating erosion from flooding caused by extreme storm events as the water essentially gets channeled through these impermeable surfaces.

4) Planning and limited consideration related to increased urbanization and population growth: This growth and migration over the last several decades was unplanned, often resulting in squatter occupation of available lands, in many cases in high-risk areas such as those prone to landslides and flooding.

5) A highly concentrated coastal population. Jamaica’s population is concentrated in coastal areas that are vulnerable to storm surges and flooding. Given the tourism sector’s prominence in the country’s economy, development of the coastline is likely to continue. Many cities and towns occupy highly vulnerable locations such as riverbanks, unstable hillsides, deforested lands or fragile water catchments.

6) 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. As a result, the sector developed rapidly over the past 20 to 30 years with limited consideration for disaster risk and little planning for a changing climate. While certain projects have accounted for climate change in their design, a comprehensive approach will be needed to climate-proof existing infrastructure.

7) Insufficient climate and weather data for decision making: Recent efforts by the University of the West Indies, Mona Campus (UWI Mona) Climate Studies Group (CSGM) and by the Meteorological Service of Jamaica (MSJ) have worked to address this issue, but reliable data on return periods, rainfall, disaster risk and climate projections continue to be insufficient and difficult to access. Where data do exist, many of the transport stakeholders involved in policy, planning and implementation do not have sufficient in-house expertise to analyze the data and incorporate them in a meaningful way into decision making and design.”

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<sup>61</sup> USAID : Vulnerability Assessment of Jamaica’s Transport Sector (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.

#### Adaptation Measures:

- Need for mainstreaming of climate risks into national policy. This concerns all GOJ actors present in the PSC (and TWG).
- A specific area of concern is RE generation: the expansion of IRP 2018 should include EV demand.
- 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.
- Climate and vulnerability data collection is an ongoing concern, for which UWI is already a partner.

#### Other risks

159. Risk #8 relates to the challenge to coordinate across multiple ministries in a context in which eMobility technology and its implications on policy and sector roles and mandates have not crystallised. The GEF project will take on a supportive role to the policy development process under leadership of the IP (MEGJC). 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.
160. UNDP's National Implementation Modality (NIM) can be challenging for national counterparts, who may face limitations to respond timely and may lack internal resources (or prioritisation) to support as envisioned (risk #9). This risk is mitigated by ensuring adequate operational capacity within the IP's Project Management Unit (PIU) by allocating the expertise and operational capacity for the IP to fully assume its responsibilities for Project execution.<sup>62</sup>
161. 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 makers. This risk (#10) 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.
162. The risks #11 and 12 concern sustainability and upscaling potential. 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 to be more home-based and public transport is seeking ways to reduce public health risks. In fact, the deterioration of economic and social conditions due to the pandemic has highlighted the importance of urban mobility and increased the attention of governments on the mobility and public health nexus. The pilot demonstrations are expected to include innovative protocols ensuring public health ("COVID-19 proof") standards are met.

#### **Partnerships**

163. The Project is embedded in the UNEP Global Programme. As such, it will collaborate with 29 other countries which will collectively build a worldwide knowledge base concerning the implementation of electric mobility. Through the RSIP (led by the Mario Molina Centre in Chile), the Project has access to specific know-how and advice, and can draw on experiences from more advanced countries in the region. The support and interaction between the participating countries is tracked through the Results Framework of the Global Programme; partnerships are therefore not directly monitored in the Jamaica country project. Through its regional centre in Panama, UNDP will link the GOJ to relevant platforms and programmes in its portfolio, including the Sustainable Cities Initiative.

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<sup>62</sup> Specifically the procurement specialist and project finance and administrative specialist (both part-time). Senior expertise is provided through the Project's Technical Coordinator, who will lead the policy and regulatory processes and be in charge of overall project management; and the Project's eMobility expert who will lead the demonstration pilot and will have the purview of the technical outputs, including monitoring of safeguards.

164. Nationally, the Project will partner with The University of West Indies (UWI), Mona, to execute the eMobility demonstration pilot (component 2).

### **South-South and Triangular Cooperation (SSTrC)**

165. South-South and Triangular Cooperation (SSTrC) opportunities and technology transfer from peer countries is integrated in the Project under the umbrella of the Global Programme, which offers linkages in Latin American and the Caribbean with: Antigua and Barbuda, Chile, Costa Rica, Peru, and Saint Lucia. The Jamaica project will extract lessons learnt and good practices for sharing. UNDP will further foster exchange other platforms including the Africa Solutions Platform and the UN South-South Galaxy knowledge sharing platform. The Project will facilitate the participation of local stakeholders and the GOJ in the working groups and other activities organized within the global programme.

### **Stakeholder engagement plan**

166. The PPG has identified the following core stakeholder categories: National Government (MEGJC, MTM, MSET, and MFPS); autonomous Government entities (OUR, ITA, BSJ); public service providers (JUTC, JPSCo); private sector (bus operators, car dealers); academia and training institutes (UWI, UTech, HEART NTA). At the town level, the Kingston and St. Andrew Municipal Corporation (KSAMC) represents the central part of the KMR. Civil Society Organisations (CSOs) including representatives of public transport end-users are not clearly identified; neither women organisations were identified at this stage. Due to the sparsity of accurate socio-economic data, end-users remain a diffuse group and their characterisation is challenging.

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

### **Gender equality and women's empowerment**

168. 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) poor condition of some buses of both JUTC and private operators; (ii) coordination efficiency at bus stops and bus parks; (iii) inadequate compliance with regulation and quality standards; (iv) inadequate supervision by the authorities due to resource constraints; (v) inappropriate conduct by some drivers; and (vi) 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, and robbery and theft of passengers. There have also been incidences of kidnapping, especially of women. In addition, overcrowding is a cause of insecurity for women who are a majority group of public transport users.

169. 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).**

### **Innovativeness, sustainability and potential for scaling up**

170. The Project is innovative for Jamaica as it introduces a new technology for public and private mobility which is disruptive 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 smart vehicle dispatch strategies and optimisation of battery and vehicle performance; and (iv) implications for drivers and maintenance staff. EV technology requires institutional operators (including passenger transport companies, such as JUTC) to assume a systemic approach towards the deployment and management of their capital assets, which is challenging but also an opportunity to move towards more rational and sustainable business practices. An innovative aspect is further the close relationship with electricity suppliers (including the

utility JPSCo) to ensure adequate functioning of charging stations, involving advanced ICT technologies for metering and billing of the energy consumed.

171. The envisioned Project outcomes are deemed sustainable as they are focused on building capacities and demonstration of EV technology in Jamaica. However, it is still uncertain when massive uptake of EVs will actually occur. 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. 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 Jamaicans would continue to go for ICE vehicles (often imported, second-hand units).
172. 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 is pursued by greening of the electricity supply. The Project aims to make a contribution into this direction by supporting T&D expansion planning integrating demand from EV mobility and distributed RE generation. Both sustainability aspects are monitored in the Project's Results Framework.
173. The potential for scale-up for EVs is very substantial in Jamaica as it is globally, with penetration levels of bicycles, scooters and private cars, of at least one per individual, household, respectively, in middle- and higher-income countries. 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).<sup>63</sup> The annual renewal rate is in the range 25,000 – 35,000 units comprising new and second-hand imported vehicles. Notably, JUTC operates over 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 tens of thousands units yearly. These figures demonstrate the size of the market compared to the scale of the demonstration pilot.

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<sup>63</sup> Economic & Social Survey Jamaica 2018

## V. PROJECT RESULTS FRAMEWORK

**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
<b>Project Objective</b> 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%)
<b>Component 1. Institutionalisation of low-carbon electric mobility.</b>				
<b>Outcome 1.1</b> 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). <sup>64</sup>	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
	JA1-2 (#8) Number of information requests to mobility data clearinghouse (#requests/year)	0	10/year	20/year
<b>Outputs to attain Outcome 1.1</b>	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. <sup>65</sup> 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.			

<sup>64</sup> 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.

<sup>65</sup> With a focus on small electric vehicles (i.e. mini-buses, e-scooters, electric bikes, etc.) and supporting infrastructure.

<b>Component 2. Short term barrier removal through low-carbon e-mobility demonstrations.</b>				
<b>Outcome 2.1</b> 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) <sup>66</sup>	0	500	5,000
<b>Outputs to attain Outcome 2.1</b>	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.			
<b>Component 3. Preparing for scale-up and replication of low-carbon electric mobility.</b>				
<b>Outcome 3.1</b> Jamaica's knowledge base, technical skills, and investors' awareness have been enhanced for accelerating the uptake of eMobility systems.	GP3.3 (#13) US\$ value of new low-carbon electric mobility project concepts/proposals (with letters of intent from the financiers)	US\$ 0M	US\$ 3M	US\$ 15M
	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
<b>Outputs to attain Outcome 3.1</b>	3.1.1 Fostering of business spin-offs related to eMobility following the Campus business incubator concept. <sup>67</sup> 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.			
<b>Component 4. Long-term environmental sustainability of low-carbon electric mobility.</b>				
<b>Outcome 4.1</b> Guidelines have been developed and shared to ensure the long-	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

<sup>66</sup> To be monitored daily (as part of user pattern analysis).

<sup>67</sup> 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.

term environmental sustainability of low-carbon eMobility.	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. <sup>68</sup>	none	1 toolkit	4 toolkits
<b>Outputs to attain Outcome 4.1</b>	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.			
<b>Component 5. Knowledge management, monitoring and evaluation.</b>				
<b>Outcome 5.1</b> 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
<b>Outputs to attain Outcome 5.1</b>	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.			

<sup>68</sup> Indicative list.

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## VI. MONITORING AND EVALUATION (M&E) PLAN

174. The project results, corresponding indicators and mid-term and end-of-project targets in the Project's Results Framework will be monitored annually and evaluated periodically during project implementation. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan included in Annex 3 details the roles, responsibilities, and frequency of monitoring project results.

175. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements. Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the [GEF Monitoring Policy](#) and the [GEF Evaluation Policy](#) and other [relevant GEF policies](#)<sup>69</sup>. The costed M&E plan included below and the Monitoring Plan will guide the GEF-specific M&E activities to be undertaken.

176. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

### **Additional GEF monitoring and reporting requirements:**

Inception Workshop and Report: A project inception workshop will be held within 60 days of project CEO endorsement, with the aim to:

- a. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.
- b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
- c. Review the results framework and monitoring plan.
- d. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.
- e. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Social and Environmental Management Framework (ESMF) and other safeguard requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.
- f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
- g. Plan and schedule Project Steering Committee meetings and finalize the first-year Annual Work Plan (AWP).
- h. Formally launch the Project.

### GEF Project Implementation Report (PIR):

177. The annual GEF PIR covering the reporting period July (previous year) to June (current year) will be completed for each year of project implementation. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR. The PIR submitted to the GEF will be shared with the Project Board. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

### GEF Core Indicators:

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<sup>69</sup> See [https://www.thegef.org/gef/policies\\_guidelines](https://www.thegef.org/gef/policies_guidelines)

178. The GEF Core indicators included as Annex 14 will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to MTR (if scheduled) and TE. Note that the Project team is responsible for updating the indicator status. The updated monitoring data should be shared with MTR/TE consultants prior to required evaluation missions, so these can be used for subsequent groundtruthing. The methodologies to be used in data collection have been defined by the GEF and are available on the GEF [website](#).

**Terminal Evaluation (TE):**

179. An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance for GEF-financed projects available on the [UNDP Evaluation Resource Center](#).

180. The evaluation will be ‘independent, impartial and rigorous’. The evaluators who will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated. The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the BPPS/GEF Directorate.

181. The final TE report and TE TOR will be publicly available in English and posted on the UNDP ERC as per the date included on the cover page of this project document. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report’s completion.

**Final Report:**

182. The project’s terminal GEF PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

**Agreement on intellectual property rights and use of logo on the project’s deliverables and disclosure of information:**

183. To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy<sup>70</sup> and the GEF policy on public involvement<sup>71</sup>.

**Mandatory GEF M&E Requirements and M&E Budget**

<b>Monitoring and Evaluation Plan and Budget</b>			
<b>GEF M&amp;E requirements</b>	<b>Responsible Parties</b>	<b>Indicative costs (US\$)</b>	<b>Time frame</b>
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

<sup>70</sup> See [http://www.undp.org/content/undp/en/home/operations/transparency/information\\_disclosurepolicy/](http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/)

<sup>71</sup> See [https://www.thegef.org/gef/policies\\_guidelines](https://www.thegef.org/gef/policies_guidelines)

<b>Monitoring and Evaluation Plan and Budget</b>			
<b>GEF M&amp;E requirements</b>	<b>Responsible Parties</b>	<b>Indicative costs (US\$)</b>	<b>Time frame</b>
GEF Project Implementation Report (PIR)	Project Technical Coordinator; UNDP CO; UNDP-GEF RTA	None	Annually typically between June-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
<b>Output 5.1.2</b>			
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
<b>Output 5.1.3</b>			
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.
<b>TOTAL indicative COST</b>		<b>US\$81,500 (travel:US\$ 7,743) Total: US\$89,243<sup>72</sup></b>	

<sup>72</sup> Funded from Project Component 5.

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## VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

### Roles and responsibilities of the project's governance mechanism:

184. Implementing Partner: The Implementing Partner (IP) for this project is the Ministry of Economic Growth and Job Creation (MEGJC).<sup>73</sup>
185. The Implementing Partner is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed Project Document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.
186. The Implementing Partner is responsible for executing this Project. Specific tasks include:
- Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the Project supports national systems.
  - Risk management as outlined in this Project Document;
  - Procurement of goods and services, including human resources;
  - Financial management, including overseeing financial expenditures against project budgets;
  - Approving and signing the multiyear workplan;
  - Approving and signing the Combined Delivery Report at the end of the year; and,
  - Signing the financial report or the funding authorization and certificate of expenditures.
187. Responsible Parties: The implementation of one or more Project outputs by a Responsible Party (RP), if any, will be assessed during the Project inception phase in accordance with UNDP POPP and other applicable procedures.
188. Project stakeholders and target groups: Government stakeholders, notably MEGJC, MTM, MSET, MFPS, and PIOJ are invited to take seat in the Project Steering Committee. Policy, technical and regulatory, and financial and tax policy aspects of electric mobility will be reviewed in dedicated working groups. The Project will establish a Pilot Technical Unit (PTU) for preparing and implementing the demonstration pilot which will be composed of: Project eMobility Expert (PEE), Project Engineer (PE), and designated staff of UWI.
189. Other target groups include private sector such as car dealers, rental companies, representatives from tourism industry; and civil society groups in particular public bus transport users. The latter are rather diffuse and not clearly represented. The Project will make an ongoing effort to engage with these beneficiaries to ensure inclusiveness and pro-gender action when required.
190. UNDP: UNDP is accountable to the GEF for the implementation of this Project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is also responsible for the Project Assurance role of the Project Steering Committee.

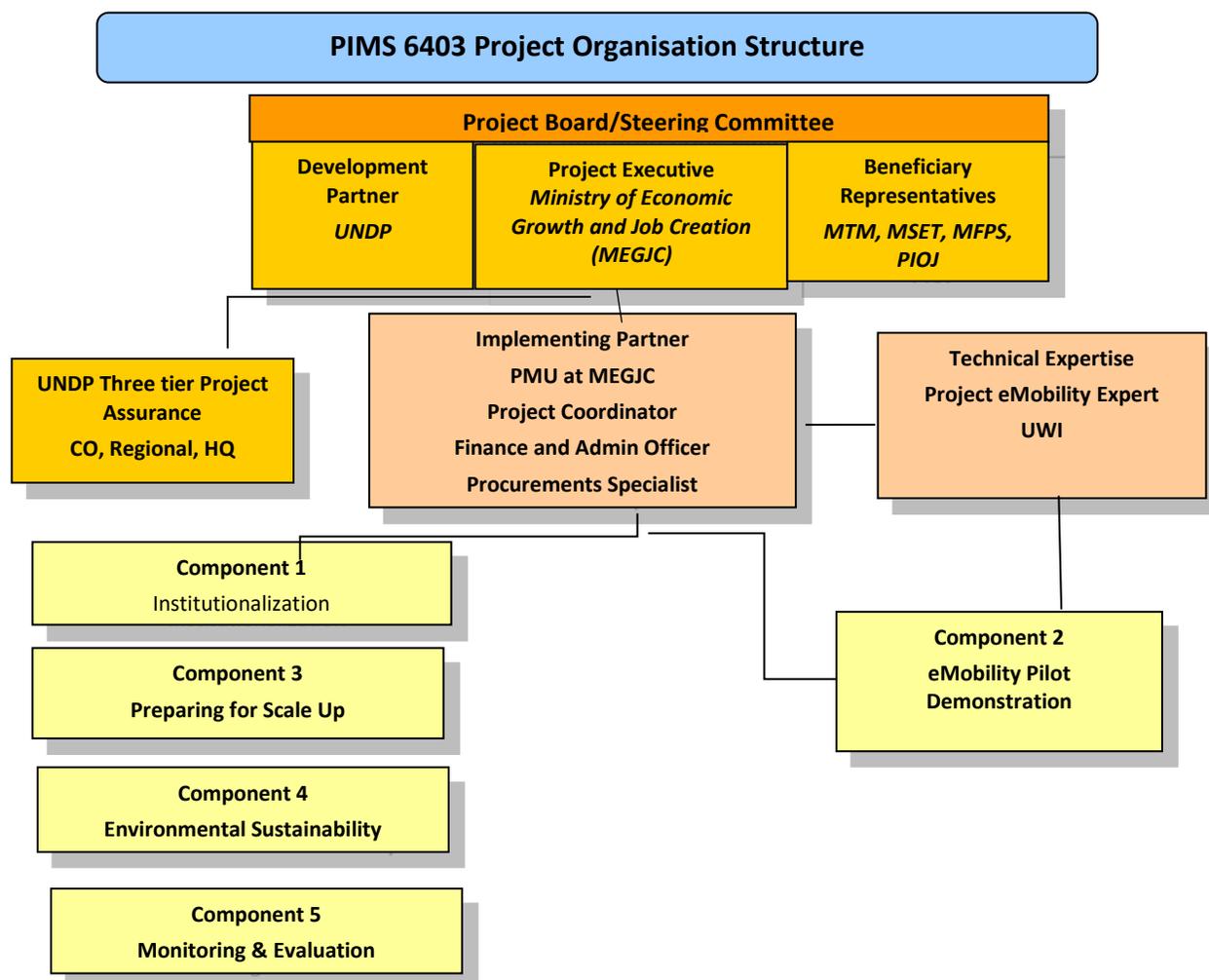
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<sup>73</sup> Pursuant to Section 7 (A)(2) of the Financial and Administration and Audit Act (FAA Act), all grants made to the Government of Jamaica shall be paid into the Consolidated Fund (CF);

Once the Project funds are deposited/transferred to the CF, the GEF/UNDP will be required to provide the MoFPS and the Ministry of Economic Growth and Job Creation (MEGJC) with proof of deposit;

Subsequent to the verification of the deposit by MoFPS, a warrant will be issued to the Accountant General's Department for the funds to be disbursed to the Central Payment Account of the MEGJC, from which expenditure related to the Project will be accommodated.

Project organisation structure



191. The project board (also called Project Steering Committee) is responsible for taking corrective action as needed to ensure the project achieves the desired results. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.

192. In case consensus cannot be reached within the Board, the UNDP Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

193. Specific responsibilities of the Project Board include:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the project manager;

- Provide guidance on new project risks, and agree on possible mitigation and management actions to address specific risks;
- Agree on project manager's tolerances as required, within the parameters set by UNDP-GEF, and provide direction and advice for exceptional situations when the project manager's tolerances are exceeded;
- Advise on major and minor amendments to the project within the parameters set by UNDP-GEF;
- Ensure coordination between various donor and government-funded projects and programmes;
- Ensure coordination with various government agencies and their participation in project activities;
- Track and monitor co-financing for this project;
- Review the project progress, assess performance, and appraise the Annual Work Plan for the following year;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Review combined delivery reports prior to certification by the implementing partner;
- Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- Address project-level grievances;
- Approve the project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.
- Ensure highest levels of transparency and take all measures to avoid any real or perceived conflicts of interest.

194. The composition of the PSC includes the following roles:

- Project Executive:** Is an individual who represents ownership of the Project and chairs the PSC. The Executive is typically the national counterpart for nationally implemented projects. For this Project, it is the Permanent Secretary of the Ministry of Economic Growth and Job Creation (MEGJC).
- Beneficiary Representative(s):** Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the PSC is to ensure realisation of project results from the perspective of project beneficiaries. For this Project, the Beneficiary representatives are: MSET, MTM, MFPS and PIOJ.
- Development Partner(s):** Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project. The Development Partner in this Project is: the United Nations Development Programme (UNDP) in Jamaica.
- Project Assurance:** UNDP performs the quality assurance and supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed, and conflict of interest issues are monitored and addressed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. UNDP provides a three – tier oversight services involving the UNDP Country Offices and UNDP at regional and headquarters levels. Project assurance is totally independent of project execution.

195. In order to ensure UNDP's ultimate accountability, PSC decisions shall be made in accordance with standards that ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the PSC, the UNDP Resident Representative (or designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

196. **Project extensions:** The UNDP Resident Representative and the UNDP-GEF Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GEF project budget cannot be increased. A single extension may be granted on an exceptional basis and only if the following conditions are met: one extension only for a project for a maximum of six months; the project management costs during the

extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GEF resources; the UNDP Country Office oversight costs in excess of the CO's Agency fee specified in the DOA during the extension period must be covered by non-GEF resources.

197. Project Management Unit: A dedicated Project Management Unit (PMU) will be established and hosted by MEGJC. 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 MEGJC will provide office space and make available telecommunication and internet facilities; the Project will fund essential office tools (laptop, digital camera) if needed. Provisions for local travel (displacements) including the use of vehicles will be made in accordance with UNDP and Government guidelines ensuring safety and efficiency.

198. 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.

## VIII. FINANCIAL PLANNING AND MANAGEMENT

199. The total cost of the project is USD 13,259,362. This is financed through a GEF grant of USD 1,784,862 and USD 11,474,500 co-financing. UNDP, as the GEF Implementing Agency, is responsible for the oversight of the GEF resources and the cash co-financing transferred to UNDP bank account only.

200. The actual realization of project co-financing will be monitored during the *mid-term review (when applicable)* and terminal evaluation process and will be reported to the GEF. Note that all project activities included in the project results framework that will be delivered by co-financing partners (even if the funds do not pass through UNDP accounts) must comply with UNDP's social and environmental standards. Co-financing will be used for the following project activities/outputs.

Co-financing source	Co-financing type	Co-financing amount (US\$)	Planned Co-financing Activities/Outputs	Risks	Risk Mitigation Measures
MEGJC	in-kind	4,000,000	Baseline projects and staff support	No	No measures foreseen
Ministry of Transport and Mining (MTM) and JUTC	Public investment	1,164,500	Early-market investment	No	No measures foreseen
UWI	in-kind	1,700,000	Support to project outputs	No	No measures foreseen
ATL Automotive Holdings Ltd	Equity investment	2,000,000	Early-market investment	No	No measures foreseen
Stewart's Auto Sales Ltd	In-kind	1,810,000	Early-market investment	No	No measures foreseen
Tropical Battery Co Ltd	Equity investment	500,000	Early-market investment	No	No measures foreseen
UNDP	in-kind	250,000	Parallel projects	No	No measures foreseen
UNDP	cash	50,000	Office infrastructure, staff, site visits and travel	No	No measures foreseen
<b>TOTAL</b>		<b>11,474,500</b>			

201. **Budget Revision and Tolerance:** As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board. Should the following deviations occur, the Project Manager/CTA and UNDP Country Office will seek the approval of the BPPS/GEF team to ensure accurate reporting to the GEF:

- a) Budget re-allocations among components in the project budget with amounts involving 10% of the total project grant or more;
- b) Introduction of new budget items that exceed 5% of original GEF allocation.

Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

202. **Audit:** The Project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies. Audit cycle and process must be discussed during the Inception workshop.

203. **Project Closure:** Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. All costs incurred to close the Project must be included in the project closure budget and reported as final project commitments presented to the PSC during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

204. **Operational completion:** The Project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal

Evaluation Report (which will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. **Operational closure must happen within 3 months of posting the TE report to the UNDP ERC.** The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

205. Transfer or disposal of assets: In consultation with the Implementing Partner and other parties of the Project, UNDP is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the Project Board following UNDP rules and regulations. Assets may be transferred to the Government for project activities managed by a national institution at any time during the life of a project. In all cases of transfer, a transfer document must be prepared and kept on file<sup>74</sup>. The transfer should be done before Project Management Unit complete their assignments.
206. Financial completion (closure): The Project will be financially closed when the following conditions have been met: a) the Project is operationally completed or has been cancelled; b) the Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the Project; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).
207. The Project will be financially completed **within 6 months of operational closure or after the date of cancellation**. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the BPPS/GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.
208. Refund to GEF: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the BPPS/GEF Directorate in New York. No action is required by the UNDP Country Office on the actual refund from UNDP project to the GEF Trustee.

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74 See

[https://popp.undp.org/\\_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP\\_POPP\\_DOCUMENT\\_LIBRARY/Public/PPM\\_Project%20Management\\_Closing.docx&action=default](https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Project%20Management_Closing.docx&action=default).

## IX. TOTAL BUDGET AND WORK PLAN

Total Budget and Work Plan (TBWP)			
Atlas Award ID:	00124680	Atlas Output Project ID:	00119439
Atlas Proposal or Award Title:	Supporting Sustainable Transportation		
Atlas Business Unit:	JAM10		
Atlas Primary Output Project Title:	Low Carbon Electric Mobility		
UNDP-GEF PIMS No.:	6403		
Implementing Partner:	Ministry of Economic Growth and Job Creation(MEGJC)		

Atlas Activity (GEF Component)	Atlas Implementing Agent	Atlas Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Account Description	YEAR 1 (USD)	YEAR 2 (USD)	YEAR 3 (USD)	YEAR 4 (USD)	Total (USD)	Budget Note
COMPONENT 1. Institutionalisation of low-carbon electric mobility	MEGJC	62000	GEF Trustee	71300	Local Consultants	12,000	0	0	0	12,000	1
				71600	Travel	24,000	22,000	21,000	19,000	86,000	2
				71800	Contractual Services – Indiv ImpPtnr	38,000	40,000	40,000	40,000	158,000	3
				72100	Contractual services - Companies	20,000	30,000	25,000	0	75,000	4
				72200	Equipment and Furniture	1,000	0	0	0	1,000	5
				72800	Information Technology Equipment	6,000	5,000	2,000	0	13,000	6
				74200	Audio Visual and Print Prod Cost	3,000	3,000	3,000	1,000	10,000	7
					<b>Total Outcome 1</b>	<b>104,000</b>	<b>100,000</b>	<b>91,000</b>	<b>60,000</b>	<b>355,000</b>	
COMPONENT 2: Short term barrier removal through low-carbon e-mobility demonstrations	MEGJC	62000	GEF Trustee	71300	Local Consultants	10,000	35,000	35,000	10,000	90,000	8
				71600	Travel	4,000	4,000	4,000	1,000	13,000	9
				71800	Contractual Services – Indiv ImpPtnr	20,000	35,000	35,000	15,000	105,000	10
				72100	Contractual services - Companies	45,000	60,000	60,000	30,000	195,000	11
				72200	Equipment and Furniture	1,000	0	0	0	1,000	12
				72300	Materials and Goods	0	171,000	195,000	27,000	393,000	13

Atlas Activity (GEF Component)	Atlas Implementing Agent	Atlas Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Account Description	YEAR 1 (USD)	YEAR 2 (USD)	YEAR 3 (USD)	YEAR 4 (USD)	Total (USD)	Budget Note
				72800	Information Technology Equipment	12,000	6,000	0	0	18,000	14
				74200	Audio Visual and Print Prod Cost	3,000	2,000	2,000	2,000	9,000	15
					<b>Total Outcome 2</b>	<b>95,000</b>	<b>313,000</b>	<b>331,000</b>	<b>85,000</b>	<b>824,000</b>	
<b>COMPONENT 3: Preparing for scale-up and replication of low-carbon electric mobility</b>	MEGJC	62000	GEF Trustee	71600	Travel	1,000	1,000	0	0	2,000	16
				71800	Contractual Services – Indiv ImpPtnr	15,000	20,000	25,000	15,000	75,000	17
				72100	Contractual services - Companies	31,000	45,000	40,000	30,000	146,000	18
				74200	Audio Visual and Print Prod Cost	2,000	2,000	2,000	1,000	7,000	19
					<b>Total Outcome 3</b>	<b>49,000</b>	<b>68,000</b>	<b>67,000</b>	<b>46,000</b>	<b>230,000</b>	
<b>COMPONENT 4: Long-term environmental sustainability of low-carbon electric mobility</b>	MEGJC	62000	GEF Trustee	71300	Local Consultants	16,359	25,000	22,000	22,000	85,359	20
				71600	Travel	1,000	2,000	2,000	0	5,000	21
				71800	Contractual Services – Indiv ImpPtnr	0	9,000	9,000	8,000	26,000	22
				74200	Audio Visual and Print Prod Cost	2,000	2,000	2,000	2,000	8,000	23
					<b>Total Outcome 4</b>	<b>19,359</b>	<b>38,000</b>	<b>35,000</b>	<b>32,000</b>	<b>124,359</b>	
<b>COMPONENT 5: Knowledge management, monitoring and evaluation</b>	MEGJC	62000	GEF Trustee	71200	International Consultants	9,641	9,000	8,000	23,000	49,641	24
				71300	Local Consultants	17,000	7,000	7,000	0	31,000	25
				71600	Travel	2,000	1,000	1,000	4,602	8,602	26
					<b>Total Outcome 5</b>	<b>28,641</b>	<b>17,000</b>	<b>16,000</b>	<b>27,602</b>	<b>89,243</b>	
<b>PROJECT MANAGEMENT UNIT</b>	MEGJC	62000	GEF Trustee	71600	Travel	1,000	1,000	500	0	2,500	27
				71800	Contractual Services – Indiv ImpPtnr	41,260	41,000	35,000	15,000	132,260	28
				72200	Equipment and Furniture	1,000	0	0	0	1,000	29
				72800	Information Technology Equipment	4,500	0	0	0	4,500	30
				74100	Professional services	6,000	6,000	5,000	5,000	22,000	31
					<b>Total Management</b>	<b>53,760</b>	<b>48,000</b>	<b>40,500</b>	<b>20,000</b>	<b>162,260</b>	

Atlas Activity (GEF Component)	Atlas Implementing Agent	Atlas Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Account Description	YEAR 1 (USD)	YEAR 2 (USD)	YEAR 3 (USD)	YEAR 4 (USD)	Total (USD)	Budget Note
					<b>PROJECT TOTAL</b>	<b>349,760</b>	<b>584,000</b>	<b>580,500</b>	<b>270,602</b>	<b>1,784,862</b>	

Summary of Funds: <sup>75</sup>

(in US\$)	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Total
<b>GEF</b>	349,760	584,000	580,500	270,602	1,784,862
<b>MEGJC</b>	1,000,000	1,200,000	1,000,000	800,000	4,000,000
<b>MTM/JUTC</b>	0	0	0	1,164,500	1,164,500
<b>UWI</b>	200,000	400,000	700,000	400,000	1,700,000
<b>ATL Holding Ltd</b>	0	0	400,000	1,600,000	2,000,000
<b>Stewart AS Ltd</b>	0	0	300,000	1,510,000	1,810,000
<b>Tropical Battery Ltd</b>	0	0	100,000	400,000	500,000
<b>UNDP</b>	50,000	100,000	100,000	50,000	300,000
<b>TOTAL</b>	<b>1,599,760</b>	<b>2,284,000</b>	<b>3,180,500</b>	<b>6,195,102</b>	<b>13,259,362</b>

<sup>75</sup> Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc...

Budget note	Comments (stated budgets are in US\$)
<b>COMPONENT 1 (US\$ 355,000)</b>	
1	12k\$ (1.1.5) - One contract with national consultant to collect and consolidate mobility data.
2	11k\$ - Costs of domestic travel (air tickets, land travel, fuel, DSA); 75k\$ (1.1.2) - Costs international travel and DSA for participants in events and activities organised under the Global Programme.
3	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 (MEGJC) 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, BJS, and representatives from civil society and private sector; (iii) drafting of TOR and supervision of contracted services; and (iv) compilation of proposals and presentations to stakeholders.
4	20k\$ (1.1.3) – One contract with specialised consultancy 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.
5	1k\$ - Office furniture for PTC.
6	3k\$ (1.1.1) - One laptop, printer and digital camera for PTC. 10k\$ (1.1.5) - systems for eMobility data clearinghouse.
7	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.
<b>COMPONENT 2 (US\$ 824,000)</b>	
8	90k\$ (2.1.2: 15k\$ - 2.1.3: 25k\$ - 2.1.4: 50k\$) - One national expert to act as Project Engineer (PE) for: (i) technical design of eMobility pilot in close collaboration with Project Team and UWI; (ii) technical specification of EV equipment and systems; (iii) participation in procurement and supplier selection process; (iv) supervision of deliveries and installations; (v) monitoring of pilot and analysis of operational data; (vi) fact-finding for ESMP monitoring and screening; (vii) identification of operational issues and initiation of remedial actions; and (viii) identification of opportunities for enhancement and/or upscaling of the pilots.
9	13k\$ - Costs of domestic travel (land travel, fuel, DSA).
10	105k\$ (2.1.1: 15k\$ - 2.1.2: 20k\$ - 2.1.3: 27k\$ - 2.1.4: 43k\$) - One mobility expert (Project eMobility Expert - PEE) for: (i) team leader for demonstration pilot design and implementation in collaboration with UWI staff and Project Engineer (PE); (ii) drafting of TOR for contracted services (studies related to feasibility analysis and ESIA); (iii) leading feasibility study process with Pilot Technical Unit and contributing to reports; (iv) technical specification of EV equipment and systems; (v) drafting of TOR and supervision of contracted services; (vi) participation in procurement and supplier selection process; (vii) supervision of products, goods and services delivered by subcontractors; (viii) lead

	consultant for monitoring of pilot and analysis of operational data; (vii) responsible for ESMP 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 reporting to PSC.
11	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.
12	1k\$ - Office furniture for PEE.
13	393k\$ (2.1.3) - equipment eMobility pilots for as per technical specifications (vehicles, charging stations, data loggers)
14	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.
15	9k\$ - Printing of technical design and studies; printing of communication leaflets; development of AV material (video) of eMobility pilot.
<b>COMPONENT 3 (US\$ 230,000)</b>	
16	2k\$ - Costs of domestic travel (land travel, fuel, DSA)
17	75k\$ (3.1.1: 15k\$ - 3.1.2: 10k\$ - 3.1.3: 20k\$ - 3.1.5: 30k\$) - One policy expert (Project Technical Coordinator - PTC) for: (i) leading the eMobility business development process and participate in evaluation meetings with counterparts; (ii) drafting Terms of Reference for curriculum development in cooperation with UWI partners; (iii) liaison with sector and other relevant stakeholders; (iv) mobilisation of inputs and resources from the Global Programme; and (v) supervision of the process and reporting to PSC.
18	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.
19	7k\$ - Printing of brochures and posters; electronic media for events and promotion.
<b>COMPONENT 4 (US\$ 124,359)</b>	
20	42.359k\$ (4.1.1) - One or more contracts with national consultants to support knowledge development and toolkit preparation; 43k\$ (4.1.2: 28k\$ - 4.1.3: 15k\$) One or more contracts with national consultant for: (i) review of EV battery management systems in use globally; (ii) analysis of EV supply chains in Jamaica; (iii) field research including interviews and meetings with market actors; (iv) drafting of guidelines for local EV battery management and presentation to GOJ; and (v) preparation of proposal for extended supplier responsibility model for eMobility batteries and components in Jamaica.
21	5k\$ - Costs of domestic travel (land travel, fuel, DSA).

22	26k\$ (4.1.1: 16k\$ - 4.1.2: 7k\$ - 4.1.3: 3k\$) One mobility expert (PEE) to: (i) lead the process, drafting of TOR and supervision of contracted services; (ii) participation in stakeholder meetings; (iii) drafting of final proposals for submission to PSC and IP.
23	8k\$ - Printing of manuals, proposals, and guidelines.
<b>COMPONENT 5 (US\$ 89,243)</b>	
24	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. 23.641k\$ (5.1.3) - One independent international expert to conduct the GEF Terminal Evaluation.
25	17k\$ (5.1.1) - One national expert for knowledge management and communication strategy design. 14k\$ (5.1.2) - One national gender expert for: (i) periodic supervision of Gender Action Plan implementation; and (ii) identification of issues and recommendations for enhancement.
26	8.602k\$ - Mission costs (international travel and DSA) for international consultants. Costs of domestic travel (land travel, fuel, DSA).
<b>PROJECT MANAGEMENT (US\$ 162,260)</b>	
27	2.5k\$ - Costs of domestic travel (land travel, fuel, DSA)
28	36.26k\$ - Contractual Services: Project Technical Coordinator for project management activities, as per terms 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 part-time).
29	1k\$ - Office furniture for PMU
30	4.5k\$ Three (3) laptops, printer and digital camera for PMU.
31	22k\$ - Professional services for annual auditing of project financial status, delivered outputs, and financial, asset and human resources management.

IDENTIFIED RESOURCES FOR PROJECT JAMAICA eMOBILITY (PIMS 6403)						
RESOURCE		NAME/DESCRIPTION		FUNDING SOURCE	BUDGET (US\$)	BUDGET LINE
COFINANCE HUMAN RESOURCES AND OFFICE FACILITIES						
1	Project National Director	NPD	Minister of MEGJC (Implementing Partner)	cofinance in-kind		
2	Project Steering Committee	PSC	Members (MEGJC, MTM, MSET, MFPS, PIOJ, UNDP)	cofinance in-kind		
3	Programme Officer	PO	UNDP CO Programme Officer	UNDP CO (agency fee)		
4	Project Assistant	PA	UNDP CO support staff	UNDP CO (agency fee)		
5	Focal persons GOJ	GOJ	GOJ human resources	cofinance in-kind		
6	Office facilities IP (GOJ)	IPOF	IP office facilities	cofinance in-kind		
7	Focal persons UWI	UWI	UWI human resources	cofinance in-kind		
8	Office facilities UWI	UWOF	UWI office facilities	cofinance in-kind		
GEF PROJECT RESOURCES (STAFF AND LONG-TERM CONSULTANCIES AND PARTNERSHIPS)						
9	Project Technical Coordinator	PTC	To be recruited	GEF budget	US\$ 238,260 <sup>76</sup>	71800
10	Project eMobility Expert	PEE	To be recruited	GEF budget	US\$ 162,000 <sup>77</sup>	71800
11	Project Finance and Admin Officer	PFA	To be recruited (part-time 3/5)	GEF budget	US\$ 57,600 <sup>78</sup>	71800
12	Project Procurement Specialist	PPS	To be recruited	GEF budget	US\$ 38,400 <sup>79</sup>	71800
13	Project Engineer	PE	To be recruited	GEF budget	US\$ 90,000 <sup>80</sup>	71300
<b>Subtotal</b>					<b>US\$ 586,260</b>	
GEF PROJECT RESOURCES (PARTNERSHIPS, SERVICES AND GOODS)						
14	Long-term Partnership UWI (1.1.5, 2.1.4, 3.1.1, 3.1.2, 3.1.3)	UWI	Contract Package	GEF budget	US\$ 183,000	72100
15	Pilot equipment and installation (2.1.3)	EQP	Contract Package	GEF budget	US\$ 393,000	72300

<sup>76</sup> For 4 years at US\$ 56,700, 100%. Of which US\$42,000 funded from Project Management.

<sup>77</sup> For 2.8 years at US\$ 56,700, 100%.

<sup>78</sup> For 3 years at US\$ 32,000, 3/5 part-time.

<sup>79</sup> For 3 years at US\$ 32,000, 2/5 part-time.

<sup>80</sup> For 2 years at US\$ 45,000, 100%.

IDENTIFIED RESOURCES FOR PROJECT JAMAICA eMOBILITY (PIMS 6403)						
RESOURCE			NAME/DESCRIPTION	FUNDING SOURCE	BUDGET (US\$)	BUDGET LINE
16	Contracted Services (2.1.1, 2,1,2, 2.1.3)	UWI	To be procured	GEF budget	US\$ 145,000	72100
17	Contracted Services (1.1.3, 1.1.4, 3.1.5)	SCC	To be procured	GEF budget	US\$ 88,000	72100
				<b>Subtotal</b>	<b>US\$ 809,000</b>	
GEF PROJECT RESOURCES (SHORT-TERM CONSULTANCIES)						
18	Mobility data expert (1.1.5)	MDE	To be recruited	GEF budget	US\$ 12,000	71300
19	Toolkit development expert (4.1.1)	TDE	To be recruited	GEF budget	US\$ 42,359	71300
20	E-waste Expert (4.1.2-3)	EWE	To be recruited	GEF budget	US\$ 43,000	71300
21	KM & Communication Expert (5.1.1)	KME	To be recruited	GEF budget	US\$ 17,000	71300
22	M&E Support Expert (5.1.1)	MEE	To be recruited	GEF budget	US\$ 8,000	71200
23	ES Safeguards Expert (5.1.2)	ESE	To be recruited	GEF budget	US\$ 18,000	71200
24	Gender Expert (5.1.2)	GE	To be recruited	GEF budget	US\$ 14,000	71300
25	GEF Evaluation Expert (5.1.3)	EE	To be recruited	GEF budget	US\$ 23,641	71200
				<b>Subtotal</b>	<b>US\$ 178,000</b>	
GEF PROJECT RESOURCES (OTHER EXPENDITURES)						
27	Travel			GEF budget	US\$ 117,102	71600
28	Equipment and Furniture			GEF budget	US\$ 3,000	72200
29	Information Technology Equipment			GEF budget	US\$ 35,500	72800
30	Audio Visual & Printing			GEF budget	US\$ 34,000	74200
31	Professional Services – Audits			GEF budget	US\$ 22,000	74100
32	Project – Direct Costs			GEF budget	0	74599
				<b>Subtotal</b>	<b>US\$ 211,602</b>	
				<b>TOTAL (GEF)</b>	<b>US\$ 1,784,862</b>	

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## **X. LEGAL CONTEXT**

209. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Jamaica and UNDP, signed on 26 January, 1976. All references in the SBAA to “Executing Agency” shall be deemed to refer to “Implementing Partner.”
210. This project will be implemented by the Ministry of Economic Growth and Job Creation (MEGJC) (“Implementing Partner”) in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.
211. The designations employed and the presentation of material on any map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations or UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

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## **XI. RISK MANAGEMENT**

212. Consistent with the Article III of the SBAA, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:
- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
  - b) assume all risks and liabilities related to the Implementing Partner’s security, and the full implementation of the security plan.
213. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner’s obligations under this Project Document.
214. The Implementing Partner agrees to undertake all reasonable efforts to ensure that no UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via [http://www.un.org/sc/committees/1267/aq\\_sanctions\\_list.shtml](http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml).
215. The Implementing Partner acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the Implementing Partner, and each of its responsible parties, their respective sub-recipients and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.
216. (a) In the implementation of the activities under this Project Document, the Implementing Partner, and each of its sub-parties referred to above, shall comply with the standards of conduct set forth in the Secretary General’s Bulletin ST/SGB/2003/13 of 9 October 2003, concerning “Special measures for protection from sexual exploitation and sexual abuse” (“SEA”).
217. (b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, the Implementing Partner, and each of its sub-parties referred to above, shall not engage in any form of sexual harassment (“SH”). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment.
218. a) In the performance of the activities under this Project Document, the Implementing Partner shall (with respect to its own activities), and shall require from its sub-parties referred to in paragraph 4 (with respect to their activities) that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include: policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and investigative mechanisms. In line with this, the Implementing Partner will and will require that such sub-parties will take all appropriate measures to:

- i. Prevent its employees, agents or any other persons engaged to perform any services under this Project Document, from engaging in SH or SEA;
  - ii. Offer employees and associated personnel training on prevention and response to SH and SEA, where the Implementing Partner and its sub-parties referred to in paragraph 4 have not put in place its own training regarding the prevention of SH and SEA, the Implementing Partner and its sub-parties may use the training material available at UNDP;
  - iii. Report and monitor allegations of SH and SEA of which the Implementing Partner and its sub-parties referred to in paragraph 4 have been informed or have otherwise become aware, and status thereof;
  - iv. Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and
  - v. Promptly and confidentially record and investigate any allegations credible enough to warrant an investigation of SH or SEA. The Implementing Partner shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties referred to in paragraph 4 with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is not in contravention of any laws applicable to it. Following the investigation, the Implementing Partner shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.
- b) The Implementing Partner shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the Implementing Partner, and each of its sub-parties referred to in paragraph 4, to comply of the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.
219. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (<http://www.undp.org/ses>) and related Accountability Mechanism (<http://www.undp.org/secu-srm>).
220. The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.
221. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.
222. The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or using UNDP funds. The Implementing Partner will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.
223. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the Implementing Partner: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. The Implementing Partner agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at [www.undp.org](http://www.undp.org).
224. In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes in accordance with UNDP's regulations, rules, policies and procedures. The Implementing Partner shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the Implementing Partner's (and its consultants', responsible parties', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with the Implementing Partner to find a solution.
225. The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.
226. Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of Office, who will

promptly inform UNDP's Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

227. UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner's obligations under this Project Document.

228. Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

*Note:* The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

229. Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.

230. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

231. The Implementing Partner shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled "Risk Management Standard Clauses" are included, *mutatis mutandis*, in all sub-contracts or sub-agreements entered into further to this Project Document.

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## **XII. MANDATORY ANNEXES**

1. Project Map and geospatial coordinates of the project area
2. Multiyear Workplan
3. Monitoring Plan
4. Social and Environmental Screening Procedure (SESP)
5. UNDP Atlas Risk Register
6. Terms of Reference
  
7. Stakeholder Engagement Plan
8. Environmental Social Management Framework (ESMF)
9. Gender Analysis and Gender Action Plan
10. Procurement Plan – for first year of implementation especially
11. Indicative description demonstration pilot
12. GHG Calculations
  
13. Co-financing letters
14. Core Indicators
15. GEF Taxonomy (see template below)
16. Project Organization Structure
17. GEF Global Programme organisation and theory of change.
18. Detailed Project Organisation Structure
19. GEF Budget

**Annex 1: Project map and Geospatial Coordinates of project sites**

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 including UTech campus
Coordinates (UTC)		(17.989 and 18.050; North) (-76.779 and -76.734 West).	(17.994699 and 18.025299 North) (-76.733142 and -76.753484 West)

For reference, please see the next figure.

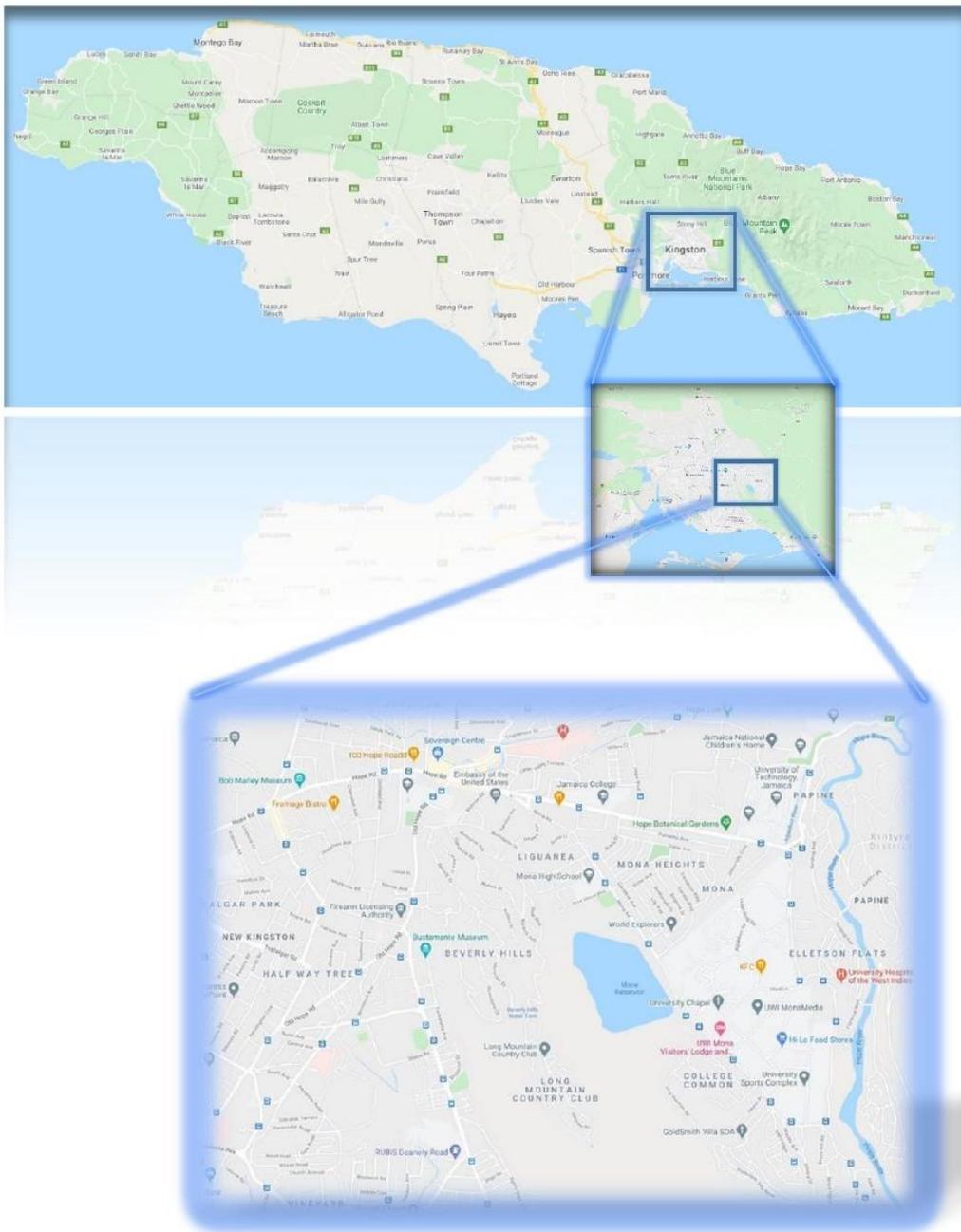


Figure 8 Map of Jamaica, Kingston Area and Mona Campus and its vicinities in Eastern Kingston.

**Annex 2: Multi Year Work Plan**

Outcome	Output	Activities	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4												
1.1 The policy and institutional framework for low-emission electric mobility 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.																	
	1.1.4 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.																	
2.1 Mobility 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.																	
3.1 Jamaica’s knowledge base, technical skills, and public awareness have been enhanced as a	3.1.1 Fostering of business spin-offs related to eMobility following the Campus business incubator concept.																	
	3.1.2 Integration of eMobility concepts and technologies into academic courses and projects,																	

Outcome	Output	Activities	Year 1				Year 2				Year 3				Year 4			
			Q1	Q2	Q3	Q4												
condition for accelerating the uptake of eMobility systems.	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																	
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 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.																	
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.																	

### Annex 3: Monitoring Plan

This Monitoring Plan and the M&E Plan and Budget will both guide monitoring and evaluation at the project level for the duration of project implementation.

Project MONITORING Plan – Objective and Outcomes							
OBJECTIVE / OUTCOMES	INDICATORS	TARGETS		DATA SOURCE/ COLLECTION METHODS <sup>81</sup>	FREQUENCY	RESPONSIBLE FOR DATA COLLECTION	MEANS OF VERIFICATION
		MID	EOP				
<b>Objective:</b> Development of resilient and low emission public and private transportation systems in Jamaica.	GEF6.3 (#1) Aggregated energy saved (MJ)	0 MJ	1,300,000 MJ	Avoided fuel use for similar km-pp over same routes <sup>82</sup>	at EOP	Project Team MEGJC	Records of EV pilot operations project reports and site visits
	GEF6.4 (#2) Increase in installed RE capacity per technology (MW)	0.0 MW	0.010 MW	Verification of RE for EV charging	at EOP	Project Team MEGJC	GEF project reports; MSET statistics; JPS reports
	GEF6 (#3) Greenhouse gas emissions mitigated (CO2eq) (a) direct; (b) indirect.	0; 0	(a) 762 tCO2; (b) 199,000 tCO2	GHG methodology as per Annex 12	at EOP	Project Team MEGJC	Records of EV pilot operations GEF project reports
	GEF11 (#4) Number of direct beneficiaries as co-benefit of GEF investment (#m;#f)	0m; 0f	20,000 (30%;70%)	UWI Campus information	at PIR / EOP	Project Team MEGJC	Official UWI publications GEF project reports
<b>Outcome 1.1:</b> 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) <sup>83</sup> .	1	3	Judgements by GOJ stakeholders (PSC members)	at EOP	PSC (questionnaire self-assessment)	PSC self-assessment Verifiable progress in official GOJ publications
	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)	draft	completed	Monitoring of eMobility policy process; energy sector action plans; investment in RE generation and T&D infrastructure	at PIR / EOP	MEGJC	Official GOJ publications MSET sector statistics GEF project reports
	JA1-1 (#7) Technical Standards for electric road mobility (none/discussed/proposed/adopted).	proposed	adopted	Monitoring of development process for technical standards	at PIR / EOP	Project Team	Official GOJ publications GEF project reports interviews by TE of participants in technical committees
	JA1-2 (#8) Number of information requests to mobility data clearinghouse (#requests/year)	10/year	20/year	Register of incoming requests	continually	Project Team / UWI	GEF project reports site visits and interviews by TE of stakeholders

<sup>81</sup> Data collection methods should outline specific tools used to collect data and additional information as necessary to support monitoring. The PIR cannot be used as a source of verification.

<sup>82</sup> Note 1.

<sup>83</sup> 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.

Project MONITORING Plan – Objective and Outcomes							
OBJECTIVE / OUTCOMES	INDICATORS	TARGETS		DATA SOURCE/ COLLECTION METHODS <sup>81</sup>	FREQUENCY	RESPONSIBLE FOR DATA COLLECTION	MEANS OF VERIFICATION
		MID	EOP				
<b>Outcome 2.1:</b> 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	yes	Judgements by GOJ stakeholders (PSC members)	at EOP	PSC (questionnaire self-assessment)	PSC self-assessment Verifiable progress in official GOJ publications TE interviews
	JA2-1 (#10) Status of pilot feasibility study and ESIA	approved	implemented	Verification of delivered studies and plans	upon finalisation of study	Project Team	Review of delivered studies and plans; peer reviews by ES expert and gender expert
	JA2-2 (#11) Accumulated distance driven by e-vehicles under pilots (km)	15,000 km	230,000 km	Electronic data acquisition and analysis system per bus unit	Real-time or daily	Contracted service under responsibility of Project Team	Demonstration pilot data analysis reports Ad-hoc fields visits
	JA2-3 (#12) Number of users of eMobility services and vehicles under the pilot (#m;#f)	500	5,000	Electronic monitoring, or manual registry of usage (as part of user pattern analysis).	Real-time or daily	Contracted service under responsibility of Project Team	Demonstration pilot data analysis reports Ad-hoc fields visits
<b>Outcome 3.1:</b> Jamaica's knowledge base, technical skills, and public awareness have been enhanced as a condition for accelerating the uptake of eMobility systems.	GP3.3 (#13) US\$ value of new low-carbon electric mobility project concepts/proposals (with letters of intent from the financiers)	US\$ 3M	US\$ 15M	Monitoring of market response (investment proposals and firm commitments)	at PIR / EOP	Project Team	GEF project reports Official GOJ publications Corporate publications Interviews with EV sector at TE
	JA3-1 (#14) Number of professionals and technicians trained on aspects of electric mobility (#m;#f).	10m; 10f	20m; 20f	Counting of individuals who took part in training events and courses	at PIR / EOP	Project Team UWI	GEF project reports Interviews of sample group at TE
	JA3-2 (#15) Number of innovative business spin-offs and/or products successfully supported	1	2	Records of selected businesses; appraisals by PSC and sector stakeholders	at PIR / EOP	Project Team UWI	GEF project reports Periodic reports by businesses, UWI, newspapers, etc. Interviews of sample group at TE
<b>Outcome 4.1:</b> 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)	draft	endorsed	Monitoring of battery management plans	at PIR / EOP	Project Team MEGJC	GEF Project reports Official GOJ publications Corporate reports and statements Interviews of stakeholders at TE
	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.	1 toolkit	4 toolkits	Monitoring of status of toolkit delivery; PSC guidance and appraisal	at EOP	Project Team	GEF Project reports physical inspection of deliverables Interviews by TE on acceptance and use
<b>Outcome 5.1:</b> 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	Monitoring of project implementation status	at EOP	MEGJC, UNDP	GEF Project reports Active sharing of Jamaican results with Global Programme Interviews of stakeholders by TE

Project MONITORING Plan – Outputs							
OBJECTIVE / OUTCOMES	OUTPUTS	INDICATORS	TARGET	MEANS OF VERIFICATION	RESPONSIBLE	ASSUMPTIONS AND RISKS	
<b>Outcome 1.1:</b> The policy and institutional framework for low-emission electric mobility in Jamaica has been strengthened.	1.1.1 Drafting the national policy for eMobility, covering the social, economic, technical and environmental sustainability dimensions.	1.1.1.1 Partial policy documents and meeting minutes produced by GOJ stakeholders	2/yr (as input for PSC meeting)	Reports and minutes	MEGJC	Political thrust for EV is in place and central coordination is effective. GOJ partners receptive to Project support from TA and consultancies.	
	1.1.2 Regional Support Platform assistance to policy makers and sector staff to develop eMobility policy and regulation.	1.1.2.1 Number of events with presence of Global Programme resource persons	1/yr	Event agenda	Project Team	Global Programme is offering relevant assistance options for GOJ. Timing of events is appropriate.	
		1.1.2.2 Number of beneficiaries of events funded by project	10	Tickets, per diem, mission reports	Project Team	Risk of staff rotation controlled enabling a consolidated group of GOJ to participate over project's lifetime.	
	1.1.3 Drafting of regulatory instruments and technical standards for eMobility systems. <sup>84</sup>	1.1.3.1 Periodic reports by standards and regulation committees	4/yr	Reports	Project Team	GOJ process steering is effective. Political will in GOJ and Parliament.	
		1.1.3.2 Draft technical standards and regulation (working documents)	1/yr	Reports	MEGJC		
	1.1.4 Drafting of proposals for tax policy and financial incentives for eMobility.	1.1.4.1 Periodic reports by assigned committee on eMobility tax regime and incentives.	2/yr	Reports	Project Team	GOJ process steering is effective. GOJ partners receptive to Project support from TA and consultancies. Political will in GOJ and Parliament.	
		1.1.4.2 Draft proposals (working documents)	1/yr	Reports	MEGJC		
	1.1.5 Establishment of an information clearinghouse for eMobility data to support policy design and market development.	1.1.5.1 Detailing of scope of work with UWI	1	Contractual agreement	MEGJC	Project partners agree upon scope of work. Road map with key stakeholders enabling ongoing data collection. Market actors and GOJ show sustained interest in mobility data repository.	
		1.1.5.2 Consultancy services to collect, verify and consolidate mobility data	1	Supervision of services	Project Team		
		1.1.5.3 Specification and procurement of ICT and software tools	1	Project procurement	Project Team		
		1.1.5.4 Monitoring and technical assistance for clearinghouse operations	4/yr	Supervision of services	Project Team		
	<b>Outcome 2.1:</b> eMobility demonstration pilot has been prepared, implemented and monitored to provide evidence	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.	2.1.1.1 Detailing of scope of work between GOJ and UWI.	1	Contractual agreement	MEGJC	Project partners remain committed to demonstration pilot with realistic goals. Critical information is available.
			2.1.1.2 Collection of mobility data related to campus	1	Reports	Project team	

<sup>84</sup> With a focus on small electric vehicles (i.e. mini-buses, e-scooters, electric bikes, etc.) and supporting infrastructure.

Project MONITORING Plan – Outputs							
OBJECTIVE / OUTCOMES	OUTPUTS	INDICATORS	TARGET	MEANS OF VERIFICATION	RESPONSIBLE	ASSUMPTIONS AND RISKS	
on technical, environmental and economic performance and market potential.		2.1.1.3 Procurement of ICT and software tools for mobility scenario analysis	1	Project procurement	Project team	Project partners and subcontractors deliver high-quality analysis and plans.	
		2.1.1.4 Technical assistance and training for key staff	1	Project procurement	Project team		
		2.1.1.5 Delivery and review of mobility plan	1	Supervision of services	Project Team		
	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.		2.1.2.1 Achievement of formal agreements between demonstration pilot partners	1	Agreement, MOU, contract	MEGJC, UWI	Project partners remain committed to demonstration pilot with realistic goals. Adequate leadership by UWI.
			2.1.2.2 Detailed due diligence process involving technical, financial, operational and liability aspects.	1/month	Quality assurance meetings	Project Team	Critical information is available. Effective coordination Project Team, UWI and subcontractors
			2.1.1.3 Draft feasibility study delivered for review	1	Feasibility study	Contractor	External conditions are characterised enabling and objective assessment of risks and boundary conditions.
			2.1.2.3 Review of study and decision related to EV options and routes	1	Assessment report; PSC minutes	Project team	Partners acknowledge relevance of ESMF.
			2.1.2.4 Detailed technical design and budgeting of EVs, charging stations and installation.	1	Detailed studies and design for approval	Project team	
			2.1.1.5 Identification of corrective measures to ensure all environmental, social and gender safeguards are met.	1	Updated ESMF document and protocol.	Project team and SE and gender experts	
	2.1.3 Specification and procurement of eMobility vehicles, charging stations and supportive systems in collaboration with project partners.		2.1.3.1 Technical specification of EVs, equipment and services	1	Procurement documents	Project team	Procurement processes are swift and successful.
			2.1.3.2 Specification of data acquisition methods, equipment and measurement protocols	1	Procurement documents	Project team	Received bids are responsive and meet the anticipated budgets
			2.1.3.3 Procurement documents prepared and published	1	Procurement documents	Project team	
			2.1.3.4 Review of bids and contract assignment	1	Procurement committee minutes; contracts	PSC	

Project MONITORING Plan – Outputs						
OBJECTIVE / OUTCOMES	OUTPUTS	INDICATORS	TARGET	MEANS OF VERIFICATION	RESPONSIBLE	ASSUMPTIONS AND RISKS
		2.1.3.5 EVs and equipment delivered and installed	1	Reception reports; site inspections; operational reports	Project team	
	2.1.4 Supervision of eMobility pilot operations including data collection and analysis for technical and operational optimisation.	2.1.4.1 Definition scope of work between demonstration pilot partners	1	Agreement, MOU, contract	MEGJC, UWI	Project partners remain committed to demonstration pilot with realistic goals. Adequate leadership by UWI. EV products and systems are performing under the pilot. Supervision is adequate and collaboration with partners is effective.
		2.1.4.2 Conceptualisation and implementation of student projects and analysis by academic staff for pilot support	4/yr	progress reports, PSC meeting minutes	Project team, UWI	
		2.1.4.1 Periodic reports including collected data, analysis, pilot status, anomalies, corrective actions and lessons learned.	4/yr	progress reports, PSC meeting minutes	Project team, UWI	
<b>Outcome 3.1:</b> Jamaica's knowledge base, technical skills, and public awareness have been enhanced as a condition for accelerating the uptake of eMobility systems.	3.1.1 Fostering of business spin-offs related to eMobility following the Campus business incubator concept. <sup>85</sup>	3.1.3.1 Definition of criteria for financial support to eMobility business start-ups.	1	meeting reports	MEGJC PSC	
		3.1.3.2 Organisation and implementation of contest for eMobility business start-ups through incubator	1	progress reports	Project team UWI	
		3.1.3.3 Selection of winners and monitoring of progress	2/yr	PSC minutes progress reports	Project team UWI	
	3.1.2 Integration of eMobility concepts and technologies into academic courses and projects, taking benefit from partnerships under the Global Program.	3.1.2.1 Number of EV courses and projects developed and implemented	to be quantified	Supervision of services	PSC	Activities are efficiently organised by host institute (University).
		3.1.2.2 Number of beneficiaries of courses and projects funded by project	to be agreed	Supervision of services	Project team	Sustained interest from University and sector agents in EV curriculum development
	3.1.3 Implementation of on-campus events and workshops targeting academia, government, private sector companies, investors and end-users.	3.1.3.1 Identification and reporting on activities as per AWP.	as per AWP	progress reports	PSC	Project activities can be coordinated efficiently with sector, other agencies and GOJ.
		3.1.3.2 Number of beneficiaries of events funded by project	to be agreed	Supervision of services	Project team	Sustained corporate interest and thrust to embark on eMobility

<sup>85</sup> 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.

Project MONITORING Plan – Outputs						
OBJECTIVE / OUTCOMES	OUTPUTS	INDICATORS	TARGET	MEANS OF VERIFICATION	RESPONSIBLE	ASSUMPTIONS AND RISKS
	3.1.4 Professional training of drivers, mechanics and first responders on use, maintenance, repair and safety of EVs and ancillary systems	3.1.4.1 Number of individuals (m;f) trained	30 male; 30 female	training reports	Project team	GOJ and private sector remain committed to EV development in Jamaica.
	3.1.5 Early-market investment by public and private stakeholders to test EV business concepts under commercial conditions	3.1.5.1 Number of total EVs deployed or sold by project partners	100	market reports	Project team	Sustained corporate interest and thrust to embark on eMobility
Outcome 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 eMobility solutions.	4.1.1.1 Needs assessment and definition of specific scope/subjects of knowledge products and toolkits.	1	Internal analysis; PSC minutes	Project team	GOJ and private sector remain committed to EV development in Jamaica.
		4.1.1.2 Consultancy services and internal work for delivery of toolkits	1	progress reports; delivered products	Project team	Guidance is provided through Global Programme to identify regional solutions.
	4.1.2 Adoption of guidelines for tracking, downgrading, re-use and recycling of batteries from electric vehicles.	4.1.2.1 Progress status of consultancy under TA supervision	1	Final report	Project team	Sustained interest by private sector towards low-emission vehicle market in Jamaica.
	4.1.3 Assessment of business models for extended supplier responsibility for electric mobility infrastructure and vehicle components	4.1.3.1 Progress status of consultancy under TA supervision	1	Final report	Project team	Increasing demand from society for low-emission cars.
Outcome 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.	5.1.1.1 Project KM designed and operationalised	2/yr	KM Strategy progress reports	Project team PSC	Coordination GOJ and UNDP is expedite to meet project cycle milestones.
		5.1.1.2 Activities for strengthening identified and implemented	2/yr	KM Strategy progress reports	Project team PSC	Environmental and Social Safeguards (ES), and Gender Action (GA) expert are recruited for reviews and recommendations during annual PIR exercise.
	5.1.2 Implementation of monitoring and evaluation plan, environmental and social management plan, and gender action plan.	5.1.1.1 Project Inception Workshop and Report delivered	1	Inception Report	Project team PSC	
		5.1.1.2 AWP and PIRs produced as programmed	1/yr	AWP and PIR	Project team PSC	
		5.1.1.3 ESMF and ESIA review by expert and periodically monitored	1/yr	ES expert progress report	Project team; PSC	
		5.1.1.4 GAP monitored and periodically updated	1/yr	GA expert progress report	Project team PSC	
	5.1.3 GEF Terminal Evaluation is conducted.	5.1.3.1 TE process timely initiated and evidence and target information consolidated for review	1	progress reports PSC minutes	MEGJC and UNDP	
		5.1.3.2 TE consultancy implemented and report submitted for Management Response	1	PSC minute	MEGJC and UNDP	

#### Annex 4: UNDP Social and Environmental Screening Procedure (SESP)

The completed template, which constitutes the Social and Environmental Screening Report, must be included as an annex to the Project Document. Please refer to the [Social and Environmental Screening Procedure](#) and [Toolkit](#) for guidance on how to answer the 6 questions.

### Project Information

<b>Project Information</b>	
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

<p><b>QUESTION 2: What are the Potential Social and Environmental Risks?</b></p> <p><i>Note: Describe briefly potential social and environmental risks identified in Attachment 1 – Risk Screening Checklist (based on any “Yes” responses). If no risks have been identified in Attachment 1 then note “No Risks Identified” and skip to Question 4 and Select “Low Risk”. Questions 5 and 6 not required for Low Risk Projects.</i></p>	<p><b>QUESTION 3: What is the level of significance of the potential social and environmental risks?</b></p> <p><i>Note: Respond to Questions 4 and 5 below before proceeding to Question 6</i></p>			<p><b>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)?</b></p>
<p><b>Risk Description</b></p>	<p><b>Impact and Probability (1-5)</b></p>	<p><b>Significance (Low, Moderate, High)</b></p>	<p><b>Comments</b></p>	<p><b>Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.</b></p>
<p>(Principle 1 q2)</p> <p><u>Risk 1:</u> Access to mobility services would be uneven with a strong socio-economic and gender bias and disfavours underprivileged people, a situation that might be exacerbated by the introduction of eMobility solutions.</p>	<p>I = 3 P = 2</p>	<p>Moderate</p>	<p>Globally, transport options for lower-income groups and areas are typically of inferior quality, less efficient and potentially unsafe. Electric mobility technologies may therefore be inaccessible for certain segments of the Jamaican populace.<sup>86</sup> Given the lack of comprehensive mobility data, individuals in the KMTR relying on public transport may actually be underserved. In summary, access to mobility services is uneven with a strong socio-economic and gender bias and disfavours underprivileged communities. The introduction of eMobility solutions may potentially exacerbate this inequality. Notably, the COVID-19 pandemic has increased inequality gaps and</p>	<p>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.</p> <p>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</p>

<sup>86</sup> 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.

			challenges the compatibility of present public transport models with public health demands.	capacities for mobility planning to build a more climate-resilient and equitable transport sector in Jamaica.
(Principle 1 q4) (Principle 6 – q2)  <u>Risk 2:</u> 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	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). 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.	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. 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)  <u>Risk 3:</u> 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 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

			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.	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)  <u>Risk 4:</u> 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. <sup>87</sup> 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)  <u>Risk 5:</u> 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)	I = 4 P = 1	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).	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).  The pilot will assess the feasibility of charging stations using solar-PV, particularly for smaller EVs and e-scooters

<sup>87</sup> 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.

			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.	(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.
(Standard 7 q1 and q2)  <u>Risk 7:</u> Generation of waste (both hazardous and non-hazardous).	I = 3 P = 2	Moderate	(a) There is a risk that e-waste will accumulate on the island (Jamaica) due to the increased use of EVs. Currently, the National 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.	(a) While larger batteries (from electric buses and cars) are usually downgraded and re-utilised for stationary purposes, smaller batteries may 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 MEGJC 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

				<p>started already during PPG. The Global Programme’s community of practice will assess approaches such as extended producer responsibility (applied in several countries).<sup>88</sup> 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.</p> <p>(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 experiences and prepare a template and toolkit for future replication and upscaling.</p>
<b>QUESTION 4: What is the overall Project risk categorization?</b>				
<b>Select one (see <a href="#">SESP</a> for guidance)</b>			<b>Comments</b>	
	<i>Low Risk</i>	<input type="checkbox"/>		
	<i>Moderate Risk</i>	<input checked="" type="checkbox"/>	<p><b>The Project is characterised by a series of lower-range moderate risks. Downstream risks are mostly low and can be controlled by applying established industry standards. Upstream risks may occur if the conditions for upscaling are not properly set (RE-based electricity generation, inclusive transport policy, system for battery recovery). The Project design is geared towards building these conditions and requires scrutiny during the implementation process.</b></p>	
	<i>High Risk</i>	<input type="checkbox"/>		

<sup>88</sup> 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>

<sup>89</sup> 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.

<b>QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are relevant?</b>		
Check all that apply		Comments
<b>Principle 1: Human Rights</b>	√	1.2 Inequitable Impact; 1.4 Exclusion from decision making. To be addressed by a comprehensive Stakeholder Engagement Plan and application of SESA for policy components, in coordination with the Implementing Partner.
<b>Principle 2: Gender Equality and Women's Empowerment</b>	√	2.2 Reproduction of discriminatory mechanisms. To be addressed by Gender Action Plan.
<b>1. Biodiversity Conservation and Natural Resource Management</b>	<input type="checkbox"/>	None
<b>2. Climate Change Mitigation and Adaptation</b>	√	2.2 Potential impacts of climate change; 2.3 Increase of social vulnerability (maladaptation). To be addressed by ESMF/ESMP, specifically to shape policy development.
<b>3. Community Health, Safety and Working Conditions</b>	√	3.3 Occupational health and safety. To be addressed by enforcing compliance with industry standards for demonstration pilot (through the Project Engineer specialist)>
<b>4. Cultural Heritage</b>	<input type="checkbox"/>	None
<b>5. Displacement and Resettlement</b>	<input type="checkbox"/>	None
<b>6. Indigenous Peoples</b>	√	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
<b>7. Pollution Prevention and Resource Efficiency</b>		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

<i>Signature</i>	<i>Date</i>	<i>Description</i>
QA Assessor		UNDP staff member responsible for the Project, typically a UNDP Programme Officer. Final signature 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), Deputy Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot also be the QA Assessor. Final signature confirms they have “cleared” the SESP prior to submittal to the PAC.
PAC Chair		UNDP chair of the PAC. In some cases PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the project appraisal and considered in recommendations of the PAC.

**SESP Attachment 1. Social and Environmental Risk Screening Checklist**

<b>Checklist Potential Social and Environmental Risks</b>		
<b>Principles 1: Human Rights</b>		<b>Answer (Yes/No)</b>
1.	Could the Project lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	No
2.	Is there a likelihood that the Project would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups? <sup>90</sup>	Yes
3.	Could the Project potentially restrict availability, quality of and access to resources or basic 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
<b>Principle 2: Gender Equality and Women’s Empowerment</b>		
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? <i>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</i>	No
<b>Principle 3: Environmental Sustainability:</b> Screening questions regarding environmental risks are encompassed by the specific Standard-related questions below		
<b>Standard 1: Biodiversity Conservation and Sustainable <u>Natural</u> Resource Management</b>		
1.1	Would the Project potentially cause adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services?  <i>For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes</i>	No

<sup>90</sup> 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.

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
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? <i>For example, construction of dams, reservoirs, river basin developments, groundwater extraction</i>	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? <i>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.</i>	No
<b>Standard 2: Climate Change Mitigation and Adaptation</b>		
2.1	Will the proposed Project result in significant <sup>91</sup> 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 <a href="#">vulnerability to climate change</a> now or in the future (also known as maladaptive practices)? <i>For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding</i>	Yes
<b>Standard 3: Community Health, Safety and Working Conditions</b>		
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

<sup>91</sup> In regards to CO<sub>2</sub>, '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.]

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
<b>Standard 4: Cultural Heritage</b>		
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
4.2	Does the Project propose utilizing tangible and/or intangible forms of cultural heritage for commercial or other purposes?	No
<b>Standard 5: Displacement and Resettlement</b>		
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? <sup>92</sup>	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
<b>Standard 6: Indigenous Peoples</b>		
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)?  <i>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.</i>	No

<sup>92</sup> 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.

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
<b>Standard 7: Pollution Prevention and Resource Efficiency</b>		
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 <a href="#">transboundary impacts</a> ?	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?  <i>For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol</i>	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

**Annex 5: UNDP Risk Register**

#	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 disfavoured 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 disfavoured 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 Coordinator / Technical 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 Coordinator / Technical 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	Project Coordinator / Technical eMobility Expert

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				<p>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.</p> <p>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.</p>	
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)	<p>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.<sup>93</sup> In this context, new eMobility systems deployed in Jamaica will have a similar exposure.</p> <p>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.</p>	Project Technical Coordinator / Project eMobility Expert
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	Climate	P = 1 I = 4 (moderate)	<p>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</p>	Project Technical Coordinator / Project eMobility Expert

<sup>93</sup> 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
	(also known as maladaptive practices)			<p>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.</p> <p>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).</p> <p>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).</p>	
6	Potential risks and vulnerabilities related to occupational health and safety.	Operational	P = 2 I = 2 (low)	<p>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.</p> <p>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.</p>	Project Coordinator / Technical eMobility Expert
7	Generation of waste (both hazardous and non-hazardous).	Environmental	P = 2 I = 3 (moderate)	<p>(a) There is a risk that e-waste will accumulate on the island (Jamaica) due to the increased use of EVs. Currently, the National Environment and Planning Agency has a rigorous system for the exportation of e-waste. However, no local e-waste processing and recycling systems exist. While larger batteries (from electric buses and cars) are usually downgraded and re-utilised for stationary purposes, smaller batteries may become dispersed in the environment. Importantly, markets for</p>	Project Coordinator / Technical eMobility Expert

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				<p>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 MEGJC 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). 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.</p> <p>(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.</p>	
8	Ownership issues and ineffective coordination between sector ministries would delay the uptake of eMobility in Jamaica.	Political	P = 3; I = 3 (moderate)	<p>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 Economic Growth and Job Creation (MEGJC). 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.</p> <p>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 guidance to policy and decision makers.</p> <p>Operationally, project outputs and activities are centred at MEGJC which simplifies the Project's institutional set-up, thereby substantially reducing the potential impact of ownership issues on Project execution.</p>	Project Steering Committee

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				However, one cannot discard that GOJ may not adopt EV policy and regulation. This risk cannot be controlled directly by the GEF Project alone. We expect (hope) that sufficient momentum is being built, by UNDP/GEF, IDB and others, and primarily the Jamaican market who is asking for EVs, so GOJ will respond (by late 2023).	
9	The Implementing Partner would face capacity limitations to implement the Project in alignment with established NIM procedures and guidelines.	Organizational, Fiduciary	P = 2; I = 4 (moderate)	UNDP's National Implementation Modality (NIM) can be challenging for national counterparts, who may face limitations to respond timely and may lack internal resources (or prioritisation) to support as envisioned. Decision-making processes may occur at a higher level than where a project is acting. Also, Project staff needs time to become acquainted with government procedures for specification and procurement of services and goods. As a result, project activities can become delayed and quality and relevance may be affected as well.  This risk is mitigated by ensuring adequate operational capacity within the IP's Project Management Unit (PIU), specifically by recruiting a part-time procurement specialist and a project finance and administrative specialist. Senior expertise is provided through the Project's Technical Coordinator, who will lead the policy and regulatory processes and be in charge of overall project management; and the Project's eMobility expert, who will lead the demonstration pilot and will have the purview of the technical outputs, including monitoring of safeguards. The proposed arrangement will provide the expertise and operational capacity for the IP to fully assume its responsibilities for Project execution.	UNDP CO Programme Manager
10	Technical issues would impede the successful execution of the demonstration 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 makers. Technical issues with include the limited product offer, design flaws, and range and power limitations which reduce operationability and flexibility compared to ICE vehicles. This aspects is particularly 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 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.	Project Technical Coordinator / Project eMobility Expert
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	Project Technical Coordinator

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				<p>people tend be more home-based and public transport is seeking ways to reduce public health risks.</p> <p>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.</p>	
12	Persistent high electricity costs would affect financial closure of EV investments.	Strategic, Financial	P = 2 I = 3 (moderate)	<p>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).</p> <p>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 conventional grid. The outcomes of the pilots shall feed into policy making including electricity sector expansion plans.</p>	Project Technical Coordinator

## Annex 6: Terms of Reference

### Terms of Reference for the Project Steering Committee (PSC)

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 is responsible for making by consensus, management decisions when guidance is required by the Project Manager<sup>94</sup>, including recommendations for UNDP/IP approval of project plans and revisions, and addressing any project level grievances. In order to ensure UNDP's ultimate accountability, PSC decisions should be made in accordance with standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective competition. In case a consensus cannot be reached within the PSC, final decision shall rest with the UNDP Resident Representative.

Specific responsibilities of the PSC include the following:

- a) To provide strategic guidance to the Project, ensuring it remains within any specified constraints;
- b) To assess and decide to proceed on project changes through appropriate revisions;
- c) To ensure coordination with various government agencies and their participation in project activities;
- d) To ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- e) To ensure coordination between various donor funded and government funded projects and programmes;
- f) To approve annual project work plans and budgets, at the proposal of the Project Manager;
- g) To agree on PM's tolerances<sup>95</sup> as required and to provide ad-hoc direction and advice for situations when PM's tolerances are exceeded;
- h) To approve any major changes in project plans or programmes;
- i) To oversee monitoring, evaluation and reporting in line with GEF requirements;
- j) To review the Project progress, and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- k) To appraise the annual PIR, including the quality assessment rating report;
- l) To provide guidance on new project risks, and agree on countermeasures and management actions to address these;
- m) To address project issues as raised by the PM;
- n) Ensure that UNDP Social and Environmental Safeguards Policy is applied throughout project implementation; and, address related grievances as necessary; and
- o) Negotiate solutions between the project and any parties beyond the scope of the project.

These terms of reference will be finalized during the Project Inception Workshop.

The Project Steering Committee will consist of: (i) one representative of the Ministry of Economic Growth and Job Creation (MEGJC), who will assume the role of Executive (Project Director); one representatives of each of the following GOJ entities: (ii) Ministry of Transport and Mining (MTM); (iii) Ministry of Science, Energy & Technology (MSET); (iv) Ministry of Finance and Public Service (MFPS); (v) Planning Institute of Jamaica (PIOJ); and (vi) one representative of UNDP Jamaica, in the role of Senior Supplier. The Project Manager (PM) will act as the Secretary of the PSC. The PSC is chaired by the Project Director.

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<sup>94</sup> In this Project the PM is the Project Technical Coordinator (PTC).

<sup>95</sup> The tolerance refers to the margin authorized to the PM to deviate from the approved AWP. Above this margin (for example 10% of the expected budget), PM must submit the case to the PB for approval.

### **Terms of Reference for National Project Director (NPD)**

The National Project Director (NPD) assumes ownership of the Project in the role of the Executive. The NPD is typically a high-level Government official at the level of vice-minister or department head, who will be part of the Project Steering Committee and act as its chair. As such, the NPD is not Project Staff; instead, he/she is the direct link between the Project and the national Government.

The NPD is ultimately responsible for the Project, and will ensure that the Project remains focused throughout its life cycle on achieving its objectives and delivering the outputs that will contribute to higher level outcomes. The NPD has to ensure that the project gives value for money, ensuring cost-conscious approach to the Project, balancing the demands of Senior Beneficiary and Senior Supplier. Expenses related to the function of the NPD will be financed through national government funds (co-financing).

Specific responsibilities of the National Project Director include:

- a) To be a member of the PSC and act as its chairperson;
- b) To supervise compliance of project implementation with Government policies and procedures
- c) To ensure consistency with national plans and strategies;
- d) To supervise compliance of the Project with its objectives and results, and other fundamental aspects of project execution as specified in the Project Document;
- e) To ensure that there is a coherent project organisational structure and logical set of plans;
- f) To participate in project evaluation, testing, and monitoring missions;
- g) To coordinate and supervise government staff inputs for project implementation; and
- h) To coordinate, oversee and report on government co-financing inputs to project implementation.

### **Terms of Reference for Project Technical Coordinator (PTC)**

The Project Technical Coordinator is a full-time position which combines technical functions (70% of time) and the project manager's role (about 30% of time). The scope of work and responsibilities for both are outlined below.

#### Technical Coordinator role

The Project Technical Coordinator (PTC) will provide orientation to MEGJC, UNDP and the other stakeholders on transport sector policy and the development of regulatory instruments for eMobility technologies. Among other duties, the PTC will facilitate and structure the engagement with the GOJ stakeholders and provide recommendations for enhancing the coordination and organization of transport, energy and environment sectors, on behalf of the PSC and UNDP. The PTC will play a key role to liaise with the academic sector, the private sector, and CSOs including commuters and vulnerable groups which were not duly represented during project preparation. The PTC will lead the working groups and consultancies that relate to policy and capacity building, and provide technical backstopping when required. He/she will work in a tandem with the Project eMobility Expert (PEE) who will have the lead in the technology-related project outputs, specifically the demonstration pilot. Together the PTC and the PEE will act as a task force capable of promoting the eMobility agenda in Jamaica. The PTC will further add value to the Project through tasks including drafting of terms of reference for contractors, review of consultancy reports, and liaison with stakeholders. The PTC will also be the focal person for the Global Programme and the Regional Support Centre.

Specific responsibilities of the PTC include:

- a) To engage with GOJ authorities and other stakeholders on eMobility development and regulation;
- b) To promote inter-institutional coordination and partnerships to support deployment of eMobility solutions in Jamaica;

- c) To draft terms of reference and work specifications, and overseeing all contractors' work;
- d) To supervise contracted activities and verify the quality of delivered services and goods;
- e) To provide technical backstopping for project teams and working groups, specifically for project components 1, 3 and 5;
- f) To participate in project activities including:
  - (1) policy analysis and collaboration in drafting of eMobility policy;
  - (2) participation in design of tax policy and financial incentives;
  - (3) organisation of working groups to collect and consolidate mobility data;
  - (4) participation in working groups with university;
  - (5) preparation of eMobility business incubator support; participation in evaluation committees;
  - (6) organisation of eMobility events and workshops and purview of contracted services;
- g) To assure the quality of project activities, including consultancies and procurement;
- h) To identify new risks as appropriate for consideration of the PSC to decide on possible action, as and if required;
- i) To act as focal person for the environmental and social safeguards, and gender experts; and:
- j) To capture lessons learned during project implementation.
- k) Facilitating the technical oversight of UNDP as the GEF implementing agency including providing ToR and deliverables as requested by UNDP including but not limited to PIR exercise;

#### Project Manager Role

The Project Manager (PM) has the authority to run the Project on behalf of the PSC and within the constraints laid down by the PSC. The PM is responsible for day-to-day management and decision-making for the Project. The PM's primary responsibility is to ensure that the Project produces the results specified in the Project Document, to the required standard of quality and within specified time and cost constraints.

The PM will be responsible for the overall management of the Project, including the mobilization of all project inputs, supervision of project staff, consultants and sub-contractors. The PM will report to the NPD in close consultation with the assigned UNDP Programme Manager for all of the Project's substantive and administrative issues. From the strategic point of view of the Project, the PM will report on a periodic basis to the PSC in response to NPD instructions.

The PM will provide general support to the NPD who is ultimately responsible for meeting IP obligations under the Project. The PM will perform a liaison role with the government, UNDP and other UN agencies, CSOs and project partners, and with other cooperation agencies providing co-financing.

Specific responsibilities of the PM include:

- a) To provide direction and guidance to the Project Management Unit (PMU), other project consultants and Responsible Party(ies), if any;
- b) To liaise with the PSC to assure the overall direction and integrity of the Project;
- c) To assume responsibility for Project administration and update the Atlas Project Management module (if external access is made available);
- d) To prepare the project Annual Work Plans (AWPs);
- e) To seek advice and support as needed for Project management, planning and control;
- f) To plan Project activities and monitor progress against the Results Framework and the approved AWP;
- g) To mobilise personnel, goods and services, training and micro-capital grants to initiate activities;
- h) To monitor events as determined in the project monitoring schedule plan/timetable, and update the plan as required;
- i) To manage requests for the provision of financial resources by UNDP, through advance of funds, direct payments or reimbursement using the Fund Authorization and Certificate of Expenditures (FACE);
- j) To monitor financial resources and accounting to ensure the accuracy and reliability of financial reports;

- k) To assume the preparation and submission of financial reports to UNDP on a quarterly basis;
- l) To manage and monitor the Project risks initially identified and update the status of these risks by maintaining the Project Risk Log;
- m) To prepare the GEF PIR and submit the final report to the PSC;
- n) To ensure the MTR process is undertaken as per UNDP guidance and submit final MTR report to the PSC;
- o) To identify follow-on actions and submit them for consideration to the PSC; and:
- p) To ensure the TE process is undertaken as per UNDP guidance and submit the final TE report to the PSC.
- q) To ensure technical quality, both in terms of TORs and deliverables of activities
- r) To facilitate access to UNDP, in its oversight role, of TORS and deliverables of key activities, both in terms of ad hoc requests and standard processes, e.g., PIRs

#### Required skills and expertise

- P-3 level national expert to act as the Project Technical Coordinator for the Project;
- A university degree (MSc or PhD) in a subject related to development studies, political sciences, public administration, civil engineering, social sciences, economics, or environmental sciences;
- At least 5 years of demonstrable project/programme management experience;
- Experience with international cooperation projects; GEF project implementation; or UNDP project management, is an asset; and:
- Previous experience with public administration procedures in Jamaica is an asset.

#### Competencies

- Excellent leadership, managerial and coordination skills, with demonstrated ability to effectively coordinate large multi-stakeholder projects, including financial and technical aspects;
- Ability to engage effectively with a variety of stakeholders across at all levels;
- Ability to develop and sustain robust partnerships with project partners and collaborating agencies;
- Team player with excellent abilities to effectively manage technical and administrative teams;
- Effective supervision skills, specifically of working groups and external consultants in their implementation of technical activities in partnership with stakeholders from GOJ and society;
- Proven outstanding project management and accounting skills;
- Strong drafting, presentation and reporting skills;
- Strong communication skills both in presence as through conferencing media, skype, email, etc;
- Strong computer proficiency, in particular the use of office applications; internet search; conferencing tools; and document management;
- Good knowledge of the political and socio-economic context of Jamaica; and:
- Excellent command of English language.

#### **Terms of Reference for Project eMobility Expert**

The Project eMobility Expert (PEE) will provide orientation to MEGJC, UNDP and the other stakeholders by bringing in specific knowhow and expertise on mobility technology including eMobility. The PEE will act as a resource person for GOJ stakeholders, private sector, CSOs and academic staff during the design and execution of project activities. The PEE will form a strong tandem with the PTC to push forward the eMobility agenda in Jamaica. To this purpose, the PEE will engage closely with GOJ stakeholders to initiate and develop specific eMobility topics including technical standards, tax policy, financial incentives, training needs, opportunities for business development, and EV waste management strategies.

The PEE will lead Project working groups and provide technical backstopping when required. He/she will add value to the Project through tasks including drafting of terms of reference for contractors and review of consultancy reports and other products. The PEE will be actively involved in technical work including design of data collection strategies, data analysis, and analysis of eMobility business models. The PEE will lead the Project's demonstration pilot (Component 2) and initiate and supervise activities including external services to develop an EV battery recycling mechanism and waste management strategy. The PEE will lead the design and implementation of the eMobility demonstration pilot on behalf of the GEF Project, in close coordination with designated staff from the partner (envisioned: University of the West Indies).

Specific responsibilities of the PEE include:

- a) To engage with authorities and other stakeholders on eMobility development and regulation;
- b) To promote partnerships to support deployment of eMobility solutions in Jamaica;
- c) To draft terms of reference and work specifications, and overseeing contractors' work;
- d) To supervise contracted activities and verify the quality of delivered services and goods;
- e) To provide technical backstopping for project teams and working groups, specifically for project components 2 and 4;
- f) To ensure a due diligence process during the demonstration pilot including application of ESIA measures and gender action plan, and quality assurance (QA) as it relates to the provision of goods and services;
- g) To be responsible for design of data collection programme as part of EV demonstration pilot;
- h) To supervise the EV battery and waste management activities;
- i) To act as the direct superior for the Project Engineer (PE) assigned to the EV demonstration pilot
- j) To supervise the EV battery and waste management activities;
- k) To act as resource person during Project events and workshops.
- l) To be deployed in project activities including:
  - (1) collaborate in drafting of eMobility policy;
  - (2) participation in design of technical standards and regulation;
  - (3) participation in design of financial incentives;
  - (4) initiate eMobility data clearinghouse and leading working group with university staff;
  - (5) specification of ICT equipment and software and participation in procurement process;
  - (6) lead, in collaboration with university staff, the development of sustainable mobility plan;
  - (7) initiate the feasibility study for the demonstration pilot and integrate the results into a final project design and implementation plan;
  - (8) specification of EV equipment and participation in procurement process;
  - (9) reception of EV equipment and related services and installations;
  - (10) identify operational issues and risks during pilot preparation and execution, and development of solutions in collaboration with designated university staff;
  - (11) organise data analysis activities and daily monitoring of indicators;
  - (12) participate in working groups with university; and
  - (13) participate in evaluation of eMobility incubator proposals and progress reports;
- m) To assure the quality of project activities, including consultancies and procurement;
- n) To act as focal person for the environmental and social safeguards and gender experts; and
- o) To capture lessons learned during project implementation.
- p) Independently check the quality of deliverables,
- q) Facilitating the technical oversight of UNDP as the GEF implementing agency including providing ToR and deliverables as requested by UNDP including but not limited to PIR exercise;

#### Required skills and expertise

- P-3 level national expert to act as the Project eMobility Expert for the Project;
- University degree (MSc or PhD) in engineering (industrial, civil, electrical or mechanical engineer), or similar;
- At least 3 years' experience with applied research of electric mobility technology systems at public or private organisations; or:
- At least 3 years' experience with the design and execution of mobility project development for the public or private sector;
- Experience with international cooperation projects; GEF project implementation; or UNDP project management, is an asset; and:
- Experience with public administration procedures in Jamaica is an asset.

#### Competencies

- Strong managerial skills, with demonstrated ability to effectively coordinate technical, environmental and financial aspects of mobility projects.
- Ability to engage effectively with a variety of stakeholders across at all levels;
- Team player with excellent abilities to effectively manage and participate in technical teams;
- Ability to translate identified requirements into functional and technical specifications for external suppliers;
- Leadership skills to steer contractors and suppliers; enforce agreed terms and quality standards; and agility to manage and resolve issues and disputes;
- Strong drafting, presentation and reporting skills;
- Strong communication skills both in presence as through conferencing media, skype, email, etc;
- Strong computer proficiency, in particular the use of office applications; internet search; conferencing tools; and document management;
- Good knowledge of the political and socio-economic context of Jamaica; and:
- Excellent command of English language.

#### **Terms of Reference for Project Finance and Administrative Officer (PFA)**

Under the guidance and supervision of the Project Manager, the Project Finance and Administrative Officer will carry out the following tasks:

- Assist the Project Manager in day-to-day management and oversight of project activities;
- Provide PMU-related administrative and logistical assistance;
- Assist in the preparation of progress reports;
- Ensure all project documentation (progress reports, consulting and other technical reports, minutes of meetings, etc.) are properly maintained in hard and electronic copies in an efficient and readily accessible filing system, for when required by PSC, UNDP, and PMU staff;
- Keep records of project funds and expenditures, and ensure all project-related financial documentation are well maintained and readily available when required by the Project Manager;
- Review project expenditures and ensure that project funds are used in compliance with the Project Document and GOJ financial rules and procedures;
- Validate and certify FACE forms before submission to UNDP;
- Provide necessary financial information as and when required for project management decisions;
- Provide necessary financial information during project audit(s);
- Review annual budgets and project expenditure reports, and notify the Project Manager if there are any discrepancies or issues;
- Consolidate financial progress reports submitted by the responsible parties for implementation of project activities; and:
- Liaise and follow up with the responsible parties for implementation of project activities in matters related to project funds and financial progress reports.
- To ensure technical quality, both in terms of TORs and deliverables of activities

- n) To facilitate access to UNDP, in its oversight role, of TORS and deliverables of key activities, both in terms of ad hoc requests and standard processes, e.g., PIRs

Expertise, skills and competencies:

- A Bachelor's degree or an advanced diploma in accounting/ financial management;
- At least 5 years of relevant working experience, preferably in a project management setting involving multi-lateral/ international funding agency. Previous experience with UN projects will be an asset;
- Very good inter-personal skills;
- Proficiency in the use of computer software applications especially MS Word and MS Excel; and
- Excellent language skills in English (writing, speaking and reading).

**Terms of Reference for Project Procurement Specialist (PPS)**

The Project will recruit a Procurement Specialist (PPS) to assist the Implementing Partner to initiate and monitor procurement of services and goods following public administration processes applicable for the Government of Jamaica (GOJ), and in close dialogue with the United Nations Development Programme (UNDP) Country Office in Jamaica. The position of the PPS is part-time for 2 days per week (40%) for three (3) years.

The Procurement Specialist is responsible for the following tasks:

- a) Advise the National Project Director (NPD) on all procurement matters, progress and constraints with the implementation of the procurement packages;
- b) Work in coordination with the Project Technical Coordinator and the Project eMobility Expert and advise them on issues associated with GOJ procurement;
- c) Be responsible for procurement plans for services and goods in adherence to GOJ national processes and timelines;
- d) Prepare bidding documents and draft contracts for goods and services (based on drafts provided by the Project team members) following IP (MEGJC/GOJ) procedures and in adherence to national processes and timelines;
- e) Prepare terms of references (TORs) for EOIs and consultant short-listing,
- f) Prepare evaluation proposals (matrix) for RFPs, proposals, tenders, etc.;
- g) Establish and maintain close links with the relevant organizations involved in the Project and ensure their compliance with all relevant requirements and the adherence to Government and UNDP procedures in implementing their work plans;
- a) Prepare requests for Expressions of Interest (EOI), if appropriate, request for proposals (RFP) and draft contracts for goods and services in accordance with the procurement plan;
- b) Review and provide guidance on the preparation of bidding Documents, RFP's, and contracts;
- c) Provide guidance on short-listing for consultancy services and evaluations of proposals;
- d) Conduct general reviews of procurement performance and submission of reports;
- e) Verify accuracy of tender documentation (TOR, tender dossier, tender evaluation, etc.) and compliance with government procedures and regulations; ensure completeness of files before submission to Government panels, evaluation teams, etc.
- f) Review technical documentation, estimation of costs,
- g) Participate in the evaluation process of received bids and proposals;
- h) Facilitate implementation of GOJ internal control systems and Project annual audits; and:
- i) Assist in preparation and presentation of reports on procurement.

- j) Facilitating the technical oversight of UNDP as the GEF implementing agency including providing ToR and deliverables as requested by UNDP including but not limited to PIR exercise;

#### Required skills and expertise

- Completed Bachelor's Degree in public administration, public accountancy, business administration, supply chain management, or other relevant discipline.
- At least 10 years of post-qualifying experience out of which 3 years handling of project-related procurement processes in Government of Jamaica.

#### Competencies

- Excellent financial and budgetary skills;
- Ability to seek and apply knowledge, information and best practices from multiple sectors;
- Strong analytical skills exceptional ability in communication and networking, negotiations and writing;
- Excellent written communication skills, with analytic capacity and ability to synthesize relevant collected data and findings for the preparation of progress reports;
- Ability to work with a multidisciplinary and multicultural team;
- Builds strong relationships with a focus on impact and responds positively to feedback;
- Demonstrates openness to change and ability to manage complexities;
- Promotes the vision, mission, and strategic goals of GOJ;
- Demonstrates integrity by modelling the UN's values and ethical standards;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability.

#### **Terms of Reference for Project Engineer (PE)**

The Project will hire a national project engineer (PE) to assist the university during the design and implementation of the demonstration pilot. The PE will work under the direct guidance and supervision of Project eMobility Expert (PEE). The designated university staff, PEE and PE together form the Pilot Technical Unit (PTU), with the PE based at the university.

The tasks and responsibilities of the Project Engineer include:

- a) Technical assistance to project partners for EV demonstration pilot (GEF Project Component 2);
- b) Development of conceptual and technical studies as input for scoping, design and engineering of the demonstration pilot;
- c) Review of studies and reports submitted by external suppliers and project partners;
- d) Participate in meetings with EV technology suppliers and project partners;
- e) Participate in working sessions for EV technical standard development;
- f) Under supervision of the PEE:
  - (1) support drafting of functional and technical specifications;
  - (2) participate in reception process of EV equipment;
  - (3) supervise installation activities by contractors;
  - (4) verify compliance with risk mitigation plans including ESIA, Gender Action Plan, waste management plan, and report and address discrepancies;
  - (5) design the data collection methodology for the EV pilot;
  - (6) carry out daily monitoring of technical performance of EV pilot;
  - (7) analyse obtained data and identify anomalies and events;
- g) Act as a resource person during Project events and workshops;

- h) Capture lessons learned during project implementation.
- i) Facilitating the technical oversight of UNDP as the GEF implementing agency including providing ToR and deliverables as requested by UNDP including but not limited to PIR exercise;

#### Required skills and expertise

- National expert to act as the Project Engineer (PE) for the Project;
- University degree (preferably MSc level) in engineering (electrical, computer sciences, mechanical engineer, physics), or similar;
- At least 2 years' experience with applied research of mobility systems, ICT systems, energy systems, or similar, at public or private organisations;
- At least 1 year experience with the design and execution of technology projects (ICT, mobility, energy, or similar) for the public or private sector;
- Demonstrated experience and up-to-date knowledge of data acquisition technologies and communication protocols; demonstrated experience with the handling and analysis of large data sets; and:
- Proficiency with data analysis software and modelling of scenarios.

#### Competencies

- Strong engineering skills and proficiency with data acquisition and analysis;
- Accurate work attitude including filing of information;
- Ability to break complex technical problems into smaller pieces;
- Ability to translate information needs into technical solutions;
- Strong communication skills both in presence as through conferencing media, skype, email, etc.;
- Strong computer proficiency, in particular the use of office applications; internet search; conferencing tools; and document management; and:
- Excellent command of English language.

**Annex 7: Stakeholder Engagement Plan**

[See attached file](#)

**Annex 8: Environmental Social Management Framework (ESMF)**

[See attached file](#)

**Annex 9A Gender Analysis & 9B Gender Action Plan**

[See attached file](#)

**Annex 10: Procurement Plan (Year 1)**

[See attached file](#)

**Annex 11: Indicative description demonstration pilot**

[See attached file](#)

**Annex 12: Environmental benefits (GHG emission reductions)**

[See attached file](#)

**Annex 13: Additional agreements (cofinancing letters )**

[See attached file\(s\)](#)

Annex 14: GEF Core indicators

<b>Core Indicator 6</b>	<b>Greenhouse gas emission mitigated</b>				<b>(Metric tons of CO<sub>2</sub>e)</b>		
		Expected metric tons of CO <sub>2</sub> e (6.1+6.2)					
		PIF stage	Endorsement	MTR	TE		
	Expected CO <sub>2</sub> e (direct)	0	762				
	Expected CO <sub>2</sub> e (indirect)	173,038	199,000				
<b>Indicator 6.1</b>	<b>Carbon sequestered or emissions avoided in the AFOLU sector</b>						
		Expected metric tons of CO <sub>2</sub> e					
		PIF stage	Endorsement	MTR	TE		
	Expected CO <sub>2</sub> e (direct)						
	Expected CO <sub>2</sub> e (indirect)						
	Anticipated start year of accounting						
	Duration of accounting						
<b>Indicator 6.2</b>	<b>Emissions avoided Outside AFOLU</b>						
		Expected metric tons of CO <sub>2</sub> e (10-year)					
		Expected		Achieved			
		PIF stage	Endorsement	MTR	TE		
	Expected CO <sub>2</sub> e (direct)		762				
	Expected CO <sub>2</sub> e (indirect)	173,038	199,000				
	Anticipated start year of accounting		2025				
	Duration of accounting		10 years				
<b>Indicator 6.3</b>	<b>Energy saved</b>						
		(*1000 MJ)					
		Expected		Achieved			
		PIF stage	Endorsement	MTR	TE		
		n/d	1,761,000				
<b>Indicator 6.4</b>	<b>Increase in installed renewable energy capacity per technology</b>						
		Technology	Capacity (MW)				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
		Solar Photovoltaic	0 MW	0.010 MW			
		(select)					
<b>Core Indicator 11</b>	<b>Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment</b>				<b>(Number)</b>		
			Number				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
		Female	n/d	14,000			
		Male	n/d	6,000			
		Total	n/d	20,000			

**Annex 15: GEF 7 Taxonomy**

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

Level 1	Level 2	Level 3	Level 4
<input checked="" type="checkbox"/> Gender Equality	<input checked="" type="checkbox"/> Gender Mainstreaming		
		<input type="checkbox"/> Beneficiaries	
		<input type="checkbox"/> Women groups	
		<input checked="" type="checkbox"/> Sex-disaggregated indicators	
		<input type="checkbox"/> Gender-sensitive indicators	
	<input checked="" type="checkbox"/> Gender results areas		
		<input type="checkbox"/> Access and control over natural resources	
		<input checked="" type="checkbox"/> Participation and leadership	
		<input checked="" type="checkbox"/> Access to benefits and services	
		<input type="checkbox"/> Capacity development	
		<input type="checkbox"/> Awareness raising	
		<input type="checkbox"/> Knowledge generation	
<input checked="" type="checkbox"/> Focal Areas/Theme	<input type="checkbox"/> Integrated Programs		
		<input type="checkbox"/> Commodity Supply Chains ( <sup>96</sup> Good Growth Partnership)	
			<input type="checkbox"/> Sustainable Commodities Production
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Financial Screening Tools
			<input type="checkbox"/> High Conservation Value Forests
			<input type="checkbox"/> High Carbon Stocks Forests
			<input type="checkbox"/> Soybean Supply Chain
			<input type="checkbox"/> Oil Palm Supply Chain
			<input type="checkbox"/> Beef Supply Chain
			<input type="checkbox"/> Smallholder Farmers
			<input type="checkbox"/> Adaptive Management
		<input type="checkbox"/> Food Security in Sub-Saharan Africa	
			<input type="checkbox"/> Resilience (climate and shocks)
			<input type="checkbox"/> Sustainable Production Systems
			<input type="checkbox"/> Agroecosystems
			<input type="checkbox"/> Land and Soil Health
			<input type="checkbox"/> Diversified Farming
			<input type="checkbox"/> Integrated Land and Water Management
			<input type="checkbox"/> Smallholder Farming
			<input type="checkbox"/> Small and Medium Enterprises
			<input type="checkbox"/> Crop Genetic Diversity
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Gender Dimensions
			<input type="checkbox"/> Multi-stakeholder Platforms
		<input type="checkbox"/> Food Systems, Land Use and Restoration	
			<input type="checkbox"/> Sustainable Food Systems
			<input type="checkbox"/> Landscape Restoration
			<input type="checkbox"/> Sustainable Commodity Production
			<input type="checkbox"/> Comprehensive Land Use Planning
			<input type="checkbox"/> Integrated Landscapes
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Smallholder Farmers
		<input type="checkbox"/> Sustainable Cities	
			<input type="checkbox"/> Integrated urban planning

Level 1	Level 2	Level 3	Level 4
			<input type="checkbox"/> Urban sustainability framework
			<input type="checkbox"/> Transport and Mobility
			<input type="checkbox"/> Buildings
			<input type="checkbox"/> Municipal waste management
			<input type="checkbox"/> Green space
			<input type="checkbox"/> Urban Biodiversity
			<input type="checkbox"/> Urban Food Systems
			<input type="checkbox"/> Energy efficiency
			<input type="checkbox"/> Municipal Financing
			<input type="checkbox"/> Global Platform for Sustainable Cities
			<input type="checkbox"/> Urban Resilience
	<input type="checkbox"/> Biodiversity		
		<input type="checkbox"/> Protected Areas and Landscapes	
			<input type="checkbox"/> Terrestrial Protected Areas
			<input type="checkbox"/> Coastal and Marine Protected Areas
			<input type="checkbox"/> Productive Landscapes
			<input type="checkbox"/> Productive Seascapes
			<input type="checkbox"/> Community Based Natural Resource Management
		<input type="checkbox"/> Mainstreaming	
			<input type="checkbox"/> Extractive Industries (oil, gas, mining)
			<input type="checkbox"/> Forestry (Including HCVF and REDD+)
			<input type="checkbox"/> Tourism
			<input type="checkbox"/> Agriculture & agrobiodiversity
			<input type="checkbox"/> Fisheries
			<input type="checkbox"/> Infrastructure
			<input type="checkbox"/> Certification (National Standards)
			<input type="checkbox"/> Certification (International Standards)
		<input type="checkbox"/> Species	
			<input type="checkbox"/> Illegal Wildlife Trade
			<input type="checkbox"/> Threatened Species
			<input type="checkbox"/> Wildlife for Sustainable Development
			<input type="checkbox"/> Crop Wild Relatives
			<input type="checkbox"/> Plant Genetic Resources
			<input type="checkbox"/> Animal Genetic Resources
			<input type="checkbox"/> Livestock Wild Relatives
			<input type="checkbox"/> Invasive Alien Species (IAS)
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangroves
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Sea Grasses
			<input type="checkbox"/> Wetlands
			<input type="checkbox"/> Rivers
			<input type="checkbox"/> Lakes
			<input type="checkbox"/> Tropical Rain Forests
			<input type="checkbox"/> Tropical Dry Forests
			<input type="checkbox"/> Temperate Forests
			<input type="checkbox"/> Grasslands
			<input type="checkbox"/> Paramo
			<input type="checkbox"/> Desert
		<input type="checkbox"/> Financial and Accounting	
			<input type="checkbox"/> Payment for Ecosystem Services
			<input type="checkbox"/> Natural Capital Assessment and Accounting

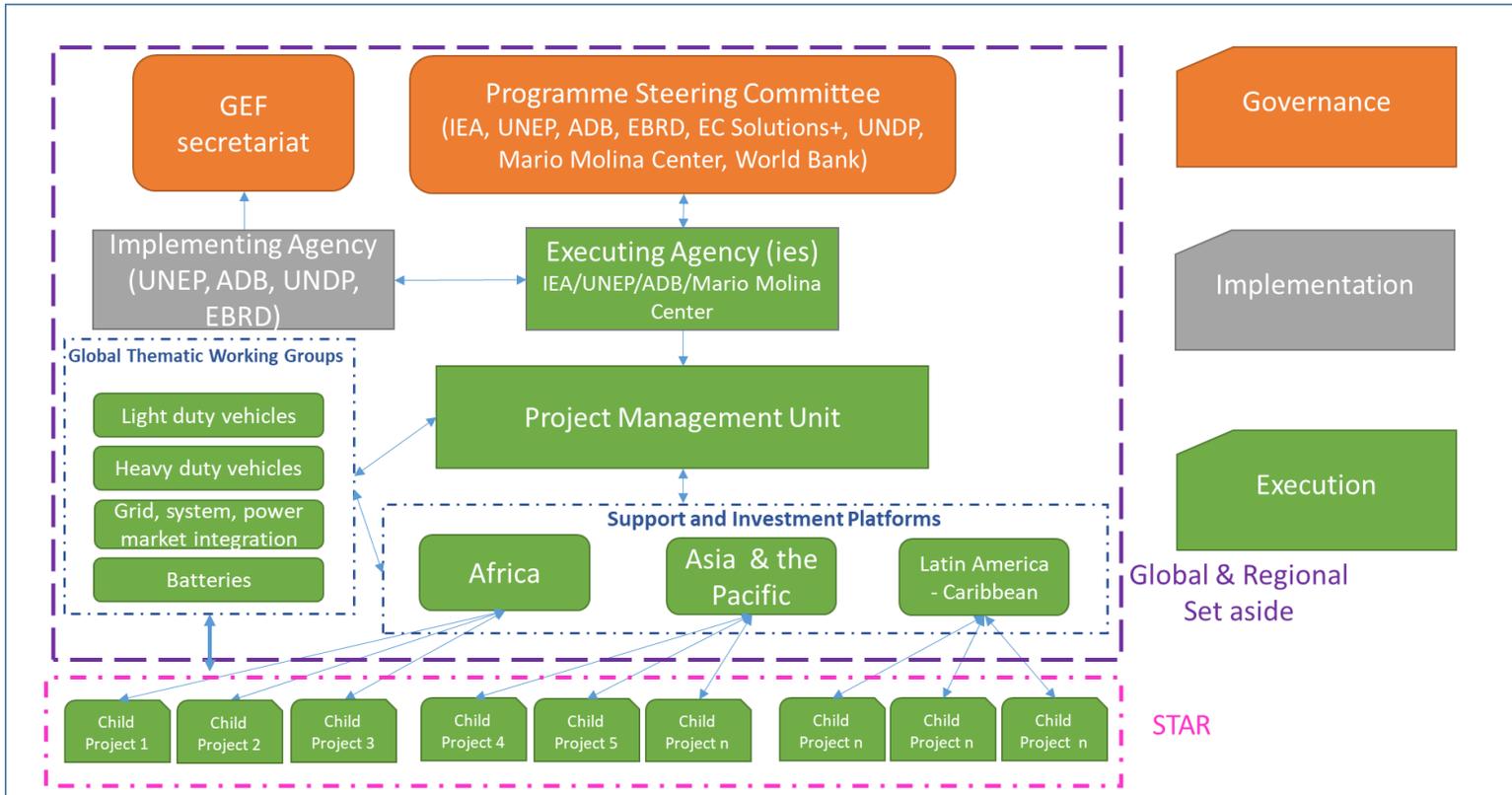
Level 1	Level 2	Level 3	Level 4
			<input type="checkbox"/> Conservation Trust Funds
			<input type="checkbox"/> Conservation Finance
		<input type="checkbox"/> Supplementary Protocol to the CBD	
			<input type="checkbox"/> Biosafety
			<input type="checkbox"/> Access to Genetic Resources Benefit Sharing
	<input type="checkbox"/> Forests		
		<input type="checkbox"/> Forest and Landscape Restoration	
		<input type="checkbox"/> Forest	<input type="checkbox"/> REDD/REDD+
			<input type="checkbox"/> Amazon
			<input type="checkbox"/> Congo
			<input type="checkbox"/> Drylands
	<input type="checkbox"/> Land Degradation		
		<input type="checkbox"/> Sustainable Land Management	
			<input type="checkbox"/> Restoration and Rehabilitation of Degraded Lands
			<input type="checkbox"/> Ecosystem Approach
			<input type="checkbox"/> Integrated and Cross-sectoral approach
			<input type="checkbox"/> Community-Based NRM
			<input type="checkbox"/> Sustainable Livelihoods
			<input type="checkbox"/> Income Generating Activities
			<input type="checkbox"/> Sustainable Agriculture
			<input type="checkbox"/> Sustainable Pasture Management
			<input type="checkbox"/> Sustainable Forest/Woodland Management
			<input type="checkbox"/> Improved Soil and Water Management Techniques
			<input type="checkbox"/> Sustainable Fire Management
			<input type="checkbox"/> Drought Mitigation/Early Warning
		<input type="checkbox"/> Land Degradation Neutrality	
			<input type="checkbox"/> Land Productivity
			<input type="checkbox"/> Land Cover and Land cover change
			<input type="checkbox"/> Carbon stocks above or below ground
		<input type="checkbox"/> Food Security	
	<input type="checkbox"/> International Waters		
		<input type="checkbox"/> Ship	
		<input type="checkbox"/> Coastal	
		<input type="checkbox"/> Freshwater	
			<input type="checkbox"/> Aquifer
			<input type="checkbox"/> River Basin
			<input type="checkbox"/> Lake Basin
		<input type="checkbox"/> Learning	
		<input type="checkbox"/> Fisheries	
		<input type="checkbox"/> Persistent toxic substances	
		<input type="checkbox"/> SIDS : Small Island Dev States	
		<input type="checkbox"/> Targeted Research	
		<input type="checkbox"/> Pollution	
			<input type="checkbox"/> Persistent toxic substances
			<input type="checkbox"/> Plastics
			<input type="checkbox"/> Nutrient pollution from all sectors except wastewater
			<input type="checkbox"/> Nutrient pollution from Wastewater
		<input type="checkbox"/> Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		<input type="checkbox"/> Strategic Action Plan Implementation	

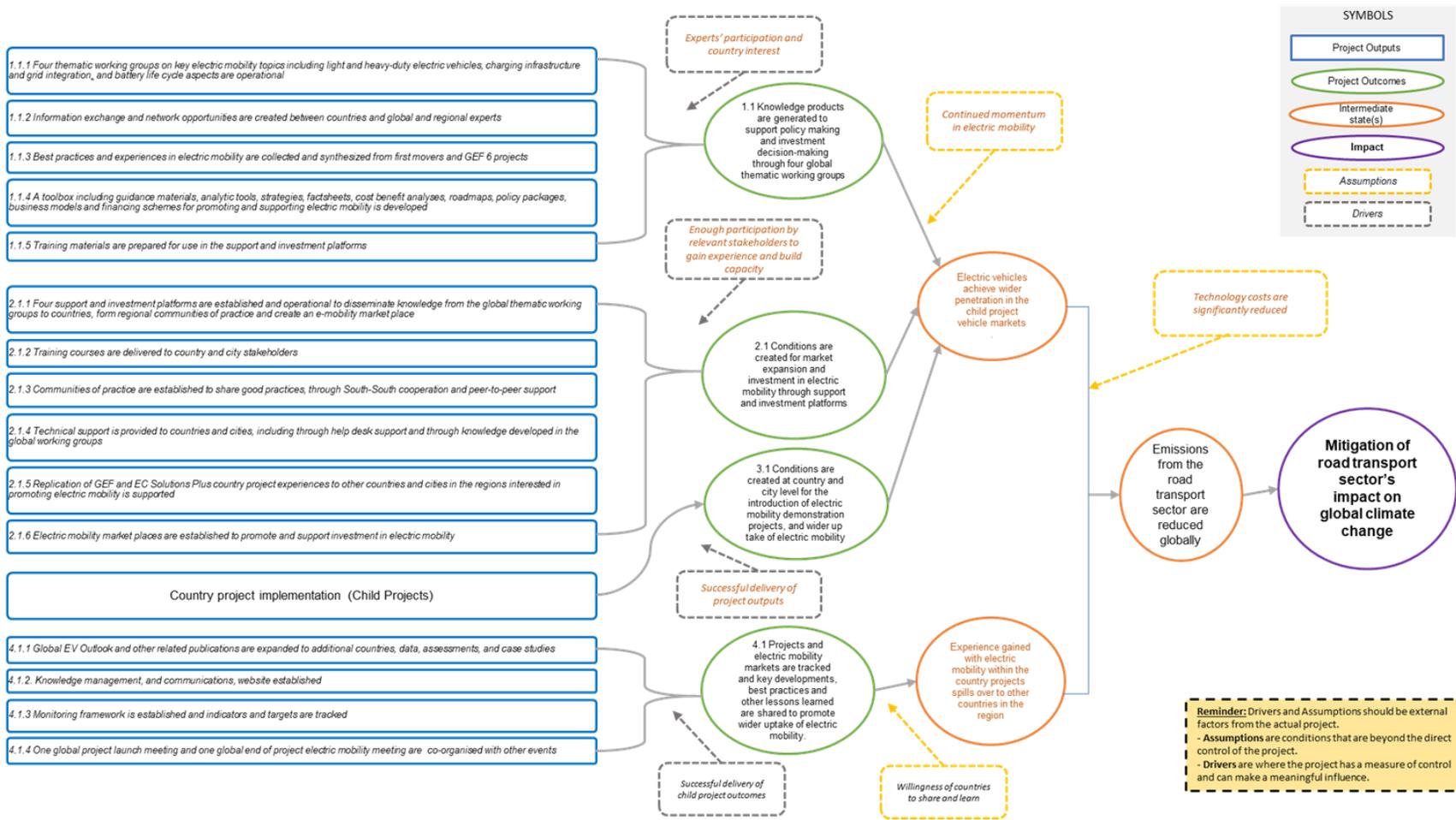
Level 1	Level 2	Level 3	Level 4
		<input type="checkbox"/> Areas Beyond National Jurisdiction	
		<input type="checkbox"/> Large Marine Ecosystems	
		<input type="checkbox"/> Private Sector	
		<input type="checkbox"/> Aquaculture	
		<input type="checkbox"/> Marine Protected Area	
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangrove
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Seagrasses
			<input type="checkbox"/> Polar Ecosystems
			<input type="checkbox"/> Constructed Wetlands
	<input checked="" type="checkbox"/> Chemicals and Waste		
		<input type="checkbox"/> Mercury	
		<input type="checkbox"/> Artisanal and Scale Gold Mining	
		<input type="checkbox"/> Coal Fired Power Plants	
		<input type="checkbox"/> Coal Fired Industrial Boilers	
		<input type="checkbox"/> Cement	
		<input type="checkbox"/> Non-Ferrous Metals Production	
		<input type="checkbox"/> Ozone	
		<input type="checkbox"/> Persistent Organic Pollutants	
		<input type="checkbox"/> Unintentional Persistent Organic Pollutants	
		<input type="checkbox"/> Sound Management of chemicals and Waste	
		<input checked="" type="checkbox"/> Waste Management	
			<input type="checkbox"/> Hazardous Waste Management
			<input type="checkbox"/> Industrial Waste
			<input checked="" type="checkbox"/> e-Waste
		<input type="checkbox"/> Emissions	
		<input type="checkbox"/> Disposal	
		<input type="checkbox"/> New Persistent Organic Pollutants	
		<input type="checkbox"/> Polychlorinated Biphenyls	
		<input type="checkbox"/> Plastics	
		<input type="checkbox"/> Eco-Efficiency	
		<input type="checkbox"/> Pesticides	
		<input type="checkbox"/> DDT - Vector Management	
		<input type="checkbox"/> DDT - Other	
		<input type="checkbox"/> Industrial Emissions	
		<input type="checkbox"/> Open Burning	
		<input type="checkbox"/> Best Available Technology / Best Environmental Practices	
		<input type="checkbox"/> Green Chemistry	
	<input checked="" type="checkbox"/> Climate Change		
		<input type="checkbox"/> Climate Change Adaptation	
			<input type="checkbox"/> Climate Finance
			<input type="checkbox"/> Least Developed Countries
			<input type="checkbox"/> Small Island Developing States
			<input type="checkbox"/> Disaster Risk Management
			<input type="checkbox"/> Sea-level rise
			<input type="checkbox"/> Climate Resilience
			<input type="checkbox"/> Climate information
			<input type="checkbox"/> Ecosystem-based Adaptation
			<input type="checkbox"/> Adaptation Tech Transfer
			<input type="checkbox"/> National Adaptation Programme of Action
			<input type="checkbox"/> National Adaptation Plan
			<input type="checkbox"/> Mainstreaming Adaptation
			<input type="checkbox"/> Private Sector
			<input type="checkbox"/> Innovation
			<input type="checkbox"/> Complementarity
			<input type="checkbox"/> Community-based Adaptation

Level 1	Level 2	Level 3	Level 4
		<input checked="" type="checkbox"/> Climate Change Mitigation	<input type="checkbox"/> Livelihoods
			<input type="checkbox"/> Agriculture, Forestry, and other Land Use
			<input type="checkbox"/> Energy Efficiency
			<input checked="" type="checkbox"/> Sustainable Urban Systems and Transport
			<input checked="" type="checkbox"/> Technology Transfer
			<input type="checkbox"/> Renewable Energy
			<input type="checkbox"/> Financing
			<input type="checkbox"/> Enabling Activities
		<input type="checkbox"/> Technology Transfer	
			<input type="checkbox"/> Poznan Strategic Programme on Technology Transfer
			<input type="checkbox"/> Climate Technology Centre & Network (CTCN)
			<input type="checkbox"/> Endogenous technology
			<input type="checkbox"/> Technology Needs Assessment
			<input type="checkbox"/> Adaptation Tech Transfer
		<input type="checkbox"/> United Nations Framework on Climate Change	
			<input type="checkbox"/> Nationally Determined Contribution

# Organization and management

Global e-mobility programme (PFD)

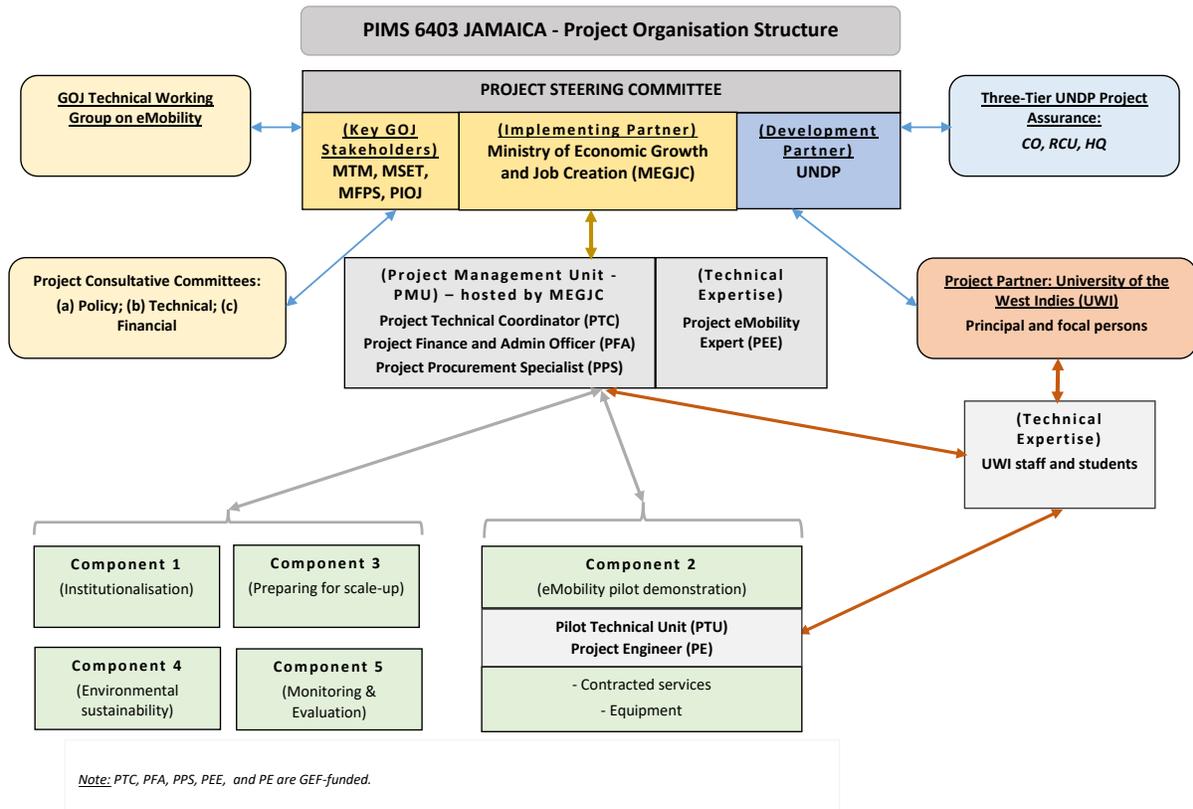




## Annex 17: University of the West Indies Master Plan 2021-2026

See attached file(s).

## Annex 18: Detailed Project Organisation Structure



## Annex 19: GEF Budget

Expenditure Category	Detailed Description	Component (USDeq.)							Total (USDeq.)	Responsible Entity
		Component 1	Component 2	Component 3	Component 4	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency)[1]
Equipment	1k\$ - Office furniture for PTC.	1,000				1,000			1,000	MEGJC
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	MEGJC
Equipment	1k\$ - Office furniture for PEE.		1,000			1,000			1,000	MEGJC
Equipment	393k\$ (2.1.3) - equipment eMobility pilots for as per technical specifications (vehicles, charging stations, data loggers)		393,000			393,000			393,000	MEGJC
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	MEGJC
Equipment	1k\$ - Office furniture for PMU					-		1,000	1,000	MEGJC
Equipment	4.5k\$ Three (3) laptops, printer and digital camera for PMU.					-		4,500	4,500	MEGJC

Contractual services-Individual	<p>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 (MEGJC) 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.</p> <p>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 TOR and supervision of contracted services; and (iv) compilation of proposals and presentations to stakeholders.</p>	158,000				158,000		158,000	MEGJC
Contractual services-Individual	<p>105k\$ (2.1.1: 15k\$ - 2.1.2: 20k\$ - 2.1.3: 27k\$ - 2.1.4: 43k\$) - One mobility expert (Project eMobility Expert - PEE) for: (i) team leader for demonstration pilot design and implementation in collaboration with UWI staff and Project Engineer (PE); (ii) drafting of TOR for contracted services (studies related to feasibility analysis and ESIA); (iii) leading feasibility study process with Pilot Technical Unit and contributing to reports; (iv) technical specification of EV equipment and systems; (v) drafting of TOR and supervision of contracted services; (vi) participation in procurement and supplier selection process; (vii) supervision of products, goods and services delivered by subcontractors; (viii) lead consultant for monitoring of pilot and analysis of operational data; (viii) responsible for ESMP 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 reporting to PSC.</p>	105,000				105,000		105,000	MEGJC
Contractual services-Individual	<p>75k\$ (3.1.1: 15k\$ - 3.1.2: 10k\$ - 3.1.3: 20k\$ - 3.1.5: 30k\$) - One policy expert (Project Technical Coordinator - PTC) for: (i) leading the eMobility business development process and participate in evaluation meetings with counterparts; (ii) drafting Terms of Reference for curriculum development in cooperation with UWI partners; (iii) liaison with sector and other relevant stakeholders; (iv) mobilisation of</p>		75,000			75,000		75,000	MEGJC

	inputs and resources from the Global Programme; and (v) supervision of the process and reporting to PSC.									
Contractual services-Individual	26k\$ (4.1.1: 16k\$ - 4.1.2: 7k\$ - 4.1.3: 3k\$) One mobility expert (PEE) to: (i) lead the process, drafting of TOR and supervision of contracted services; (ii) participation in stakeholder meetings; (iii) drafting of final proposals for submission to PSC and IP.				26,000	26,000			26,000	MEGJC
Contractual services-Individual	36.26k\$ - Contractual Services: Project Technical Coordinator for project management activities, as per terms 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 part-time).					-		132,260	132,260	MEGJC
Contractual services-Company	20k\$ (1.1.3) – One contract with specialised consultancy 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	MEGJC
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	MEGJC

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	MEGJC
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. 23.641k\$ (5.1.3) - One independent international expert to conduct the GEF Terminal Evaluation.						49,641		49,641	MEGJC
Local Consultants	12k\$ (1.1.5) - One contract with national consultant to collect and consolidate mobility data.	12,000					12,000		12,000	MEGJC
Local Consultants	90k\$ (2.1.2: 15k\$ - 2.1.3: 25k\$ - 2.1.4: 50k\$) - One national expert to act as Project Engineer (PE) for: (i) technical design of eMobility pilot in close collaboration with Project Team and UWI; (ii) technical specification of EV equipment and systems; (iii) participation in procurement and supplier selection process; (iii) supervision of deliveries and installations; (iv) monitoring of pilot and analysis of operational data; (v) fact-finding for ESMP monitoring and screening; (vi) identification of operational issues and initiation of remedial actions; and (vii) identification of opportunities for enhancement and/or upscaling of the pilots.		90,000				90,000		90,000	MEGJC
Local Consultants	42.359k\$ (4.1.1) - One or more contracts with national consultants to support knowledge development and toolkit preparation; 43k\$ (4.1.2: 28k\$ - 4.1.3: 15k\$) One or more contracts with national consultant for: (i) review of EV battery management systems in use globally; (ii) analysis of EV supply chains in Jamaica; (iii) field research including interviews and meetings with market actors; (iv) drafting of guidelines for local EV battery management and presentation to GOJ; and (v) preparation of proposal for extended supplier responsibility model for eMobility batteries and components in Jamaica.				85,359	85,359			85,359	MEGJC

Local Consultants	17k\$ (5.1.1) - One national expert for knowledge management and communication strategy design. 14k\$ (5.1.2) - One national gender expert for: (i) periodic supervision of Gender Action Plan implementation; and (ii) identification of issues and recommendations for enhancement.						-	31,000		31,000	MEGJC
Travel	11k\$ - Costs of domestic travel (air tickets, land travel, 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	MEGJC
Travel	13k\$ - Costs of domestic travel (land travel, fuel, DSA).		13,000			13,000				13,000	MEGJC
Travel	2k\$ - Costs of domestic travel (land travel, fuel, DSA)			2,000		2,000				2,000	MEGJC
Travel	5k\$ - Costs of domestic travel (land travel, fuel, DSA).				5,000	5,000				5,000	MEGJC
Travel	8.602k\$ - Mission costs (international travel and DSA) for international consultants. Costs of domestic travel (land travel, fuel, DSA).						-	8,602		8,602	MEGJC
Travel	2.5k\$ - Costs of domestic travel (land travel, fuel, DSA)						-		2,500	2,500	MEGJC
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	MEGJC
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	MEGJC
Other Operating Costs	7k\$ - Printing of brochures and posters; electronic media for events and promotion.			7,000		7,000				7,000	MEGJC
Other Operating Costs	8k\$ - Printing of manuals, proposals, and guidelines.				8,000	8,000				8,000	MEGJC
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	MEGJC
<b>Grand Total</b>		<b>355,000</b>	<b>824,000</b>	<b>230,000</b>	<b>124,359</b>	<b>1,533,359</b>		<b>89,243</b>	<b>162,260</b>	<b>1,784,862</b>	