

# GEF-8 REQUEST FOR CEO CHILD ENDORSEMENT/APPROVAL

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## General Child Project Information

Child Project Title

Supporting the Shift to Electric Mobility in the Republic of Zambia

Region	GEF Project ID
Zambia	11082
Country(ies)	Type of Project
Zambia	MSP
GEF Agency(ies)	GEF Agency Project ID
UNEP	
Project Executing Entity(s)	Project Executing Type
Zambian Environmental Management Agency (ZEMA)	Government
GEF Focal Area (s)	Submission Date
Climate Change	6/14/2024
Type of Trust Fund	Project Duration (Months)
GET	48
GEF Project Grant: (a)	Agency Fee(s) Grant: (b)
2,000,000.00	180,000.00
PPG Amount: (c)	PPG Agency Fee(s): (d)
50,000.00	4,500.00
Total GEF Financing: (a+b+c+d)	Total Co-financing
2234500	8,571,104.00

Project Sector (CCM Only)

Transport/Urban

Rio Markers

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Principal Objective 2	No Contribution 0	No Contribution 0	No Contribution 0

### Project Summary

Provide a brief summary description of the project, to offer a snapshot of what is being proposed. The summary should include: (i) what is the problem and issues to be addressed? ii) as a child project under a program, explain how the description fits in the broader context of the specific program; (iii) what are the project objectives, and if the project is intended to be transformative,

how will this be achieved? and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. (max. 250 words, approximately 1/2 page)

In Zambia, the transport sector is the second largest contributor to Greenhouse Gas (GHG) emissions from the energy sector, after electricity and heat (2.55 million tons (Mt) CO<sub>2e</sub> or 30% of energy sector GHG emissions in 2020<sup>[1]</sup>). Transport sector GHG emissions are growing fast and have increased by almost 219% between 1990 and 2020. Such growth is mainly due to increased reliance in motorized travel in rapidly expanding cities. Current annual population growth is 3.0%. Zambia has one of the highest levels of urbanization in Africa, particularly around the cities of Lusaka, Ndola, Kitwe, and Mufulira, so that the share of urban population is forecasted to increase from 45% (2021) to 60% of by 2045<sup>[2]</sup>. The number of motor vehicles in Zambia increased from around 183,700 in 2006, to approx. 664,000 in 2015 and more than 876,000 in 2021 representing an increase of more than 300% over a period of just 16 years<sup>[3]</sup>.

Low quality urban public transport (PT) services, inadequate urban infrastructure and massive importation of cheap and polluting secondhand vehicles result in traffic congestion, unequal mobility conditions (especially for low-income families, women and others), and growing fuel consumption and emissions by an increasingly old road fleet (the average vehicle age being 12.5 years in 2018 and increasing since then)<sup>[4]</sup>.

Business as usual mobility trends would increase the already high dependence of Zambia on fossil fuel imports for meeting the energy demand for transport. The preliminary measures put in place by the government to encourage a transition from Internal Combustion Engine (ICE) to electric vehicles (EV) such as reduced custom duty (15% for EVs vs 30% for ICE vehicles) and excise duty exemptions (compared to 30% for conventional vehicles) have not been effective, at the end of 2022 there were 101 EVs on Zambian roads, including 49 light passenger vehicles and 44 tricycles and motorcycles<sup>[5]</sup>.

As a child project of the GEF-8 Global E-mobility Programme, this project builds upon the Global Programme's objective to support countries with scaling-up investment in integrated e-mobility systems through the provision of global knowledge, technical assistance and a global partnership on Used EVs, Battery End-of-Life and Circularity.

Indeed, the project in Zambia aims to accelerate the introduction of electric mobility in Zambia, as a way to reduce GHG emissions while improving air quality and increasing the efficiency of the transport sector. As a child project of the United Nations Environment Programme's (UNEP) Global E-mobility Programme, the project is structured around four components: (1) strengthening and consolidating an enabling institutional framework for the deployment of integrated electric mobility systems, (2) providing technical evidence of the feasibility and comparative advantages of electric mobility systems through demonstrations within the public transport system in Lusaka and within the government's fleets, (3) facilitating the scaling up and replication of the demonstrations in Lusaka, as well as in other urban and rural areas, and (4) addressing the environmental challenges associated with electric mobility: the management of batteries and vehicles at their

end of life and integrating and aligning electric mobility deployment with the expansion of electricity generation and distribution from renewable sources.

Through achievement of the four components above, the project is expected to be transformative in supporting Zambia in its transition towards electric mobility, to the provision of higher quality public transport services in cities and to the achievement of Zambia's Nationally Determined Contribution (NDC) targets. The project is expected to achieve direct and indirect greenhouse gas emissions mitigation of 611,957 and 1,417,788 tons of CO<sub>2e</sub> within 10 years after project termination.

[1] ClimateWatch Data ([www.climatewatchdata.org](http://www.climatewatchdata.org)).

[2] United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Online Edition.

[3] Data provided by Road Transport and Safety Agency (RTSA).

[4] Information provided by RTSA. No quantitative estimates available after 2018.

[5] Data provided by RTSA, including motorcycles, cars, pick-ups and minibuses.

## Child Project Description Overview

### Project Objective

Accelerating the introduction of electric mobility in Zambia with a focus on reducing GHG emissions, energy use, improving air quality, environmentally sound management of EV waste and increasing the efficiency of the transport sector.

### Project Components

#### Component 1: Enabling framework for integrated electric mobility systems.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
440,233.00	170,000.00

Outcome:

1. The Government of Zambia promotes integrated electric mobility systems by enhancing coordination, capacity, planning and endorsing a national gender-responsive low carbon mobility strategy.

Output:

1.1. A national intersectoral coordination platform on e-mobility is established and meets on a regular basis

1.2. A national gender-responsive low-carbon mobility strategy is developed and submitted to the Cabinet for approval.

1.3. A public knowledge management platform on integrated e-mobility systems is developed, operationalized and maintained.

1.4. A national gender-responsive capacity-building plan on electric mobility is developed and implemented, including national trainings and participation in the events organized by the Global E-Mobility Programme.

1.5. A gender-responsive awareness raising campaign on e-mobility integrated systems targeting the general public is designed and implemented.

## Component 2: Electric mobility systems demonstrations.

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
775,852.00	2,175,000.00

Outcome:

2. The government of Zambia takes steps to the scale-up of integrated electric mobility systems based on the evidence provided by demonstrations.

Output:

2.1. Pilot concept: A conceptual design and a feasibility study for an EV public transport pilot project in Lusaka are developed.

2.2. Pilot detailed design: A gender responsive implementation plan for the EV public transport pilot project is developed, including the definition of pilot locations, data monitoring system and specifications for pilot EVs and charging infrastructure.

2.3. Pilot execution: The EV public transport pilot project is implemented, results are collected and disseminated to the government and public transport operators.

2.4. Government institutions are supported in the electrification of their fleets through public procurement guidelines and the piloting of an EV fleet monitoring system.

## Component 3: Scale-up and replication of integrated electric mobility systems.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
393,246.00	5,095,000.00

Outcome:

3. The Government of Zambia adopts policies, regulations and technical standards and endorses a financing scheme to accelerate the introduction of integrated electric mobility systems.

Output:

3.1. Fiscal, regulatory and policy measures (i.e. financial incentives, building codes, standards, etc.) to incentivize the uptake of EVs and charging infrastructure are developed (or enhanced) and submitted to the government for approval.

- 3.2. An investment plan for implementing the sustainable e-mobility strategy (output 1.2), including recommendations for scaling up charging infrastructure in Zambia is developed, presented to national stakeholders and submitted to the government for endorsement.
- 3.3. A financial mechanism is developed to support investments into EVs and charging infrastructure and is presented to national stakeholders.
- 3.4. The National non-motorized transport (NMT) Strategy is updated, to include the integration of NMT modes with public transport and to mobilize resources for its implementation in Lusaka.
- 3.5. A project concept note for scaling up e-mobility (i.e. for strengthening public transport cooperatives) is prepared and submitted to a financial institution or donor for approval.

## Component 4: Long-term environmental sustainability of electric mobility systems.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
169,568.00	100,000.00

### Outcome:

4. The Government of Zambia endorses a roadmap with measures to ensure the long-term environmental sustainability of integrated electric mobility systems, including EV and battery end-of-life.

### Output:

- 4.1. A technical guidance package on environmentally sound management of end-of-life EVs is developed to support government officers in the implementation of the legislative and regulatory framework on e-waste management.
- 4.2. A roadmap to operationalize the environmentally sound management of end-of-life EVs and batteries (collection, re-use, recycling, re-integration into value chains and sound disposal) is developed, discussed with national stakeholders (including e-waste companies) and submitted to the government for endorsement.

## Component 5: Monitoring and Evaluation

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
59,101.00	231,104.00

### Outcome:

5. The project is effectively monitored and evaluated.

### Output:

- 5.1. Monitoring and evaluation products are delivered

## M&E

Component Type	Trust Fund
GEF Project Financing (\$)	Co-financing (\$)

Outcome:

Output:

## Component Balances

Project Components	GEF Project Financing (\$)	Co-financing (\$)
Component 1: Enabling framework for integrated electric mobility systems.	440,233.00	170,000.00
Component 2: Electric mobility systems demonstrations.	775,852.00	2,175,000.00
Component 3: Scale-up and replication of integrated electric mobility systems.	393,246.00	5,095,000.00
Component 4: Long-term environmental sustainability of electric mobility systems.	169,568.00	100,000.00
Component 5: Monitoring and Evaluation	59,101.00	231,104.00
M&E		
<b>Subtotal</b>	<b>1,838,000.00</b>	<b>7,771,104.00</b>
Project Management Cost	162,000.00	800,000.00
<b>Total Project Cost (\$)</b>	<b>2,000,000.00</b>	<b>8,571,104.00</b>

Please provide Justification

## CHILD PROJECT OUTLINE

### A. PROJECT RATIONALE

Describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Since this is a child project under a program, please include an explanation of how the context fits within the specific program agenda. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here



## A1. Global environmental problem

### Overview

A global transition to low- and zero-emission mobility is essential to meet international climate commitments, such as the Paris Agreement. The transport sector is currently responsible for approximately one quarter of global energy-related carbon dioxide (CO<sub>2</sub>) emissions, and transport demand is expected to double (for passengers) and triple (for goods) by 2050 compared to 2015<sup>[1]</sup><sup>6</sup>. In addition, the transport sector is a leading contributor to air pollution, including that caused by nitrogen oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>) and particulate matter (PM). Transport decarbonization becomes critical for reducing GHG emissions in line with the Paris Agreement, with electrification of road transport as one of its more relevant contributors. However, road transport electrification may also generate new environmental challenges. The main one is that road transport could become a major source of electronic waste, especially due to electric vehicle (EV) batteries, if no measures to re-use and recycle are undertaken.

### National context

Zambia remains a net sink for greenhouse gas (GHG) emissions, although reducing such capacity from -56,866.0 Gg CO<sub>2</sub>eq in 1994 to -16,718.0 Gg CO<sub>2</sub>eq in 2010 and to -9,508.5 Gg CO<sub>2</sub>eq in 2016. Excluding removals, the Total GHG emissions have increased from 86,063.2 Gg CO<sub>2</sub>eq in 1994 to 120,604.0 Gg CO<sub>2</sub>eq in 2010 and 126,758 Gg CO<sub>2</sub>eq in 2016, representing a growth of 40.4% and 47.3%, respectively. In 2016, AFOLU sector was still the highest source of emissions, at 93.00%, followed by energy at 5.08%. The emissions in the energy sector (including transport) increased from 2,179.4 Gg CO<sub>2</sub>eq. in the 1994 base year to 3,155.8 Gg CO<sub>2</sub>eq. in 2010 and 6,443.7 Gg CO<sub>2</sub>eq. in 2016<sup>[2]</sup><sup>7</sup>.

In the absence of action, emissions are projected to increase by 42%, from 120,785.2 Gg CO<sub>2</sub> eq. in 2010 to 171,532.1 Gg CO<sub>2</sub> eq. in 2050. The main emission drivers include transport activity in the energy sector, the mineral industry (together with cement and lime production and eventually from starting steel production) and forest land conversion and livestock in the AFOLU sector.

The mitigation policies and measures are spelt out in the country's national development strategies (Vision 2030 and 8<sup>th</sup> National Development Plan, NDP), as well as in the first Biennial Update Report (BUR-1) and in the Nationally Determined Contributions (NDC). Further details on the NDC are provided in section A.2.

### Transport sector

In accordance with the Climate Watch Estimates (Figure 1), the transport sector is the second largest contributor to GHG emissions within the energy sector (2.55 Gg CO<sub>2</sub>e or 30% of energy sector GHG emissions in 2020), and would represent more than 35% were it not for the drought period started in 2017,

which led to a 268% increase in emissions from electricity generation, as hydraulic production needed to be replaced by fuel generation. GHG emissions from transport have grown by almost 265% between 1990 and 2019, although temporarily decreased by 6% in 2020 due to the COVID pandemic.

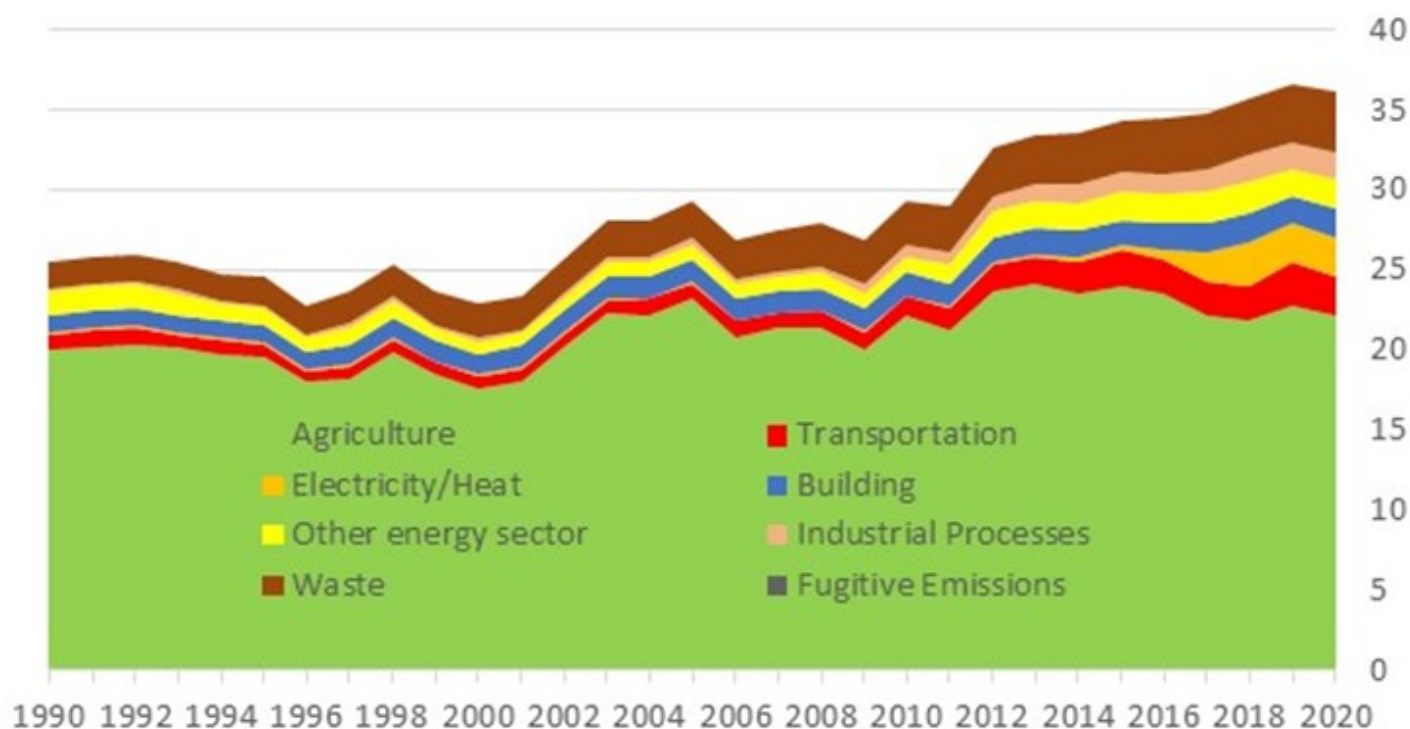


Figure 1: Historical GHG Emissions in Zambia (Tg CO<sub>2</sub>e excluding LUCF) [\[3\]](#)<sup>8</sup>

Transport is envisaged to play a central role in Zambia's development. As a landlocked country with a central geographic position, it could become an intermodal transport hub for Central and Southern Africa, with international trade routes traversing the country and providing access to all Southern Africa Development Community (SADC) ports. However, for the time being, the transport system remains underdeveloped, imposing high transportation costs and affecting the competitiveness of the whole Zambian economy.

The railway network is small, and it does not serve many of the new locations of economic activity that have consolidated over the years. Zambia has an extensive network of lakes, rivers, man-made canals and swamps, but the development of inland waterway transport infrastructure has been limited, and inadequately maintained. In consequence, road transport provides for most of the mobility needs for freight and passengers. The total road network amounts to 67,761 km, but maintenance and investment efforts are concentrated in a core road network of 40,554 km.

Road transport faces challenges such as a high number of accidents, high road freight transport costs, and an old motor vehicle fleet. Limited roadway capacity and poor infrastructure conditions coupled with a growing population and economy results in traffic congestion, environmental pollution and deteriorating road infrastructure. Transport costs are strongly influenced by fluctuating fuel prices, which tend to be higher than international prices due to the need to transport them by road from foreign ports.

Road transport demand increases with population growth, especially urban areas, where transport-linked challenges also tend to intensify. Whereas total population in Zambia is growing by 3% annually, urban population is growing above 4%, so that the country has one of the highest levels of urbanization in Africa, particularly around the cities of Lusaka, Ndola, Kitwe, and Mufulira<sup>[4]</sup><sup>9</sup>. The metropolitan area of Lusaka is one of the fastest developing urban areas in southern Africa, growing by nearly 5% annually for the last 20 years, having now reached over 3 million people. By 2045, 60% of total population in Zambia could be living in urban areas. In recent years, this increase in urbanization led to a rise in motorized urban mobility demand, which is being met by an ever-increasing and aging vehicle stock.

A state-owned bus company was closed down in 1995, following the liberalization and privatization trends of the time. To cope with passenger mobility needs, the government granted tax exemptions for minibuses imports, rapidly leading to the current situation in which interurban and urban passenger services are provided by a myriad of small operators, too often with decrepit minibuses with doubtful roadworthiness conditions, and an oversupply of such vehicles further contributing to urban traffic congestion. There is no limit on the vehicle age to provide public transport (PT) services. The quality of the service is poor, with long waiting and travel times, poor safety conditions, limited accessibility and relatively high prices considering the purchase power of most of the population. Those that can afford it rely on hail-a-ride services or purchase a car, usually a second-hand imported vehicle. As there is no age restriction in used vehicle importation, the average age of imported vehicles (new and used) is high, estimated in 12.8 years in 2014 (last year available)<sup>[5]</sup><sup>10</sup>.

The total number of registered vehicles in Zambia has been increasing constantly since the early 2000s, reaching 183,700 in 2006, 664,000 in 2015 and 960,237 in December 2022: an increase of more than 300% over a period of just 16 years. The trend of importing used vehicles into Zambia continues, and the average age of Zambia's motor vehicle fleet is 12.5 years and increasing. Those developments in the transport sector are heavily impacting fossil fuel consumption, GHG emissions and traffic congestion in the country.

## **A2. Baseline – Zambia's current and future existing efforts**

### Concepts behind the transition to electric mobility

Road transport decarbonization is crucial to achieve the climate change mitigation targets of the Government of the Republic of Zambia (GRZ); as shown by global trends and experience in other countries, road transport demand tends to be strongly coupled with economic development, especially in developing countries, so that in the absence of decarbonization actions in this sector, GHG emissions will grow, making all but impossible to attain the GHG mitigation targets set up in NDC documents.

Electrification is generally considered as a powerful measure to decarbonize road transport. However, it is worth keeping in mind that other measures, such as the promotion of non-motorized transport (NMT) and public transport (PT), especially in urban areas. Curbing mobility (through fiscal measures or restrictive regulations) does not seem an option in developing countries, as mobility demand remains low and the economy and quality of life could be seriously hampered. Most decarbonization measures have other positive

effects, such as reducing air pollution and accidents, liberating public space from traffic and creating more liveable urban environments. They are likely to have also positive effects in terms of social equity, as NMT and PT modes tend to be used by worse off social groups, such as low-income citizens, children, the elderly or women, although such social benefits cannot be taken for granted and should be facilitated by additional actions, to better tailor the improvements to the mobility needs of the targeted groups and to their ability-to-pay. Under these conditions, decarbonization becomes the core of sustainable mobility policies.

To be sustainable, the deployment of electric mobility requires consistency along three main sectoral policies: transport, energy (or more specifically its electricity system) and electric / electronic waste (e-waste) management. In the transport sector, the promotion of e-mobility needs to focus on the users' profile providing higher impact (usually professional and public service fleets with high mileage) rather than individuals (which would probably benefit the most affluent population) and should be consistent with sound fleet modernization policies to protect the country from the likely influx of second-hand ICE vehicles from developed countries that are establishing phase-out plans for such vehicles; taxation and customs regulations are powerful instruments to consider. The deployment of EVs also needs to be consistent with the availability, reliability and decarbonization (i.e. expansion of generation from renewables) of the electricity system; otherwise, the operation of EVs could be seriously hampered and their GHG mitigation potential dramatically reduced. Finally, the introduction of any new technology brings additional environmental challenges for the disposal of its devices at their end of life. In this case, the already existing challenge of management of end-of-life vehicles (ELV), which remains a problem even in developed countries, is coupled with the need to adequately manage their batteries. It is worth noting that lithium batteries are not considered as hazardous e-waste under the 2022-revised annexes of the Basel Convention, and the capacities to use the resulting materials is highly concentrated globally; therefore, it seems sufficient to focus action in developing countries in the initial treatment of used batteries for the subsequent exportation of the materials to the few countries around the world with capacities to further treat and make use of them.

In the next subsections, the baseline in Zambia for the three sectors mentioned above (transport, electricity and e-waste management) is described, together with a review of the key relevant stakeholders (with more details about these stakeholders in Annex L).

### Transport sector

In 2019, the country adopted a National Transport Policy (NTP) which states that the country's objective is *"to have an efficient and integrated Transport System in Zambia by 2028"* and that it should *"promote integrated transportation of goods and passengers, ensure optimal maintenance and rehabilitation of existing transport infrastructure, promote private sector involvement in transport infrastructure"*. The NTP also recognizes that fiscal policies (road taxes and tolls, vehicle taxes) were not favoring the uptake of environmentally friendly vehicles and, on the contrary, the average age at which motor vehicles were imported has increased over time. The NTP is complemented by an implementation plan for 2019-2028, which addresses, inter alia, the revision of vehicle taxation to favor the procurement and use of environmentally friendly vehicles; however, it does not foresee the introduction of limits to the age of used vehicles for importation. It also foresees an enhanced management of the government fleet, for which the government adopted a Government Fleet Management Policy covering 2019-2030 and complemented by a Plan of Action. A Draft National Transport Master Plan was prepared in 2022, but the government has not issued a final version of the plan yet.

The country's Nationally Determined Contributions (NDC) were submitted in 2021, updating the 2016 Intended Nationally Determined Contributions (INDC). Taking 2010 as the base year, the NDC includes

mitigation action in additional sectors, including transport. Compared to 2010 levels, Zambia intends to reduce its greenhouse gas emissions in 2030 by 25% (20,000 Gg), if the level of international support prevailing in 2015 is kept and by 47% (38,000 Gg) in case it receives more substantial international support, assuming a domestic contribution of USD 15 billion and international support of USD 35 billion. The NDC does not include a quantitative analysis of sectoral targets. The mitigation actions focus on three areas: sustainable forest management, sustainable agriculture, and renewable energy and energy efficiency. The latter included a Nationally Appropriate Mitigation Action (NAMA) on sustainable transport, which has not been implemented yet (see below for details).

The NDC Partnership supported the government in 2023 for the preparation of an NDC Implementation Framework 2023-2030. It estimates financial needs at USD 17.2 billion and provides general guidance for each sector. In transport, it foresees moving 30% of cargo from roads to railways (through the rehabilitation of 2,132 km of railways and electrification of 30% of it) and implementing energy-efficient systems (such as tramways) in Lusaka (50 km of tramways) and other major cities, with an estimated cost of USD 6.5 billion by 2030 and emission reductions of 1,973 Gg CO<sub>2</sub>e. The NDC Implementation Framework includes a financing and resource mobilization section, but it does not provide information on the possible financial sources to undertake these investments.

Urban mobility challenges, with a focus on Lusaka, have been addressed in a variety of policies and technical documents. In 2009, Japan International Cooperation Agency (JICA) provided support for the *Study on Comprehensive Urban Development Plan for the City of Lusaka*. It included a Household Interview Survey (administered in 2007), which remains the reference on urban mobility data in the absence of more recent data. Such document would be very influential in focusing policy action on the expansion of the road network, even if most the ambitious proposals of the study did not find the resources to be implemented. In 2017, the government, through its Ministry in charge of Local Government<sup>[6]<sup>11</sup></sup> and with support of the Indian Government, produced the Lusaka Decongestion Project (LDP), with 120.7 km of road works, including bus lanes in the medians, the upgrading of the ring road and several new roads, grade separations and road expansions. Although the expected financing by Indian banks of the construction works did not materialize, some of these schemes have been implemented in the last years. The Ministry responsible for transport<sup>[7]<sup>12</sup></sup> conducted in 2020 a detailed feasibility study for the urban transport system in Lusaka, including mass transit systems such as BRT and light rail lines. This feasibility study led to the preparation of a NAMA proposal for the implementation of two light rail routes in Lusaka. In 2023, the Ministry of Transport and Logistics, issued a *Concept Note on the Road Traffic Challenges and Proposed Solutions for Decongestion of Traffic in Zambia with Focus on the Greater City of Lusaka* building upon these formal proposals to prioritize actions that could “overcome the problem of congestion”.

The policy documents mentioned above do not make explicit considerations regarding the mobility restrictions that may be faced by women, low-income citizens and other social groups. Such considerations are however present in the National Non-Motorized Transport (NMT) Strategy, endorsed by the GRZ in 2019 and mentioned in the NTP. The National NMT Strategy highlights the need to engage women in the design of streets, to give priority to investments in the transport modes more used by lower income groups (walking, cycling and public transport), to take into consideration the impact of high public transport tariffs on these groups, and to properly identify and address the mobility needs of children, women and persons with reduced mobility (PMR). Similar considerations can be found in studies on urban mobility in Lusaka completed by



the World Bank<sup>[8]<sup>13</sup></sup>, the Zambia Institute for Policy Analysis and Research (ZIPAR)<sup>[9]<sup>14</sup></sup>, and the Passenger Public Transport Cooperative (PPTCoop)<sup>[10]<sup>15</sup></sup>. Unfortunately, the implementation of the National NMT Strategy was hampered first by the COVID pandemic and afterwards by lack of dedicated resources by the GRZ.

As described in Annex K (Gender Analysis), the vulnerabilities faced by women in the transport sector are relevant for both, users and workers. Women are potentially subject to harassment and even physical violence while walking, waiting at bus stations and stops<sup>[11]<sup>16</sup></sup> (especially in zones with poor lighting) or on board of public transport vehicles. Harassment and violence could also be faced by female bus drivers (e.g. by aggressive passengers trying to avoid payment or to steal the fares collected), and this is identified as a strong barrier by those working in this sector for women to access such jobs. Furthermore, the limited presence of women in the transport sector (including buses, taxis and hail-a-ride services) facilitates the continuity of a male-dominated culture in the sector, with weak control and enforcement of rules and hard-working conditions. Finally, the limited presence of women in technological grades in secondary education limits their possibilities to benefit from the introduction of technological innovations in transport, such as e-mobility.

The main legal framework for the transport sector includes the Road Traffic Act No.11 of 2002, as read together with the Road Traffic (Amendment) Act, 2022, and the Public Roads Act (2002), as read together with the Public Roads (Amendment) Act, 2022, which on top of establishing the classification of roads and regulations for their construction and maintenance, sets up the Roads Development Agency and the 2009 Highway Code, which is prepared on the basis of the mandate of the Road Traffic Act (2002) to the Ministry of Transport and Logistics to further develop certain aspects of the law.

Transport data is gathered and administered by the Road Transport and Safety Agency (RTSA), which is responsible for vehicle registration and technical inspection, driver licenses, traffic control and enforcement, as well as the implementation of the government's policy on transport, traffic management and road safety. Data from RTSA shows significant average growth in the number of registered light passenger vehicles between 2018 and 2022 (recovering in 2022 from the slow down during the COVID pandemic), as shown in the table below.

Vehicle category	Annual Registrations						
	2018	2019	2020	2021	2022	AAG	2022 Fleet
Light passenger vehicle	24,484	21,316	17,037	24,973	36,026	10,14%	407,551
Minibus	466	352	228	305	504	1,98%	18,733
Pick-up	3,968	3,068	2,482	3,505	3,205	-5,20%	75,139
Van body	541	646	500	869	1,545	30,00%	6,840

Table 1: 2022 fleet and annual registrations of main passenger vehicle categories (Source: RTSA)

It can be concluded that the Government of the Republic of Zambia (GRZ) is aware of the potential contribution of the road transport sector to contribute to its national targets on climate change mitigation, economic development and quality of life, especially in Lusaka and other urban areas. The potential of

environmentally friendly vehicle technologies is also identified, but explicit actions towards electrification have not been identified and implemented yet.

Governance of the transport electrification transition is a critical challenge. The policy and governance structures should be in place before EVs start to proliferate in the country. There is no need to create new institutions (e.g. an e-mobility agency), but to efficiently establish the coordinating mechanisms among the existing ones.

The NDC includes a description of the institutional arrangements in climate change policy, which are formalized through the Technical Committee on Climate Change. It comprises representatives from relevant Ministries and a broad range of other stakeholders, including private sector, civil society, financial institutions, among others. This is the main technical advisory body to the Steering Committee of Permanent Secretaries. The Technical Committee is chaired by the Ministry responsible for Climate Change implementation (currently the Ministry of Green Economy and Environment, MoGEE), under which there is a dedicated department on climate change which is responsible for coordinating climate change implementation in Zambia.

There are also some informal arrangements in place for inter-institutional cooperation: the task force established by the Energy Regulation Board (ERB) for the initial identification of the list of standards to be prepared on electric mobility, the task force established by the Ministry of Energy for the preparation of its strategy on charging infrastructure and the cooperation among the Ministry of Local Government and Rural Development (MoLGRD), the Ministry of Transport and Logistics (MoTL), Lusaka City Council and UNDP Zambia for the implementation of the NMT strategy.

### Financing

The Ministry of Finance and National Planning (MoFNP) is competent for setting up the fiscal charges on transport vehicle ownership and for establishing the general guidelines for the country's development, currently set up in the 8<sup>th</sup> National Development Plan (8NDP). This plan includes a reference to “improve transport and logistics”, but it does not explicitly address urban mobility or electrification issues, rather focusing on infrastructure improvements and multimodal integration at the interurban and transnational levels.

The legislation on customs and excise tariffs, in accordance with the Zambia Revenue Authority (ZRA), currently includes customs duty, excise duty, value added tax, motor vehicle fee, ASYCUDA processing fee and motor vehicle surtax. In October 2023, the MoFNP announced that, starting on 1 January 2024 and as a way to continue promoting the usage of clean energy as well as supporting the green economy and climate change mitigation, customs duty would be removed on electric motorcycles, electric vehicles, electric buses, electric trucks, and attendant accessories such as charging systems; and the excise duty would be reduced to 25 percent from 30 percent on hybrid vehicles designed for the transportation of persons.

The main fiscal charges on road vehicles are currently the road tax, the carbon tax, the registration fee (different for new and second hand vehicles) and the annual fitness inspection (every 4 months for public service vehicles).

Access to financing is difficult in Zambia, although the Bank of Zambia has just launched green loan guidelines, and Zanaco Bank is offering lower so-called green interest rates. Still, interest rates are high in Zambia, with the Zambia Bank Lending Rate reported at 26.660 % in Jan 2024<sup>[12]<sup>17</sup></sup>.

## Electricity sector

The installed electricity generation capacity in Zambia is 3,005 MW, and the annual electricity demand is about 2,500 MW (2,256 MW in 2023). Generation is coming from hydro plants (80%), coal and solar. There is a wind generation plant (40 MW) under construction. An 88-MW solar plant, developed in partnership with the private sector, is already in operation.

One of the key reforms envisaged in 8NDP aims at the energy sector: *“To improve performance of the energy sector, the Government will implement reforms to remove the inefficiencies in the fuel supply chain by among others, supplying fuel through pipelines and undertaking procurement reforms to standardize supply contract prices. In the electricity sub-sector, reforms will focus on enhancing the operational efficiency of ZESCO Limited including its cost structure.”* One of the focuses of the 8NDP is to increase electricity generation capacity and the promotion of alternative green and renewable energy sources as well as scaling up rural electrification. It is expected [p.38] that the increased investment in the sector, including through the attraction of private capital, *“will result in an increase in electricity generation capacity to 4,457 megawatts (MW) by 2026 from 3,307.43 MW in 2031. The percent of renewable energy in the national installed electricity capacity, excluding large hydroelectricity generation, is expected to increase to 10 percent from 3 percent over the same period”*.

The government’s energy policy is established in the National Energy Policy (NEP 2019), the Renewable Energy Strategy and Action Plan (2022) and the Energy Efficiency Strategy and Action Plan (2022). The NEP-2019 promotes the deployment of renewable energy (RE) technologies and the development of electricity generation, transmission, and distribution capacity as well as enhanced cost effectiveness and efficiency in the supply of petroleum products. The Policy also promotes security of energy supply through diversification of energy sources with cost-reflective pricing, which will promote new investment in the sector. The NEP 2019 also considers climate change mitigation and adaptation while advancing sustainable development of the sector. In addition, the Policy mainstreams gender and disability aspects aimed at increasing access to clean and efficient energy thereby reducing poverty among vulnerable groups especially women and children. The NEP also identifies actions to mitigate GHG emissions in the energy sector, such as rural and urban electrification, solar home systems, electricity generation (i.e. from on-grid Solar PV utility scale, hydro, biomass, wind, geothermal), energy efficiency and efficient cook-stoves. Across the projected period (2010-2050), hydro electricity generation is projected to contribute to more emission reduction in the energy sector, especially after 2030, when it is envisaged most planned hydro power stations will be completed.

The NEP is complemented with the liberalization measures included in the Electricity Act, approved also in 2019.

The future energy strategy will be set up in the Integrated Resource Plan 2023- 2050 (waiting for its final approval by the government) and the development of renewable energy is set up in the National Renewable Energy Strategy, currently under preparation by the Ministry of Energy (MoE). The latter is expected to develop some 2,000 MW of renewable electricity generation in 2023-2030, and to achieve a total electricity



generation capacity of 10,000 MW in 2030 and 23,193 MW in 2050. There is also a solar electrification master plan under preparation.

There are some independent power producers (IPP) in Zambia, although they have to sell their production to ZESCO. The MoE is working on regulations to establish rules to allow open access to the electricity grid.

Other energy projects under implementation include the World Bank's (WB) National Electrification Access Project, targeting rural areas and with a 4-year lifespan. The MoE has also developed a Charging Infrastructure Strategy, with WWF support, to take into account the expansion of electric mobility; an inter-ministerial team has worked in the preparation of this strategy, under the leadership of ERB.

Current electricity access rates are about 69% in urban areas but significantly lower in rural areas.

Short, medium and long-term projects in the electricity sector are summarized in the table below.

Project	Installed Capacity (MW)	Source	Location	Investment Cost (US\$)	Timeframe
Kafue Gorge Lower 5th Unit	150	Hydro	Kafue	TBA	Short Term
Ndola Energy HFO Power Plant	105	Thermal (HFO)	Ndola, Copperbelt Province	TBA	Short Term
GETFIT Projects	120	Solar PV	Various		Medium Term
ZESCO	150	Solar PV	Western, Southern and Luapula Province	TBA	Medium Term
ZESCO and Masdar Joint Venture	2000	2000MWac Renewable	To be informed by the feasibility study	TBD	Medium Term
Ultra-Green Solar PV Power Project	50	Hydro	Serenje, Central Province	US\$ 54 million	Medium Term
Kalungwishi Hydropower Scheme	244	Hydro	Kawambwa and Mporokos, Luapula Province	700 million	Long Term
Batoka	2400	Hydro	Livingstone, Southern Province	US\$4.5 Billion	Long Term
Lufubu Hydroelectric Power Project	163	Hydro		US\$ 609 million	Long Term
Ngonye Falls Hydroelectric Power Project	180	Hydro	Sioma, Western Province	US\$600 million	Long Term
Access Wind Power Project	130	Wind	Serenje, Central Province	US\$ 272 million	Long Term
Kabompo Gorge Hydroelectric Power Project	40	Hydro	Mwinilunga, North Western Province	US\$210 million	Long Term
Mombututa CX	271	Hydro	Luapula Province	US\$513.3 million	Long Term

Project	Installed Capacity (MW)	Source	Location	Investment Cost (US\$)	Timeframe
Mambilima Vb	210	Hydro	Luapula Province	US\$542.1 million	Long Term
Mambilima Y	308	Hydro	Luapula Province	US\$625.4 million	Long Term
Chimpili Falls Hydroelectric Power Project	20	Hydro	Mporokoso, Northern Province	US\$	Long Term
Luongo Hydroelectric Power Project	40	Hydro	Mansa, Luapula Province	TBA	Long Term
Mumbuluma Hydroelectric Power Project	16	Hydro	Mporokoso, Northern Province	TBA	Long Term
Chimpempe Hydroelectric Power Project	18,9	Hydro	Kawambwa, Luapula Province	TBA	Long Term
Kapamba Falls Hydroelectric Power Project	12	Hydro	Mpika, Muchinga Province	US\$ 33.6 million	Long Term
Mulembo-Lelya Hydroelectric Power Project	106	Hydro	Luano, Central Province	US\$ 286 million	Long Term
Mutinondo Hydroelectric Project	60	Hydro	Mpika, Muchinga Province	US\$ 102 million	Long Term
Luchenene Hydroelectric Project	50	Hydro	Mpika, Muchinga Province	US\$82.7 million	Long Term
Unika One Wind Power Project	200	Hydro	Katete, Eastern Province	US\$ 398 million	Long Term
Maamba Phase II	300	Coal	Sinazongwe, Southern Province	TBA	Long Term
Muzuma	75	Solar PV	Sinazongwe, Southern Province	US\$83	Long Term
Kanona	100	Solar PV	Serenje, Central Province	US\$111	Long Term

Table 2: Energy projects in Zambia

### E-waste management sector

The National Waste Management Strategy was adopted in 2004. An updated Strategy is under preparation and would include electronic waste. There are also some general statements in Vision 2030 and in the National Policy on Environment.

The legal framework on waste management is based upon a Constitutional provision on the right to a clean environment and has been developed in the 2011 Environmental Management Act (as amended in 2023 to expand the definition of waste), including basic principles and concepts such as green economy, circularity, or extended producer responsibility (EPR).

Licensing regulations include mentions to hazardous waste and, under EPR Regulation 65/2018. e-waste is included as hazardous waste.

A separate regulation on e-waste is under preparation, with support of a World Bank's regional programme, although it should be complemented afterwards by detailed technical guidance on e-waste management.

The e-waste value chain is not developed yet, as only one company has been licensed to operate and is collecting and dismantling batteries for storage and export, without providing much added value to the process. There are no facilities in Zambia, which could allow to extract the metals properly. Another company is getting prepare to request its license, and some informal companies are also engaged in waste collection, including e-waste, eventually recycling or refurbishing the collected batteries. The government's licensing capacity is limited and should be strengthened in future for adequate implementation of the legislation.

### Key stakeholders

Electric mobility interacts with various sectors. The key stakeholders identified below include those active in road infrastructure planning and management, policy and operation of passenger transport services, provision and management of road transport fleets, renewable energy policy, planning and operation, transport investment financing, as well as social groups associated with the project in different ways: those directly or indirectly engaged in the outcomes of project implementation; those directly or indirectly participating in the project, and those with a capacity to influence and decide on project implementation and outcomes. Further details on these stakeholders are provided in Annex L.

- National government. The Ministry of Green Economy and Environment (MoGEE, in charge of environmental policies, included climate change and the promotion of a green economy, included green financing) and its Zambia Environmental Management Agency (ZEMA, as the entity responsible for the design and implementation of such policies), the Ministry of Transport and Logistics (MoTL, in charge of transport policies, including the general regulation of public transport services) and its Road Transport and Safety Agency (RTSA, as the entity responsible inter alia for technical approval and inspection of vehicles), the Ministry of Energy (MoE, in charge of the national energy policy, including the expansion of renewables), the Ministry of Local Governance and Rural Development (MoLGRD, as the GRZ's entry point to local governments in Lusaka and other cities), the Ministry of Finance and National Planning (MoFNP, together with its Zambia Revenue Authority, mainly in what refers to fiscal incentives for the facilitation of EV imports and procurement), the Vice President's Office (in charge of coordinating gender mainstreaming in the government's action, through its Gender Directorate), the Ministry of Infrastructure, Housing and Urban Development (MoIHUD, responsible for the implementation of public transport friendly features in the main urban road network) and its Road Development Agency (RDA, as the entity implementing road infrastructure investments).
- National regulators and public companies. The Energy Regulation Board (ERB, the entity regulating energy prices, which has established working groups for the setting up of charging infrastructure guidelines and the revision of the Electricity Act), ZESCO (the vertically integrated company for production, transmission, and distribution of electricity), the Zambia Bureau of Standards (ZABS) and Zambia Compulsory Standards Agency (ZCSA), these two being responsible, respectively, of the approval and implementation of standards.

- Lusaka City Council, responsible for the operation of bus terminals, the management of municipal roads and the provision of authorizations to minibuses providing public transport services.
- Associations of public transport providers. There are different associations of public transport operators, each protecting the interests of different professional groups: owners, drivers and the most recently established hail-a-ride services: the Business and Taxi Owners Association (BTOAZ), the Business and Taxi Drivers Association (BRDAZ) and the Online Taxi Drivers' Association (OTDAZ), respectively.
- Civil Society Organizations. The most relevant ones are the Zambia Electric Mobility Innovation Alliance (ZEMIA, which has managed to bring together an wide array of entrepreneurs and technicians interested in the promotion of electric mobility) and several organizations working on gender equality: the Non-governmental Gender Organisations' Coordinating Council (NGOCC) is the national umbrella organization; the Zambia Alliance for Women (ZAW) seeks to provide support for women in the aspects of agriculture and land ownership; the Zambia National Women's Lobby (ZNWL) seeks to affect change through the involvement of women in government, advocating for women's representation in parliament and other political structures; Women for Change Zambia (WFC) strives to improve conditions in rural communities by empowering women and girls, with education as its top priority.
- The financial sector is a key project partner to facilitate the access of operators to EVs. Key financial stakeholders are the Bank of Zambia (the Central Bank of Zambia, which has recently launched green loans) and ZANACO (the main commercial bank in Zambia, which is planning to start offering green loans), as well as the Bankers Association of Zambia (BAZ, representing the interests of all commercial banks operating in the country).
- Industrial stakeholders are essential for the provision and operation of EVs. Among the local vehicle dealers, Southern Cross Motors Limited has started to upgrade its facilities to provide maintenance services to EVs and to commercialize some models. Subilo Energy provides charging infrastructure as well as technical maintenance to EV batteries. E-Ride has started commercialising electric motorcycles.
- The contribution of industrial stakeholders will also be valuable for setting up an adequate framework for the collection and management of EV batteries. Besides the contribution of the local vehicle dealers and regional motorcycle manufacturers mentioned above, it is expected to mobilize recycling companies already licensed in the e-waste subsector or in the process to obtain such license.
- Urban public transport providers and government fleets are the key stakeholders targeted by the project for its demonstration and upscaling activities. They include the Public Passenger Transport Multi-purpose Cooperation (PPTCoop), a cooperative recently established in Lusaka by minibus owners and planning to start operations in the near future and government's agencies such as ZEMA and ERB, which have already expressed their interest in participating in the demonstrations.
- The University of Zambia, through its Department of Engineering and the Technical Education Vocational and Entrepreneurship Training Authority (TEVETA, a governmental entity supervising vocational education and training programmes) are keen in participating in the project, providing support to training activities and looking for ways to accommodate e-mobility technologies within their research and curricula.

## Key projects

The main projects under implementation in Zambia with a relationship with electric mobility are summarized in the table below.

Program / Project	Leading ministry / supporting entities	Brief description	Duration	Estimated value (USD)	Alignment with project objectives
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FP080. Zambia Renewable Energy Financing Framework	MoE / Green Climate Fund (GCF)	Supporting the GRZ to catalyse private investment in the renewable energy sector (100 MW, mostly solar power).	2018-2025	GCF: 52.5 million Co-fin: 101.5 m.	Increasing clean electricity generation to cope with demand from EVs.
EDFI[13] <sup>18</sup> Electrifi. Zambia Window	MoE / EU / EDFI	Combines technical assistance and risk capital to de-risk investments in clean energy (mainly solar).	2018-	EUR 31 million	Increasing clean electricity generation to cope with demand from EVs.
Africa Environmental Health and Pollution Management Program	MoGEE / ZEMA / World Bank	To reduce exposure to mercury and uPOPs (Unintentional Persistent Organic Pollutants) pollution at pilot sites and strengthen the institutional capacity to manage and regulate mercury use in artisanal small-scale gold mining and e-waste in Ghana, Kenya, Senegal, Tanzania and Zambia.	2021 - 2025	37.89 million	Management and regulation of e-waste provides the framework for EV battery management at end of life.
Concept Note on the Road Traffic Challenges and Proposed Solutions for Decongestion of Traffic in Zambia with Focus on the Greater City of Lusaka	MoTL	To propose solutions to the traffic congestion to be implemented in order to mitigate the congestion situation in Zambia, with a focus on Lusaka metropolitan area.	Under approval	TBD (estimated investment needs ZMW 6,732.655 million (USD 269 million))	Includes infrastructure improvements for the facilitation of public transport services in Lusaka such as bus lanes, BRT lines and tram lines.
National NMT Strategy	MoTL	Guidelines for the deployment of pedestrian and cycling-friendly road infrastructure, with a focus on Lusaka	2019- On-going	NA	Implementation hampered by COVID pandemic. Provides general guidance for future NMT investments.
Zambiaemobilize	ZEMIA / Drive Electric Campaign	To produce a roadmap for road transport electrification	2023-2025	150,000	Analysis of barriers to electrification and proposals for government's action from the industry's perspective.
SADC Regional Statistics Project	ZAMSTATS / WB	To strengthen the institutional capacity of SADC and 6 participating countries to produce, disseminate and use quality statistics while increasing regional harmonization and collaboration.	2023-2028	USD 104.5 million	Includes the preparation and implementation of an E-Waste Management Plan. Management and regulation of e-waste provides the framework for EV battery management at end of life.

Table 3: Key initiatives with potential synergies with the project

The baseline scenario presented above shows the active engagement of the GRZ to implement policies improving mobility conditions, especially in the capital, to expand electricity generation from renewables and make it accessible to a growing part of the population, to introduce updated e-waste management practices, and to support the financial sector in the development of green financing instruments. These conditions should facilitate the transition to decarbonized road transport, including its electrification. However, there are pervasive barriers hampering such transition. These are presented in the next section and serve to subsequently develop the alternative scenario envisaged by this project.

### A3. Barriers

Electric mobility is still a very novel technology in Zambia, in spite of tax rebates having been in place for some years. This is due to a variety of barriers, which can be summarized as follows: (1) institutional weakness to develop and implement innovative low-carbon policies for the transport sector; (2) limited technical know-how in the transport community about the characteristics and performance of electric vehicles; (3) market failure, with pervasive regulatory barriers (e.g. allowing for the importation of sub-standard second-hand vehicles) and absence of financial mechanisms supporting investments in electric mobility; and (4) weak environmental quality management, with potentially high environmental and social impact if the transition towards electric mobility materializes.

#### Barrier 1 – Institutional weakness to develop and implement innovative low-carbon policies for the transport sector

The causes behind the institutional weakness to implement innovative, low-carbon policies in the transport sector include: (1) insufficient horizontal coordination within the government between the key sectoral policies engaged in transport electrification, i.e., transport, environment and energy policies. (2) Insufficient and unclear links established among mobility, energy and environmental objectives in the government's medium and long-term strategies and plans; for example, national energy and climate change policies do not include transport as a relevant sector for action yet, and national transport strategies do not integrate environmental objectives- such as climate change or resource consumption- within their objectives. Furthermore, although transport has been included in the recently approved NDC implementation plan, the actions considered are limited to the expansion of rail infrastructure, neglecting the potential of road transport electrification. (3) a dysfunctional urban mobility system, unable to benefit from electrification and other technological or management innovations; there is very limited engagement of cities in transport policies, mainly due to the insufficiency of human and financial resources in Lusaka and any other city to adequately address urban mobility challenges, in spite of its relevance as a key driver of transport demand and emissions growth. Attempts to empower local governments to establish urban mobility departments have not been accompanied by the necessary resources to properly address them, and the engagement of local decision-makers in transport issues is low, compared to other competing local priorities. (4) Limited exposure of decision makers and practitioners to international best practices of electric mobility, only partially compensated by the efforts of some groups (e.g. the public think-tank ZIPAR, or the private associations ZEMIA and the Passenger Public Transport Cooperative, PPTCoop) to transfer produce such practices in the forms of recommendations to decision makers.

#### Barrier 2 – Limited technical know-how in the transport community about the characteristics and performance of electric vehicles

The causes behind the limited technical know-how about the characteristics and performance of electric vehicles include: (1) the consideration by decision makers of electric mobility options as not viable to cope with the transport conditions in Zambia, due to the acceptance of misconceptions such as their high cost (focusing on capital costs, without considering their lower total cost of ownership), limited availability, challenging maintenance requiring specialized know-how or slow and difficult charging. (2) Transport operators and fleet managers feeling confident about traditional ICE technologies and reluctant to move to an unknown technology. (3) Vehicle importers and dealers comfortable with the status quo and hesitant to enter a new market with uncertain response from consumers. (4) Limited technical information available with sufficient level of detail to influence all these stakeholders, and the available information not tailored to the local conditions in Zambia.



Barrier 3 – Market failure, with pervasive regulatory barriers (e.g. allowing for the importation of sub-standard second-hand vehicles) and absence of financial mechanisms supporting investments in electric mobility.

The following causes can be identified behind the existing market failure. (1) Transport operators and fleet managers do not have available attractive business models to increase their appetite for EV technologies. Efforts to formalize the urban public transport have not materialized yet, and prospects for changes in the future remain uncertain; capital investments require certainty in terms of expected future demand, concession rights and fares that are not present in the urban public transport sector yet; furthermore, fleet managers inside or outside the public transport sector do not have access to the reliable information required to establish sound business plans assuring them that the capital costs required for electrification will pay off. (2) Public policies (fiscal incentives, standards, and regulations) insufficient to generate tangible e-mobility expansion. Although the fiscal framework supports the import of electric vehicles, and a carbon emission surtax is applied based on the engine size, Zambia does not impose age restrictions on the import of used vehicles; furthermore, technical and quality standards have not been established for electric vehicles yet. The lack of adequate and innovation-friendly regulations is particularly harmful in the urban public transport sector, where operators rely on cheap second-hand, unsafe and polluting minibuses, and operation practices remain rudimentary to provide some profit to drivers and owners in a context of virtually no public control of the quality of service. (3) Essential supporting services, such as public charging infrastructure or technical maintenance remain scarce and with uncertain quality. The few companies engaged in providing such services have been established quite recently, with modest capital, and still struggle to survive in a context of low demand for their services. (4) The financial sector is not providing sufficient tailored instruments to suppliers and potential users of e-mobility technologies; financial instruments in Zambia are focused on short-term credit at very high interest rates; although the Bank of Zambia (BOZ) has just launched green loan guidelines, and Zanaco Bank is offering lower so-called green interest rates, loan conditions are hard for both the startup companies that typically dominate transport electrification and for urban public transport operators, which in the absence of formalized concession contracts cannot offer strong guarantees to lenders).

Barrier 4 – Weak environmental quality management, with potentially high environmental and social impact if the transition towards electric mobility materializes.

The causes of the potentially high environmental impact that the transition towards electric vehicles could generate in Zambia include (1) unreliable availability of electricity due to increased demand; electricity generation in Zambia has already low carbon emissions (the share of electricity generation from non-renewable sources is just 8%, and the specific GHG emissions from electricity generation is just 136 g CO<sub>2</sub>/kWh [14]<sup>19</sup>), but in a context of rapidly growing electricity demand, slow deployment of electricity generation plants using renewable sources could force the government to the deployment of fuel-based plants with significant carbon footprint; (2) the insufficient and under-enforced legislation on waste management, especially in what refers to e-waste, a category that would include electric vehicles and their batteries; (3) in spite of Zambian resources in critical minerals, the local industry hardly participates in the e-mobility value chain, losing business and employment opportunities, and possibly leading to higher prices of e-mobility options and to significant negative social impacts; and (4) the already weak capacities to manage waste, and in particular electric waste as well as vehicles at their end of life, could be overwhelmed with the arrival of electric vehicles requiring management procedures different from conventional vehicles, especially in what refers to batteries and to the potential to employ vehicle batteries in second life uses.





## Problem tree

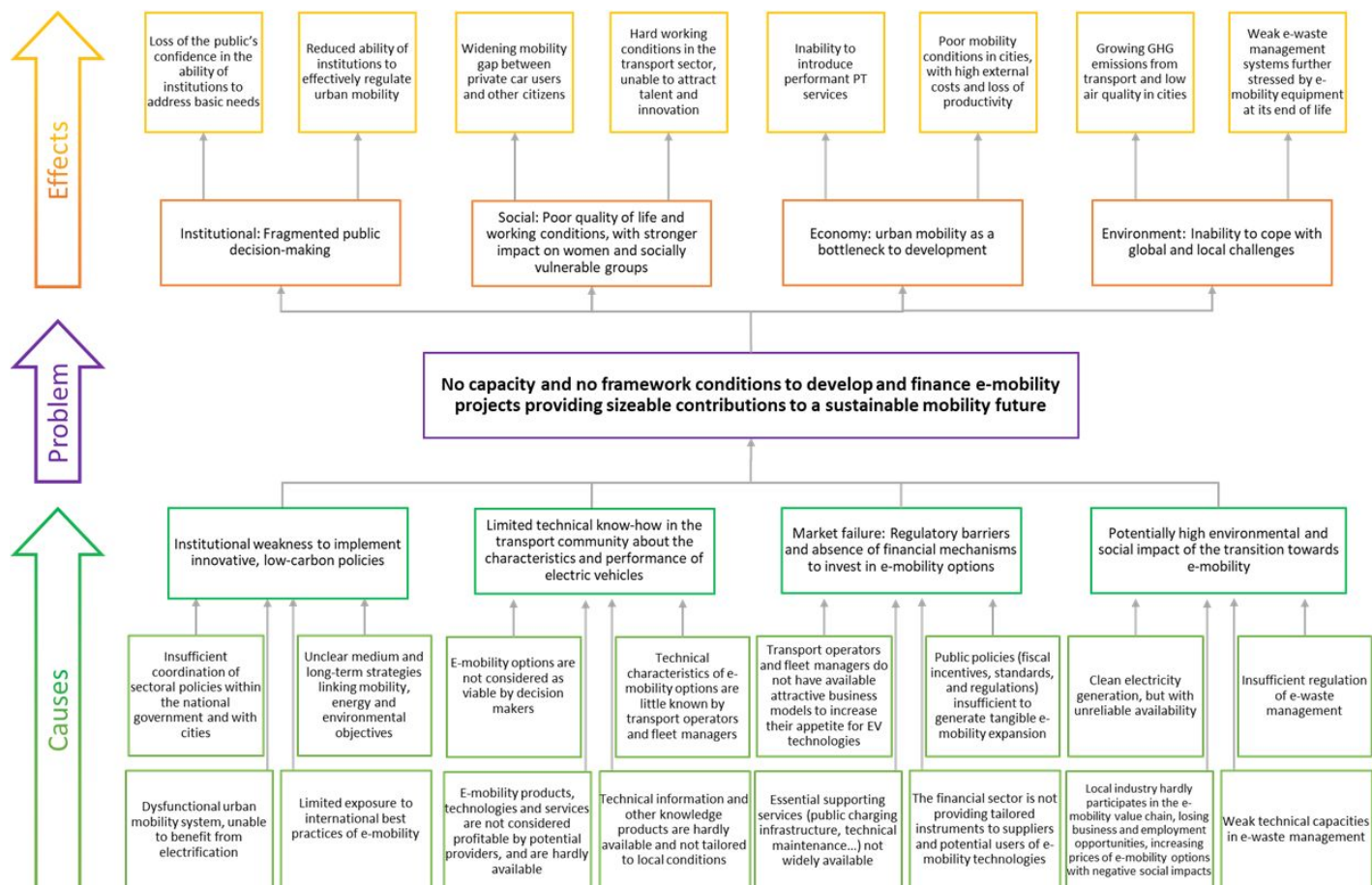


Figure 2: Problem Tree Diagram

## A4. Project objective

The objective of this project is to support Zambia in the introduction of and transition to electric vehicles through (1) institutionalization and planning of e-mobility and provision of capacity building; (2) generation of on-the-ground practical experience on electrification on road fleets, including urban public transport services in Lusaka, governmental fleets and private corporations' fleets; (3) development of a supportive regulatory and financial framework to speed up replication; and (4) preparation for long term sustainability of electric mobility through development of proposals for battery end-of-life management. These actions are coupled with actions strengthening sustainable mobility modes in Lusaka, including the integration of walking and public transport modes and the reinvigoration of the National NMT Strategy.

The project intends to address the country's increasing dependence on high-carbon transport means and its effects in terms of poor air quality and mobility restrictions for women and low-income social groups, either due to the use of old and low technology standard vehicles or due to the low quality of public transport services. The project foresees the introduction of electric mobility in Zambia as a long-term policy reinforced by measures such as the phasing out of the dirtiest and fuel-consuming vehicles, and the improvement of urban public transport systems, the latter facilitated by the introduction of digitalization and other new technologies to reduce energy and health costs.

The main socio-economic benefits of the project are related to (1) decreasing dependence on imported fuels, liberating resources for economic development and facilitating the stability of transport prices, (2) decreasing operating costs of public transport services, providing the basis for quality improvement, (3) opening new business and employment opportunities with a strong potential for innovation and professional development as well as for women engagement, and (4) contributing to the improvement of air quality in cities.

The project addresses the key drivers of transport demand and emissions growth in Zambia and is resilient to changes in them (economic and population growth leading to increased mobility demand for passengers and goods; technological innovations in the transport sector resulting in access to cheaper although polluting vehicles from developed countries; emerging lifestyle trends with higher mobility and a preference for privacy; global production, commercialization and logistics chains excluding developing countries from access to sustainable mobility options). The project enables the country to better respond to changing mobility needs through stronger policy coordination and capacity building, and to benefit from any future technological progress while making better use of the sustainable mobility resources already available (such as public transport and non-motorized mobility means); it strongly builds upon awareness raising among the public and decision makers on sustainable development, promoting the adoption of lifestyles and production and distribution processes resulting in lower GHG emissions from transport.

### Cost effectiveness

The project approach is cost-effective and based on lessons learned from the road transport electrification transition and projects in other countries. At project design, alternatives were considered referring to (1) the vehicle segments and users targeted by the project, (2) the mobility needs to be addressed, both in terms of distance (urban or interurban) and geographically (which specific cities or regions within Zambia), and (3) the balance between a focus on vehicle or charging infrastructure. Based on past experience and the conditions in Zambia, where transport electrification is just starting, it was considered that relatively large fleets should be targeted first, that the inclusion of public transport operators would provide wider social and environmental benefits in terms of users and air quality, and that it would be prudent to rely on already mature technologies, favoring the use of EVs in urban areas first, starting with the capital as a way to facilitate the engagement of stakeholders from the GRZ and to adjust project management

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needs to the resources available. Targeting large fleets also reduces the need for the project to support quick deployment of public fast-charging services, which would have required significant additional resources.

- [1] 22.7% in 2021, in accordance with the International Energy Agency (IEA) Energy Statistics Data Browser. Greenhouse Gas Emissions from Energy Dataset. <http://www.iea.org>. Also International Transport Forum (2017). Transport demand and CO2 emissions to 2050.
- [2] First Biennial Update Report (BUR-1), 2020. It includes the GHG inventory until 2016, as well as emission projections for 2030 and 2050.
- [3] Climatewatchdata.org (2022) URL: [www.climatewatchdata.org/](http://www.climatewatchdata.org/)
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- [6] Since 2021 named as Ministry of Local Government and Rural Development (MoLGRD).
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- [10] PPTCoop (2023). Integrated Public Passenger Transport Systems. Key to Economic Growth and Infrastructure Development. Promoting Business and Investment for Employment Opportunities in an Eco-Friendly Environment.
- [11] See for example UITP (2024). Integrating walking and public transport. Policy brief. <https://www.uitp.org/publications/integrating-walking-and-public-transport/>
- [12] <https://www.ceicdata.com/en/indicator/zambia/bank-lending-rate>
- [13] Association of European Development Financing Institutions.
- [14] [https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical\\_Profiles/Africa/Zambia\\_Africa\\_RE\\_SP.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical_Profiles/Africa/Zambia_Africa_RE_SP.pdf)

## B. CHILD PROJECT DESCRIPTION

This section asks for a theory of change as part of a joined-up description of the project as a whole, including how it addresses priorities related to the specific program, and how it will benefit from the coordination platform. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the guidance document. (Approximately 3-5 pages) see guidance here

### B1. Overview

The project's strategy addresses the four barriers identified in the problem tree described in the previous section, while taking into consideration the policies in progress and the Zambian socio-economic context. The project's strategy (i) addresses current institutional weakness through a combined approach in which the formalization of the e-mobility policy within the public administration (top-down) is strengthened by building capacities among all the relevant stakeholders and establishing a consistent stakeholder engagement strategy (bottom-up) for the promotion of sustainable low-emission transport systems. The approach fosters women's participation in policymaking processes and intends to expand the share of women at decision-making positions.

This approach is consistent with the conclusions of the urban mobility studies mentioned above in creating the enabling conditions for the provision of efficient gender-responsive low-carbon urban mobility services.

The project strategy (ii) addresses the current practices of road fleet operators and managers, which are hampering the materialization of innovations, including electrification. The project will provide support to the operation of electric vehicles in three different contexts: public transport services in Lusaka, governmental fleets and private corporate fleets, tailoring the technical and financial support provided to each particular framework to maximize impact and value for money. These demonstrations intend to provide short-term results and to interest investors and decision-makers in the potential gains provided by electric mobility. The project builds upon past efforts to improve mobility conditions in Lusaka through the facilitation of NMT modes and the rationalization of its public transport system. While implementing this approach, the project strategy will make specific attention to the social development opportunities it can offer to women and other vulnerable social groups, and to their specific mobility needs.

The project strategy (iii) facilitates scale up and replication through the development of an enabling framework, including fiscal and regulatory reforms, financing schemes and business models: participation in the Global E-mobility Programme's activities are expected to provide access to knowledge products and lessons learned, facilitating the design and adoption of the incentives providing the enabling framework better adapted to Zambia; furthermore, the technical assistance provided by the project will include the review of international best practices and their adaptation to the local context. The scale up and replication is also facilitated by the project's engagement and communication plan, which intends to raise awareness and gain support from key stakeholders and the general public. Relevant stakeholders to mobilize during the project include vehicle dealers and the local vehicle and renewable energy industry, fleet managers (including public transport operators) and local financial and insurance institutions. This bottom-up approach is expected to expand the impact of the project's demonstrations, to support the effective implementation of the national e-mobility strategy and to accelerate the design and implementation of feasible financial mechanisms to support the acquisition of electric vehicles by fleet operators.

Finally, the project strategy addresses (iv) the new environmental challenges raised by electrification in the transport sector in the form of additional recycling and waste management needs raised by the new equipment (most notably lithium batteries and charging devices). These environmental challenges are considered within the broader framework of management of e-waste, (1) providing technical guidance to government officers for the proper implementation and enforcement of e-waste legislation and regulations, in accordance with good international practice, so that it can foster a reliable e-waste collection and management system, (2) developing a national roadmap to operationalize the environmentally sound management of end-of-life EVs and batteries (collection, re-use, recycling, re-integration into value chains and sound disposal) and (3) building up the necessary technical capacities of accredited e-waste handlers through professional training and the provision of technical recommendations for the upgrading of their facilities.

#### Approach to knowledge creation and dissemination

Knowledge creation and dissemination are managed at the project level through the preparation and implementation of a knowledge management plan, and within the relevant outputs through the preparation of reports, their presentation at workshops and their inclusion in the project's online knowledge management platform. The project's safeguards documents will also be made available there. As a part of the knowledge management plan, the project will exchange materials with the GEF-8 E-mobility Global Platform, gaining access to the experiences, good practices and lessons generated by other countries and contributing with their own ones.

The knowledge developed under this project and made available on the website will be freely accessible to all the public. Through the GEF-8 E-mobility Global Platform, the project expects to receive support through a series of knowledge sharing and knowledge transfer activities to internalize such knowledge.

## Longer term sustainability

The project's sustainability strategy is based on a combination of actions at the institutional (setting up and formalizing an intersectoral coordination platform on e-mobility), socio-political (providing an array of planning instruments for medium and long term action such as the national low-carbon mobility strategy and the updated national NMT strategy together with public campaigning instruments) and financial (providing financial instruments and an investment plan for the implementation of the e-mobility strategy). Furthermore, the project addresses two critical technical questions for sustainability in the longer term: the management of EVs and their batteries at their end-of-life and the integration of transport electrification with the deployment of electricity generation and distribution from renewables and envisages the preparation of a concept note for scaling-up. Finally, the project provides an array of capacity building activities and training materials to strengthen the national know-how in cooperation with relevant educational institutions.

## **B2. Theory of change**

The project's strategy is summarized in the Theory of Change (ToC) presented in the Figure below. The ToC is aligned and consistent with the Global Programme goal to support the EV market transition in low and medium-income countries and applies to Zambia the 3-stage (demonstration, scale-up and mainstreaming) EV market transition approach established in the Global Programme to make EVs competitive in all market segments, while embedding the effort within the national and local governments' actions to improve and expand the public transport system and to modernize the country's fleet. Additionally, the ToC integrates the Global Programme focus on addressing the mitigation of negative side effects related to the end-of-life of used electric vehicles and their batteries. Furthermore, the project design intended to mainstream gender within the whole approach (refer to the Gender Action Plan in Annex K).

The ToC provides a national strategy targeting the government and other key stakeholders (outcome 1), demonstrations involving two categories of vehicle fleets (outcome 2), and technical assistance (i.e. regulatory framework, incentives, investment plan, financial mechanism, updated NMT strategy, etc.) to pave the way for the upscaling of e-mobility in Zambia (outcome 3), while addressing the new environmental challenges raised by EVs (component 4). The up-scaling effort is expected to result in strengthening and consolidating environmentally friendly mobility policies and regulatory reforms, which will accelerate the procurement and sound management of electric vehicles as the preferred option for public transport, governmental and other large fleets; up-scaling activities will also support the development of optimized public transport networks served by efficient operators and well-integrated with NMT in cities. The project's stakeholder engagement strategy foresees the mobilization of civil society organizations and especially those supporting gender equality, throughout the project's lifespan, supported by the engagement, consultation and communication plan.

The key expected result of the project is the reduction of GHG emissions from road transport in Zambia. The outputs included in the four project's components are related to the root causes identified in the problem tree and are crucial to achieve the four outcomes in correspondence with the four barriers (institutional, technical, market-related, and environmental) also identified in the problem tree (Figure 2). The project's expected outcomes facilitate the transition to four intermediate states: the adoption of strategies, action plans and regulations by the government on e-mobility; a strengthened stakeholders' support to transport electrification and to integration and formalization of urban public transport systems; the consolidation and strengthening of the e-mobility market in Zambia and the alignment of end-of-life management of batteries and other e-waste with the principles of circular economy.

Such intermediate states are possible thanks to the confluence of the project's four expected outcomes with some assumptions and drivers, as described in the figure below. (1) the project's outcome 1 (the Government of Zambia promotes integrated electric mobility systems by enhancing coordination, capacity, planning and endorsing a national gender-responsive low carbon mobility strategy) will facilitate the adoption and implementation of the policies, strategies, action plans and regulations delivered by the project, assuming that during the project's life sufficient political support and priority to sustainable mobility, including electrification, is built up; outcome 3 (the Government of Zambia adopts policies, regulations and technical standards and endorses a financing scheme to accelerate the introduction of integrated electric mobility systems) and outcome 4 (the Government of Zambia puts in place measures to ensure the long-term environmental sustainability of integrated electric mobility systems including EV and battery end-of-life) also facilitate the achievement of this intermediate state. (2) the project's outcome 2 (the government of Zambia takes steps to scale-up integrated electric mobility systems based on the evidence provided by demonstrations) is expected to provide wider support to policies aiming at transport electrification and at improving public transport services; such intermediate state will be facilitated by the implementation of additional measures to improve public transport quality in Lusaka and other cities. (3) The project's outcome 3 strengthens the EV market in Zambia in both sides: on the demand side, the project takes well-positioned large fleet managers as early adopters to subsequently expand electrification to other consumers; on the supply side, the project assumes that, in combination with similar projects in the region, global EV manufacturers will actively engage in offering their models in Zambia; additionally, the project assumes that electricity generation from renewables will substantially expand, in line with the government's plans and projects in the energy sector. (4) The project's outcome 4 is expected to result in the application of circular economy principles in the management of electric vehicles and their batteries, assuming that re-use and recycling networks are developed at the global level, so that Zambia is integrated in such global networks.

The four intermediate states mentioned above are expected to result in the expanding electrification of the road fleet, particularly within an improved urban public transport system able to attract a growing number of users and making it unnecessary to rely on the now prevailing high-emission minibuses. For this to happen, two main drivers will be necessary: the implementation of urban mobility policies prioritizing public transport and NMT, and the expansion of electrification trends from minibuses to full-size buses. Finally, success in the public transport subsector is expected to encourage additional vehicle owners, including small fleets and individual private car owners, to adopt electric vehicles. This would provide the significant reduction of GHG emissions from urban road transport foreseen by the project.



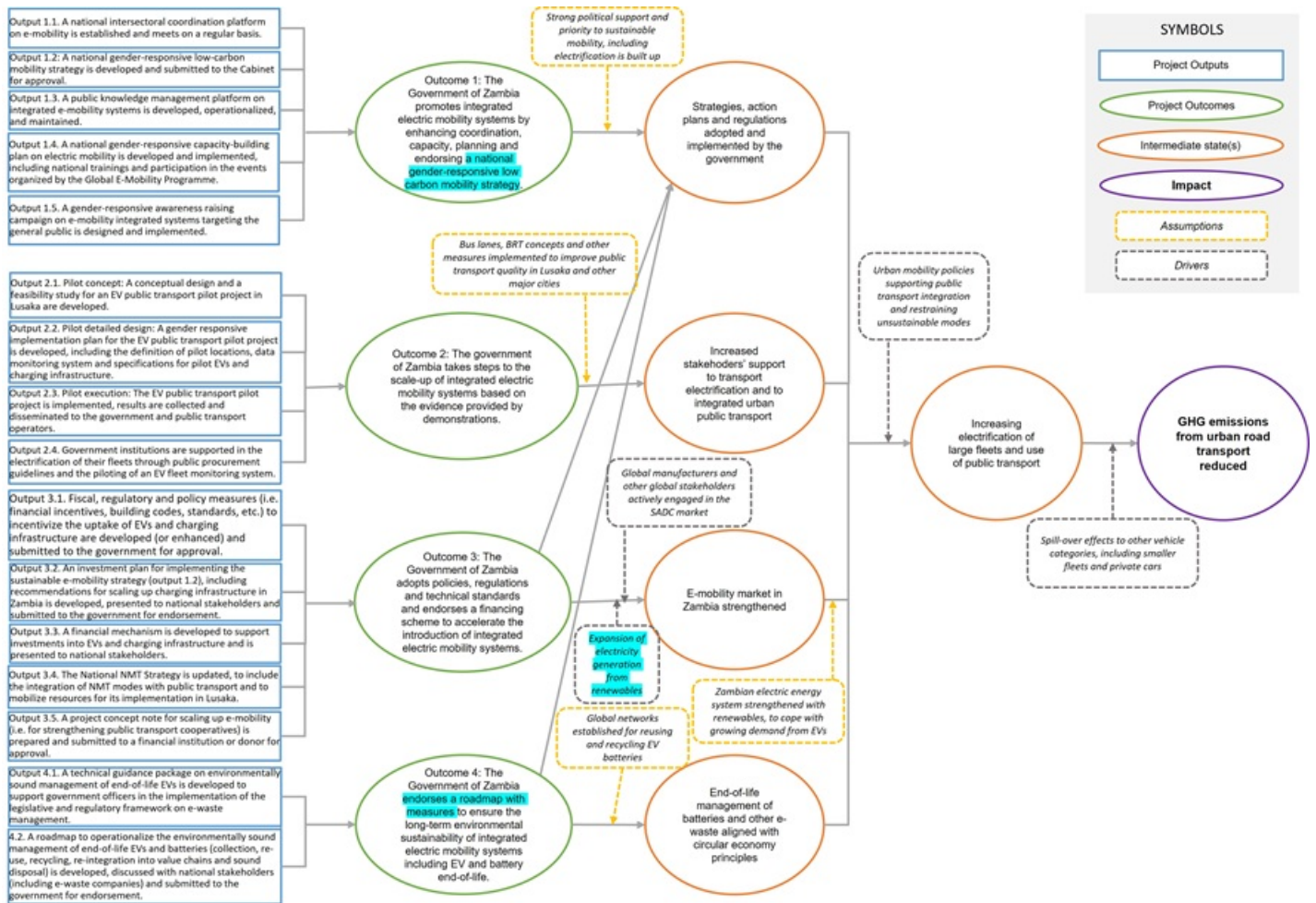




Figure 3: The Project's Theory of Change

### B3. Project elements

#### **Component 1: Enabling framework for integrated electric mobility systems.**

This component aims at establishing an enabling framework based on the interinstitutional cooperation among key government stakeholders and the adoption of a national strategy on electric mobility. It benefits from passed and on-going interinstitutional cooperation with a more limited scope (such as the implementation of a national mobility strategy, the deployment of charging infrastructure or the identification of the topics within electric mobility requiring priority for standardization). The engagement of the Gender Division of the Vice President's Office in the setting of this enabling framework facilitates mainstreaming of gender responsiveness throughout the project and, more importantly, in the implementation of low-carbon transport policies.

The enabling framework is strengthened by the design and implementation of gender-responsive knowledge management platform, capacity-building plan and awareness raising campaign supporting the not only the institutionalization process, but also the other project components. Such activities also facilitate opening up the process to the active engagement of non-institutional stakeholders.

Main partners for this component are ZEMA, MoTL, MoIHUD, MoE, ERB and ZEMIA; all of them except ERB provide in-kind co-financing to it.

Barrier addressed: Institutional weakness to implement innovative low-carbon policies.

***Outcome 1: The Government of Zambia promotes integrated electric mobility systems by enhancing coordination, capacity, planning and endorsing a national gender-responsive low carbon mobility strategy.***

**Output 1.1: A national intersectoral coordination platform on e-mobility is established and meets on a regular basis.**

Under this output, the national intersectoral coordination platform is established, initially as a project activity and subsequently formalized through an Executive Order or another adequate official decision, and meeting at least twice a year. The coordination platform engages official institutions, but wider participation is facilitated through the setting up of 4 technical working groups (TWG) meeting regularly, which also serve to engage stakeholders in other project activities. The main support to the preparation of the national strategy comes from TWG-1 (national e-mobility policy), led by the MoE, but substantial support is also expected on

financial issues from TWG-2 (financial instruments and up-scaling, which will mainly support component 3, under the leadership of MoFNP), on technical issues from TWG-3 (demonstrations, technical knowledge management and replication, under the leadership of MoTL, which will be also relevant in components 2 and 3) and on environmental issues from TWG-4 (environmental sustainability, under the leadership of MoGEE or ZEM, which will be also relevant in component 4). This framework provides the necessary conditions for identifying and discussing the lessons learned from project implementation and is supported, inter alia, but the e-mobility communication plan set up and implemented in output 1.5.

The terms of reference (ToR) of the coordination platform and TWGs provide the opportunity to establish clear guidance on gender mainstreaming and wide stakeholder engagement, including targets on composition (e.g. targeting to achieve gender parity).

Under Output 1.1., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
1.1.1	TORs for (1) the national intersectoral coordination platform on e-mobility and (2) for each of the 4 Technical Working Groups (TWG).	ToRs prepared by PMU and endorsed by MoGEE and other relevant ministries, with participation of CSO (e.g. ZEMIA).	MoGEE, MoE, MoIHUD, MoFNP, MoTL, Gender Division.	PMU / PTC / ZEMA
1.1.2	Twelve (12) meetings of the TWGs (agenda, report, attendance sheet).	3 official meetings per TWG (one per year) with PMU support, plus ad hoc meetings as decided by each TWG.	MoGEE, MoE, MoIHUD, MoFNP, MoTL	PMU / PTC / ZEMA
1.1.3	Eight (8) meetings of the intersectoral coordination platform on e-mobility (presentation material, report, attendance sheet).	At least 2 official meetings per year. The meetings can be organized on a regular basis, or on an ad hoc basis, i.e. to review and discuss specific deliverables of the project.	MoGEE, MoE, MoIHUD, MoFNP, MoTL, Gender Division	PMU / PTC / ZEMA
1.1.4	Draft Executive Order / Decree for institutionalizing the national intersectoral coordination platform on e-mobility.	PMU support to ZEMA and MoGEE during the process leading to official institutionalization.	MoGEE	PMU / ZEMA
1.1.5	One (1) report on best practices and lessons learned from the Zambia e-mobility project.	To be prepared during the last year of the project, based on lessons learned consolidated by PMU, inputs from TWGs and information available on the knowledge management platform.	TWGs, PMU, ZEMA	PMU / PTC

Table 4: Deliverables in output 1.1

Output 1.2: A national gender-responsive low-carbon mobility strategy is developed and submitted to the Cabinet for approval.

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The preparation of the national gender-responsive low carbon mobility strategy is undertaken through a process technically supported by a consultancy firm and a think tank (i.e. a not-for profit institution specialized in public policy analysis and design). The consultancy firm will provide expertise on public policy in the relevant areas (transport, energy, climate change with a combination of international and local experts) with a gender-responsive approach and including the assessment of the environmental and social impacts of the strategy (with proven expertise in these areas within the team). The think tank will focus on the progress in the development of additional electricity generation from renewables and in the availability and reliability of electricity supply necessary for wider deployment of EVs, including outside the capital; the project will preferably engage a local think tank to provide this study, as it requires strong knowledge of the local energy sector.

The preparation of the strategy will include an intersectoral policy gap analysis, and a review of how sectoral policies could affect, positively or negatively, the attainment of the project's objectives. The results of the policy gap analysis and review (with a focus on transport and energy) and their recommendations, will be discussed within the national intersectoral coordination platform on e-mobility (output 1.1) for validation and integration within the strategy,

Stakeholders' participation in the national strategy will be facilitated in the first place through the TWG-1, the knowledge management platform and the communication campaign, and consolidated through one design workshop and one validation workshop in which gender parity will be actively promoted by the PMU. The PMU will support ZEMA and other competent institutions in the process to obtain the government's official adoption of the national gender responsive low-carbon strategy.

Under Output 1.2., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
1.2.1	Recruitment of an International E-mobility Strategy & Policy Firm (TORs, call for EOIs, selection committee report, contract).	This step will comprise of the preparation of TORs, call for EOIs, selection process through a committee, contract issuance and signature. ToR prepared by PMU with UNEP support, asking for a balanced team in terms of international and local team members and gender.	ZEMA / UNEP	PMU / PTC
1.2.2	One (1) report on the existing national policy framework (transport, energy, climate change, e-waste, etc.).	Report focusing on existing gaps in these policies regarding electric mobility, barriers to implementation and expected contributions of the national strategy.	MoTL, MoE, MoGEE, ZEMA, ZEMIA, ZIPAR, Gender Division	International E-mobility Strategy & Policy Firm
1.2.3	MoU with an international / local thinktank on coordination of renewable energy and electric mobility policies.	Detailed TORs will be prepared for the assignment. Once the partner institution / think tank is identified, an MoU will be prepared by PMU.	PMU / ZEMA / UNEP	PMU / PTC
1.2.4	Study on additional RE demand resulting from the electrification of the transport sector .	Based on existing studies and strategies from MoE and experience in other child projects. In coordination with International Consultancy Firm.	MoE, ZEMIA, ZESCO, ERB, TWG-2	International / local thinktank on coordination of renewable energy and electric mobility policies <sup>[1]<sup>20</sup></sup>
1.2.5	Draft national gender-responsive low-carbon mobility strategy (including working conditions).	Focus on electrification of public transport and large fleets, working conditions in the transport sector and gender. NMT also addressed.	TWG-1 / MoTL, MoE, MoGEE, ZEMA, ZEMIA, ZIPAR, Gender Division	International E-mobility Strategy & Policy Firm
1.2.6	Two (2) workshops on the national gender-responsive low-carbon mobility strategy (presentation materials, workshop reports, attendance lists).	Presentations provided by International E-mobility Strategy & Policy Firm(within its contract). The first workshop will be to consult national stakeholders at the beginning of the strategy development process. The 2 <sup>nd</sup> workshop will take place once the complete draft strategy is prepared, to collect national stakeholder's final comments and to validate the strategy.	TWG-1, all local stakeholders invited / PMU / ZEMA	International E-mobility Strategy & Policy Firm.
1.2.7	Final national gender-responsive low-carbon mobility strategy.	Final version of the strategy endorsed by relevant ministries at workshop.	TWG-1 MoTL, MoE, MoGEE, ZEMA, Gender Division	International E-mobility Strategy & Policy Firm
1.2.8.	Report on technical assistance provided to support the strategy approval process.	Approval process led by MoGEE with PMU support. The International E-mobility Strategy & Policy Firm will be involved to support the process and answer any final questions there maybe by from Cabinet members, until final approval.	MoTL, MoE, MoGEE, ZEMA, Gender Division	International E-mobility Strategy & Policy Firm / PMU

Table 5: Deliverables in output 1.2

Output 1.3: A public knowledge management platform on integrated e-mobility systems is developed, operationalized and maintained.

The knowledge management plan will provide guidance for the PMU to identify relevant deliverables, collect from them key messages and lessons learned and store relevant materials on the website and facilitate their dissemination and access, including exchanges with the Global Programme. The knowledge management plan is expected to be gender-responsive throughout the whole management cycle, from identification of relevant material to dissemination. Project's stakeholders will be invited to be engaged in knowledge management and its platform website, through a workshop. Careful supervision and engagement by ZEMA and MoGEE will be required for alignment with government's policies and smooth access of government's officials to the materials. Knowledge management (this output) and communications (output 1.5) will be supported by the same local consultancy firm to benefit from synergies (materials, website, etc.).

Under Output 1.3., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
1.3.1	Recruitment of a National consultancy firm for knowledge management and communications .	This step will comprise of the preparation of TORs, call for EOLs, selection process through a committee, contract issuance and signature. ToR and pre-screening of local firms with sufficient experience.	MoGEE / ZEMA	PMU / PTC
1.3.2	E-mobility Knowledge Management Plan.	KM Plan includes detailed guidance to PMU for quick identification and transfer to the platform of relevant materials, and adequate dissemination, while assuring gender-responsiveness in the process.	MoGEE / PMU / ZEMA	National consultancy firm for knowledge management and communications
1.3.3	E-mobility knowledge management platform website operational.	Website should include capacities for KM, and for project's broad communication and dissemination.	PMU / ZEMA	National consultancy firm for knowledge management and communications
1.3.4	One (1) workshop to present the e-mobility knowledge management platform (presentation materials, report, attendance list).	Workshop includes validation of the materials selection criteria, and platform design and accessibility, as well as gender responsiveness.	All stakeholders invited / PMU / ZEMA	National consultancy firm for knowledge management and communications
1.3.5	Three (3) annual reports on the management and update of the e-mobility knowledge management platform.	Draft reports including website statistics to be produced by National consultancy firm for knowledge management and communications and validated by PMU	ZEMA	National consultancy firm for knowledge management and communications

Table 6: Deliverables in output 1.3

**Output 1.4: A national gender-responsive capacity building plan on electric mobility is developed and implemented, including national trainings and participation in the events organized by the Global E-Mobility Programme.**

The project's capacity building and training activities are included in this output in order to facilitate their management in cooperation with national educational institutions and their sustainability after project completion in the form of new training opportunities offered by universities and vocational education centers. With this purpose, the project will partner with the University of Zambia and with TEVETA. All e-mobility training activities will be based on a gender-responsive capacity building plan, in which a priority will be the facilitation of access to technical training to women, taking into consideration already existing capacities (which should be stimulated and reinforced) and significant gaps (identified with the support of the project's stakeholders), which could hamper e-mobility deployment in the short term. Training activities will focus on future trainers, who will be provided with basic material to undertake their future training responsibilities.

The output includes different categories of capacity-building activities: (1) those referring to electric mobility policies, which will support the drafting and subsequent implementation of the national electric mobility strategy; they will target decision makers, electric mobility technicians and large fleet managers with the purpose to consolidate strong support to the deployment of electric mobility; (2) those providing hands-on professional training to future trainers, so that sufficient specialists can be acquainted with EV technology in what refers to electric buses and other vehicles, charging equipment, fleet management practices and EV battery management at end of life, to take full benefits from electrification and also to facilitate the implementation of the demonstrations; (3) those targeting civil servants in relevant areas (vehicle inspection, ERB inspectors, customs officials), which will be particularly

relevant for controlling the adequate performance of the EVs and equipment deployed in the country; (4) participation in capacity-building activities organized by the Global Programme.

The technical contents of the training materials will be prepared by the International Consultancy Firm relevant for each area as part of its contract and will be edited by the local firm selected to provide support to the organization of training events.

Under Output 1.4., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
1.4.1	MoU with a university for cooperation on the capacity building programme.	Cooperation focused on the review of training materials and results (and their gender-responsiveness) and inclusion in educational curricula.	Academic institution <a href="#">[2]</a> <sup>21</sup>	PMU / PTC / ZEMA
1.4.2	Gender-responsive capacity building plan on e-mobility, including a training-of-trainers approach.	Screening and survey of capacity gaps. Identification of future trainers. Survey and analysis of barriers to female engagement in e-mobility technologies.	Academic institution / TEVETA / ZEMIA / Gender Division	International consultancy firm on e-mobility / low-carbon mobility policy and planning
1.4.3	Two (2) training workshops for EV technicians (training materials, training reports, attendance lists).	Contents of gender-responsive training materials provided by International consultancy firm on e-mobility / low-carbon mobility policy and planning. Addressed to local specialists on electric mobility, to familiarize them with future policy actions.	PMU / RTSA / ERB / ZEMIA / Academic institution / TEVETA	International consultancy firm on e-mobility / low-carbon mobility policy and planning
1.4.4	Two (2) training workshops for governmental decision-makers (training materials, training reports, attendance lists).	Contents of gender-responsive training materials provided by International consultancy firm on e-mobility / low-carbon mobility policy and planning. Addressed to decision makers in ministries relevant for national strategy implementation.	MoE / MoTL / MoGEE / MoFNP / MoLGRD / MoCTI / Academic institution / TEVETA	International E-mobility Strategy & Policy Firm
1.4.5	Two (2) training workshops for decision makers in public and private organizations with large fleets (training materials, training reports, attendance lists).	Contents of gender-responsive training materials provided by International consultancy firm on e-mobility / low-carbon mobility policy and planning. Addressed to decision makers in organizations with large fleets, to raise awareness on the national strategy.	ZEMA / ERB / ZESCO ZEMIA / Academic institution / TEVETA	International E-mobility Strategy & Policy Firm
1.4.6	Three (3) training workshops on electric buses and charging equipment to public transport managers, drivers and maintenance staff (training materials, training reports, attendance lists).	Contents of gender-responsive training materials provided by International Consultancy Firm on e-mobility pilots and technology. Hands-on training of future trainers of public transport staff.	PPTCoop / BTOAZ / BRDAZ / OTDAZ / ZEMIA / MoTL / MoLGRD / Lusaka CC / Academic institution / TEVETA	International consultancy firm on e-mobility pilots and technology
1.4.7.	Three (3) training workshops on fleet management, electric vehicles and charging equipment to public and private fleet managers, drivers and maintenance staff (training materials, training reports, attendance lists).	Contents of gender-responsive training materials provided by International Consultancy Firm on e-mobility pilots and technology. Hands-on training of future trainers of staff working in large government or private fleets.	ZEMA / ERB / ZESCO / ZEMIA / Academic institution / TEVETA	International consultancy firm on e-mobility pilots and technology
1.4.8.	Training materials on new EV regulations and standards.	Contents of gender-responsive training materials provided by International Consultancy Firm on e-	ERB / ZABS / ZCSA / ZEMA / ZEMIA /	International consultancy firm on e-mobility

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
		mobility pilots and technology. Wide dissemination through KM.	Academic institution / TEVETA	pilots and technology
1.4.9	One (1) technical training-of-trainers workshop on electric vehicle inspection and maintenance targeting RTSA inspectors (training report + attendance list).	Contents of gender-responsive training materials provided by International Consultancy Firm on e-mobility pilots and technology. Hands-on training of future trainers of RTSA staff.	RTSA / Academic institution / TEVETA	International consultancy firm on e-mobility pilots and technology
1.4.10	One (1) technical training on charging infrastructure installation and maintenance (including on-grid and off-grid installations) targeting ERB inspectors (training report + attendance list).	Contents of gender-responsive training materials provided by International Consultancy Firm on e-mobility pilots and technology. Hands-on training of future trainers of ERB staff.	ERB / Academic institution / TEVETA	International consultancy firm on e-mobility pilots and technology
1.4.11	Technical training materials on EV battery technology, management, maintenance, reuse and recycling.	Contents of gender-responsive training materials provided by International consultancy firm on EVs and batteries end-of-life management. Wide dissemination through KM.	Academic institution / TEVETA	International EV & Battery EoL Firm
1.4.12	Two (2) training workshops for e-waste companies and customs officers on EV battery reuse and reintegration into regional or global value chains (training report + attendance list).	Contents of gender-responsive training materials provided by International consultancy firm on EVs and batteries end-of-life management. Hands-on training of future trainers of ZEMA and licensed e-waste management companies.	Academic institution / TEVETA	International EV & Battery EoL Firm
1.4.13	Participation in events, trainings and workshops organized by the Global E-mobility Programme.	Participation to be decided by PMU based on open call for candidates, respecting gender parity.	ZEMA / MoE / MoTL / MoGEE / MoLGRD / ZEMIA / Academic institution / TEVETA	PMU / PTC
1.4.14	Final report on capacity building programme on e-mobility.	Based on regular surveys to attendants and input from the academic institution, including gender dimensions.	ZEMIA / Academic institution / TEVETA	Academic institution / PMU

Table 7: Deliverables in output 1.4

Output 1.5: A gender-responsive awareness raising campaign on e-mobility integrated systems targeting the general public is designed and implemented.

This output designs, implements and assess the results of an awareness raising campaign addressing the general public in Zambia, with a focus on Lusaka and other urban areas. Whereas decision makers in the public and private sector, the transport commercial and industrial ecosystem and public transport operators are intended to be closely engaged in project's activities, it is necessary to provide sufficient information to the public at large. The awareness-raising campaign will provide information on the project's activities and will be conducted prior to and during the first months of the project's public transport demonstrations in Lusaka and will include targeted messages on the right to safe sustainable mobility, especially for women and disadvantaged groups and the opportunities raised by the national electric mobility strategy for women.

Under Output 1.5., the project will be producing the following deliverables:



Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
1.5.1	Gender-responsive communication plan on e-mobility.	Including approach to target groups (e.g. gender, age, income, vehicle ownership, education), communication channels (social media, TV and radio, others), key messages.	ZEMA / MLGRD / PPTCoop (Lusaka City Council / Gender Division	National consultancy firm for knowledge management and communications
1.5.2	Communications materials for the awareness raising campaign on e-mobility.	Visualizing mobility challenges for women and vulnerable groups. Gendered information provided.	ZEMA / MLGRD / PPTCoop (Lusaka City Council / Gender Division	National consultancy firm for knowledge management and communications
1.5.3	Awareness raising campaign on e-mobility.	Including information on public transport (PT) demonstration in Lusaka.	ZEMA / MLGRD / PPTCoop (Lusaka City Council / Gender Division	National consultancy firm for knowledge management and communications
1.5.4	Report on the implementation of the awareness raising campaign.	Survey to PT users to assess awareness after campaign completion, including gender aspects of mobility.	ZEMA / MLGRD / PPTCoop (Lusaka City Council / Gender Division	National consultancy firm for knowledge management and communications

Table 8: Deliverables in output 1.5

## Component 2: Electric mobility systems demonstrations

Two demonstrations are envisaged within this component: (1) the provision of scheduled public transport services- including some electric buses- along one of the bus routes in Lusaka (possibly a circular route covering the southeast area of the city, as this one has been identified as presenting better conditions for such operations<sup>[3]</sup><sup>22</sup> and making use of the infrastructure improvements envisaged by MoIHUD on T4 road; (2) the procurement and monitoring of some electric cars in the fleets of government entities such as ZEMA or ERB. In both cases, the demonstration is supported by the implementation of state-of-the-art fleet management practices, as well as with training (within the capacity building plan implemented by output 1.4).

The public transport demonstration is undertaken through 3 outputs, providing respectively the pilot concept confirming its feasibility, the detailed design of the services to be provided and the vehicles- electric or conventional- to be assigned to the pilot route and the pilot implementation and monitoring. Gender responsiveness is one additional challenge in this demonstration. It will require careful consideration of women's mobility practices and needs along the pilot route, engagement of female staff in operations, backed with adequate reforms in working conditions and enforcement, and affirmative action from the project to facilitate the access of women to training and jobs related to the pilot, as well as follow up measures for their sustainability after project completion.

The public transport (PT) operators participating in the demonstration with electric vehicles will be selected through an open call and will be requested to operate the electric vehicles during at least 12 months and to regularly (monthly) report to the project on the energy consumed, mileage travelled and passengers served by these vehicles and by comparable ICE vehicles, as well as on their maintenance operations. They will receive a compensation based on the mileage travelled. The maximum compensation to be received and the minimum technical requirements of the electric vehicles serving the route will be established during the feasibility and detailed design studies (outputs 2.1 and 2.2), and the actual compensation requested by the operator will serve as a basis for

their competitive selection and will be the one provided by the project in exchange for the information supplied during the 12-month demonstration period.

The demonstration on governmental fleets (output 2.4) will benefit from the Cabinet's announcement in October 2023 to start procuring electric vehicles<sup>[4]<sup>23</sup></sup>. Such announcement has not resulted in any significant addition of EVs to the governmental fleets thus far, and the project intends to contribute to foster the process by supporting at least two governmental entities in such efforts. ZEMA and ERB have already expressed their interest. The project will procure in total up to 3 electric cars and slow charging equipment, to be distributed among the participating fleets, and the government entities are expected to match each vehicle received with at least 2 additional EVs during the project lifetime.

The project will provide the participating fleets with fleet management systems allowing the monitoring of all the participating EVs and of a sample of ICE vehicles with similar characteristics. All the fleet monitoring system will include energy metering at the chargers to monitor energy consumption, GPS trackers, drivers' assignment and maintenance log and, in the case of the public transport demonstration also computer-aided dispatch (CAD) of all the vehicles servicing the selected route, so that official schedules can be established and enforced, and the implementation of an app providing real time information to public transport users.

It is noteworthy to mention that the provision of public transport services with motorcycle (2- or 3-wheeler) taxis is outlawed by the government of Zambia, as these vehicles are considered as a source of road accidents and competition for scarce road space in Lusaka and other cities. As the project demonstrations are focusing on large fleets and more precisely on public transport and government fleets, 2 and 3 wheelers, mainly used for self mobility or delivery, are not included.

Main partners and co-financers of this component are MoIHUD (through investments in the road network in Lusaka, favouring public transport) and ZEMA (through investments to participate in the demonstration of EVs in its fleet). Other participants in the demonstrations (public transport operators and government fleets) will be identified during the project implementation.

Barrier addressed: Limited technical know-how in the transport community about the characteristics and performance of electric vehicles.

***Outcome 2: The government of Zambia takes steps to the scale-up of integrated electric mobility systems based on the evidence provided by demonstrations.***

**Output 2.1: Pilot concept: A conceptual design and a feasibility study for an EV public transport pilot project in Lusaka are developed.**

The study will establish the feasibility to create a scheduled public transport route with regular stops in Lusaka, and to include some electric vehicles in the fleet providing such service. In 2021 the PPTCoop completed a Concept Note identifying several circular

routes in the southeast area of Lusaka as the most appropriate for introducing scheduled services, such as the one presented in the figure below. Such routes would benefit from the MoIHUD plans to establish reserved lanes for public transport vehicles on T4 route.

The feasibility study should include a detailed comparison of alternative routes (including circular versus radial routes<sup>[5]<sup>24</sup></sup>), screening of existing operators and operating conditions (including working conditions in general and for female staff), gender-responsiveness of the services provided, current and future fleet technical characteristics and capacity building requirements for vehicle owners and drivers. It will also assess the legal framework and authorizations required from the national government (MoLGRD and MoTL) and from Lusaka City Council. Finally, it will assess the financial capacities in the sector to provide service with the required vehicles, conventional or electric and the availability of financial instruments.

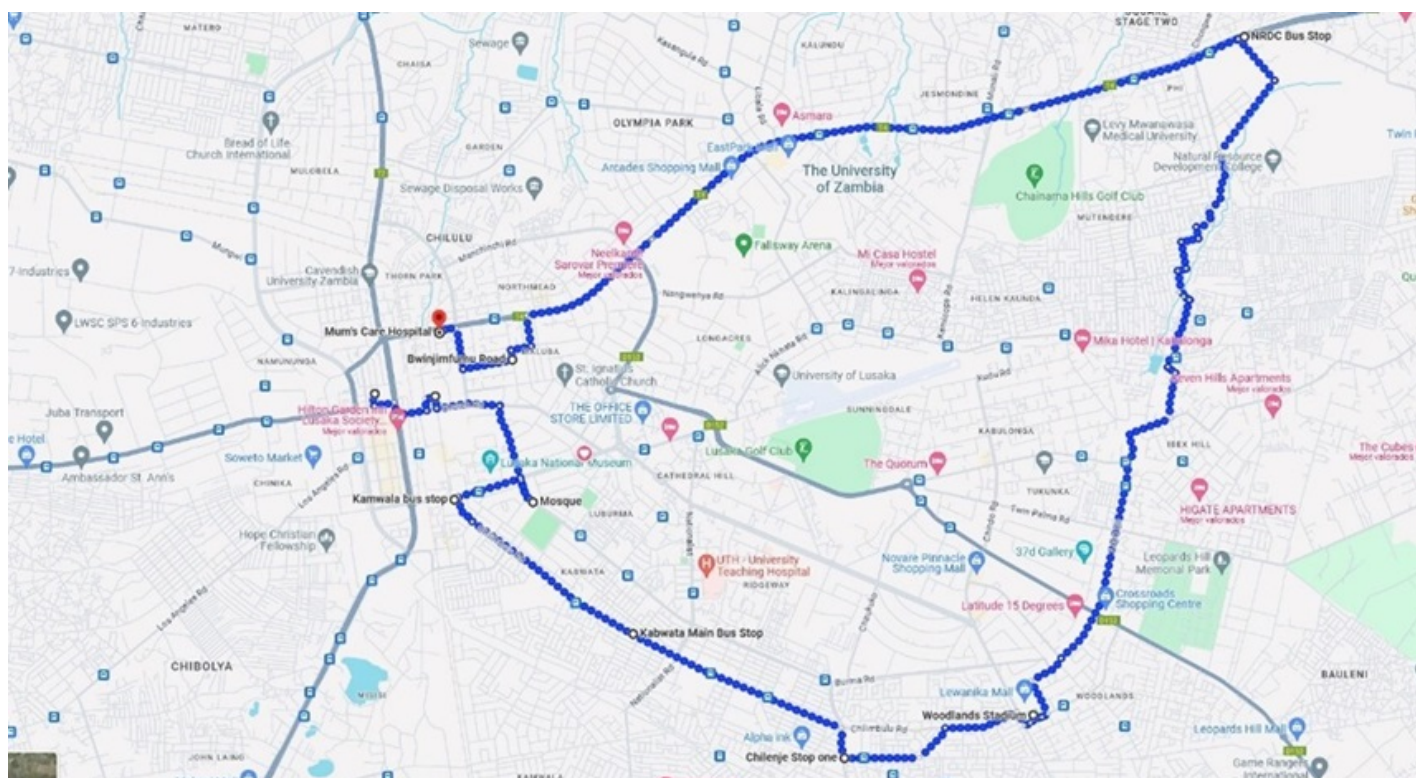


Figure 4: Example of a possible PT demonstration route in Lusaka

Under Output 2.1., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
2.1.1	Recruitment of an International consultancy firm on e-mobility pilots and technology .	This step will comprise of the preparation of TORs, call for EOIs, selection process through a committee, contract issuance and signature.	MoTL / MLGRD / ZEMA	PMU / PTC
2.1.2	One (1) workshop and field visit to consult local stakeholders on options for public transport pilot (presentation materials, mission report, attendance list).	Design workshop supported by TWG-3, including a focus on gender-responsive design and working conditions. Gender parity.	MoTL / MLGRD /Lusaka CC / PPTCoop / ZIPAR	International consultancy firm on e-mobility pilots and technology
2.1.3	Conceptual design and feasibility study with options and selection criteria for the electrified public transport pilot project (including working conditions).	The conceptual design reviews route and operation alternatives and produces a short list, to be analysed in detail in the feasibility study. Gender responsiveness and working conditions remain at the core of the analysis.	MoTL / MLGRD /Lusaka CC / PPTCoop / ZIPAR	International consultancy firm on e-mobility pilots and technology
2.1.4	One (1) validation workshop to present the feasibility study and select the public transport pilot option (presentation materials, workshop report, attendance list).	The validation workshop serves to confirm the feasibility of the pilot, the availability of interested operators, and the selection of the preferred route and operating conditions. Gender parity.	MoTL / MLGRD /Lusaka CC / PPTCoop / ZIPAR	International consultancy firm on e-mobility pilots and technology

Table 9: Deliverables in output 2.1

**Output 2.2: Pilot detailed design:** A gender responsive implementation plan for the EV public transport pilot project is developed, including the definition of pilot locations, data monitoring system and specifications for pilot EVs and charging infrastructure.

The detailed implementation plan develops the alternative chosen from the feasibility study in all the necessary details regarding (1) route and stops, taking into account the infrastructure improvements implemented by MoIHUD or Lusaka City Council, (2) Detailed demand study, minimum fleet and vehicle technical conditions necessary for the provision of the services, (3) total cost of ownership of the technically compliant ICE and electric vehicles required to provide the service, (4) legal control to avoid unfair competition on the route, (5) review of commercial supply of technically-compliant electric and ICE vehicles available in Zambia, (6) estimate of required compensation (on a mileage travelled basis) to operators of EVs during the 12-month operation, (7) detailed ToR for the selection of the public transport operator or operators that will provide the required service on the selected route during the demonstration with some EVs. This output concludes with the selection of the operators and the signing of contracts with them.

Under Output 2.2., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
2.2.1	Draft gender responsive implementation plan for the EV public transport pilot.	Detailed route and schedules. Fleet size and technical conditions. Screening of reliable operators. Estimate of project support to EV operation. Gender responsiveness and quotas. Draft safeguards management plan for the EV pilot (safety conditions for operating EVs and for charging stations).	MoTL / MLGRD /Lusaka CC / PPTCoop / ZIPAR / Gender Division	International consultancy firm on e-mobility pilots and technology
2.2.2	Two (2) workshops on the EV public transport pilot implementation plan (presentation materials, workshop reports, attendance lists).	Design workshop and validation workshop with wide local participation, facilitated by TWG-3. Gender parity.	MoTL / MLGRD /Lusaka CC / PPTCoop / ZIPAR / Gender Division	International consultancy firm on e-mobility pilots and technology
2.2.3	Final gender responsive implementation plan for the EV public transport pilot.	Includes detailed ToR for the selection of PT pilot operator(s). Detailed safeguards management plan for the EV pilot (safety conditions for operating EVs and for charging stations).	MoTL / MLGRD /Lusaka CC / ZIPAR / Gender Division	International consultancy firm on e-mobility pilots and technology
2.2.4	Selection of public transport pilot operators	Open call, with selection based on technical characteristics of EVs and compensation requested.	MoTL / MLGRD / Lusaka CC / Gender Division	ZEMA

Table 10: Deliverables in output 2.2

**Output 2.3: Pilot execution: The EV public transport pilot project is implemented, results are collected and disseminated to the government and public transport operators.**

Under this output, the project provides financial, technical and legal support to the selected PT operator(s) for the procurement of the pilot EVs and charging equipment and for implementing the service. The project will procure and transfer to the operator(s) the fleet management and computer-aided dispatch system for the route, and the real-time information app. At the time of the preparation of the CEO Endorsement request, the assumption considered was that at least 4 mid-size electric buses are expected to be operated during this output, but the final number and technology type of the EVs to be piloted will be confirmed during the operator(s) selection process, choosing the best offer (output 2.1).

The project's financial support (US\$ 400,000) to the procurement of the EVs and charging equipment by the operator will be subject to the actual operation of the vehicles during the 12-month demonstration period and provided in monthly installments in accordance with the mileage actually travelled, until covering the total contribution requested by the operator during the selection process, and at most 40% of the total procurement cost (including charging equipment). The procurement of the vehicles will remain the sole responsibility of the selected operator(s), and it will be asked to provide evidence of its financial capacity to procure and technical capacity to operate them. Under the signed contract, the operator(s) will be requested to provide monthly reports with monitoring information for the EVs and a sample of ICE vehicles serving the same route including mileage travelled (which will be the basis for receiving the contractual monthly compensations from the project), passengers served, drivers' working times, energy consumed and vehicle maintenance operations. The PMU will have permanent on-line access to the CAD system, so that it can verify the accuracy of the mileage reported.



At this stage, the most likely vehicle category to be tested are mid-size buses (minimum capacity 20 pax) to operate on the routes selected and under the precise operating conditions (including e.g. hours and days of service) to be established in output 2.2. Considering current PT operations in Lusaka, the annual mileage per vehicle is estimated at 60,000 km per year (refer to Annex M for further details). However, in accordance with the conclusions obtained from outputs 2.1 and 2.2, the project demonstration could consider targeting other public transport vehicles, if considered more advantageous (e.g. operation of vans, full-size buses, or regular taxi services). The total number of pilot assets could therefore vary.

Under Output 2.3., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
2.3.1	Provision to the selected operator of ToRs for procurement of the pilot EVs, charging infrastructure and other equipment	Detailed technical descriptions (including adequacy to women's needs) to facilitate the procurement by the operator of the most adequate provider.	PT Operator(s) / MoTL / MoFNP	International consultancy firm on e-mobility pilots and technology
2.3.2	Procurement of EVs, chargers and other equipment.	Completion of the procurement process of EVs, chargers and other equipment by the operator, with a consultant's report of the project's technical support provided.	PT Operator(s) / MoTL / MoFNP / Lusaka City Council	International consultancy firm on e-mobility pilots and technology
2.3.3	TORs for procurement of the public transport fleet dispatching system (providing for data collection and fleet monitoring).	Definition of technical requirements of the dispatching system to allow for planning of schedules, GPS tracking, bus driver run cutting, and vehicle performance monitoring.	PT Operator(s) / MoTL / Lusaka City Council	International consultancy firm on e-mobility pilots and technology
2.3.4	Procurement, installation and transfer of dispatching system for the pilot bus route.	Dispatching system covering 100% of the electric and ICE buses on the pilot route managed by the pilot operator.	Consultancy Firm on E-mobility / PMU / PT Operator(s)	ZEMA
2.3.5	Operations of the EV public transport pilot for 12 months (monthly reports and surveys).	The monthly reports will include (1) surveys on the level of satisfaction of users, with specific surveys designed for female users to understand whether the EV public transport pilot is adapted to needs of women, and (2) reporting on the implementation of the safeguards management plan in the monthly reports.	Consultancy Firm on E-mobility / PMU	PT Operator(s)
2.3.6	One (1) field visit and workshop to assess and present operation performances after 6 months (presentation materials, mission report, attendance list).	Field visit and workshop to provide technical advice to the operator based on provisional monitoring data and to engage local stakeholders in the assessment of service provided.	Engagement of local stakeholders through TWG-3	International consultancy firm on e-mobility pilots and technology
2.3.7	Final report on EV public transport pilot, including recommendations for future investments and scale-up.	Recommendations addressing the pilot operator and other PT operators in Lusaka and at the national level as well as local and national authorities on PT sector reforms.	PT Operator(s) / MoTL / MoLGRD / Lusaka City Council	International consultancy firm on e-mobility pilots and technology / PMU
2.3.8	One (1) workshop to present the findings and recommendation of the report (presentation materials, workshop report, attendance list)	Workshop targeting PT operators and national and local authorities.	Engagement of local stakeholders through TWG-3	International consultancy firm on e-mobility pilots and technology / PMU

Table 11: Deliverables in output 2.3

#### Output 2.4: Government institutions are supported in the electrification of their fleets through public procurement guidelines and the piloting of an EV fleet monitoring system.

The project will support at least two governmental entities in the procurement and operation of electric cars, in alignment with the Cabinet's policy announced in October 2023. Such support will start with a detailed assessment of current fleet management practices and needs within the government (focused on but not necessarily limited to the entities participating in this demonstration). The government's 2018 Government Fleet Management Policy and Action Plan<sup>[6]<sup>25</sup></sup>, although weakly implemented thus far, will provide a valuable basis for the project's study, which will result in the preparation of Guidelines for the procurement of EVs by the government in future, prepared and evaluated through consultation and validation workshops including the engagement of local stakeholders through TWG-3.

The study will be followed by the preparation of detailed technical ToR for the procurement of electric cars, charging equipment and fleet management systems to be transferred to the participating entities. Such ToR will also serve to procure additional EVs and equipment by these entities with their own resources during the project lifetime. The project's objective is to mobilize investment **from governmental entities** on at least two additional EVs for each **GEF funded** EV transferred before project termination. Depending on the number of participating fleets and the category and cost of the EVs selected, it is estimated that the demonstration will at most operate 9 EVs (3 financed by the project and 6 by the participating governmental agencies). However, a conservative assumption of just 8 EVs (all of them LDVs, more precisely cars) have been considered for GHG estimates (refer to Annex M), each with an annual mileage of 20,000 km. The EVs and a sample of ICE vehicles with similar characteristics and use will be monitored during at least 12 months through the fleet management system. The participating institutions will own all the EVs engaged in the demonstration, and will be required to sign a Memorandum of Understanding specifying their commitments **before the GEF funded EV is handed over to them**, including the provision of monthly reports on the vehicle use (energy consumed, mileage, drivers), and the PMU will have direct access to the fleet management system to verify such information, which will serve to the production of a final report and a workshop to disseminate the lessons learned and foster the electrification of public and private fleets.

#### Incremental logic of the government EV pilot:

The approach to the governmental fleet demonstration intends to optimize the number of governmental entities engaged and the number of EVs operated with the limited budgetary resources available, as well as reduce confidence barriers in Zambian government adoption of EVs and ensure government ownership of the pilots. In total, it is expected the project will engage 3 governmental entities to operate a total of 9 EVs.

Incentives to EV purchase in developed countries are typically around USD 10,000 for an EV of around USD 30,000, sometimes including charging equipment. An incentive of similar proportion (i.e. 1/3) has been taken as a reference for this project, as it would be able to cover most of the incremental costs of ownership of EVs compared to conventional vehicles.

Providing such incentive as a financial transfer to each participating governmental entity would have some disadvantages and risks: for example, the bureaucratic burden for the entities of including the full EV costs in their budgets and to receive the incentive afterwards, or the risk for the project of transferring the incentive upfront without certainty that the EVs will be purchased within

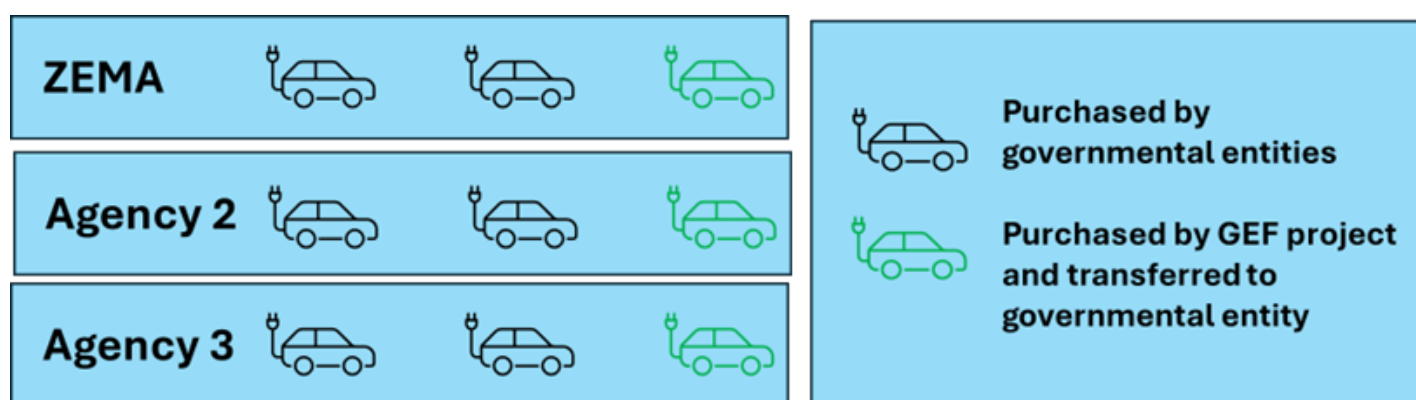


the expected timeframe. Another risk is related to the high financial costs in the context of Zambia, in case the participating entities need to bridge the time between purchasing the EVs and receiving the incentives. Finally, the difficulties that may arise if the EVs are not operated as expected.

These disadvantages and risks are addressed by introducing a matching concept to provide such incremental support. Respecting the 1/3 proportion to support each entity's investment, the project will procure and transfer 1 vehicle to each participating entity for each 2 vehicles directly procured by the entity (see figure below). By procuring the GEF-funded vehicles only once there is evidence that the governmental entity is committed to procuring theirs (e.g. through a call of procurement issued, letter of intent or other forms of commitment), the project will effectively manage the risks of purchasing the electric vehicles while the participating entities eventually fail to do so. At the time of transferring the vehicle ownership, the project will verify that the governmental entity's EVs have been procured and duly registered and establish clear minimum conditions for the EV's operations (e.g. in terms of completing a minimum annual mileage and periodically reporting to the project team on key operation parameters, such as energy consumption or maintenance costs).

The matching concept also facilitates the active engagement of each participating entity. In cases where one entity receives financial support to procure one EV, it is difficult for the entity to integrate it within its fleet management practices, and there is a risk too of the single EV becoming just a vehicle "to show to visitors". The matching system encourages that at least 3 EVs (two bought from the participating entities' budgets and one by the GEF project), will be included in the fleet, making it more likely that they will be operated professionally and adequate management of resources to optimize their use. It will also ensure that the participating entities have "skin in the game". Considering the limited budgets that these entities have in Zambia, the risks that the EVs are used only for showcasing is reduced significantly – the entities just don't have the budget to do so.

Lastly, the incrementality logic of the project's approach is strengthened by the fact that the project's contribution would also cover charging equipment costs (in case the participating entities requests for such an arrangement), while respecting the 1/3 proportion between the GEF project's and the national entities' total investment.



**Figure 5: Matching concept for governmental fleets' demonstration**

Under Output 2.4., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
2.4.1	Needs assessment and recommendation report for the introduction of EVs in government fleets.	Focus on identification of the vehicle categories and government services better suited for electrification. Total cost of ownership assessment.	Cabinet / MoFNP / MoTL / MoE	International consultancy firm on e-mobility pilots and technology
2.4.2	EV Public Procurement Guidelines for the government of Zambia.	Update of 2019 Action Plan with a focus on electrification.	Cabinet / MoFNP / MoTL / MoE	International consultancy firm on e-mobility pilots and technology
2.4.3	Two (2) workshops, (1) on the governmental fleet electrification report and (1) on the public procurement guidelines (presentation materials, reports, attendance lists).	Validation workshops with participation facilitated through TWG-3 opened to national government, provincial and local governments and governmental agencies.	Cabinet / MoFNP / MoTL / MoE	International consultancy firm on e-mobility pilots and technology / PMU
2.4.4	Technical specifications and TORs for procurement of pilot EVs, chargers and fleet monitoring system.	Detailed ToR for project's procurement, valid also for government's procurement, including 12-month warranty and maintenance.	Participating agencies / ZEMIA	International consultancy firm on e-mobility pilots and technology
2.4.5	Pilot EVs, chargers and fleet monitoring system procurement, delivery and installation.	UP to 3 EVs procured. One fleet monitoring system for each participating entity.  Staff training provided through output 1.4.	Participating agencies	International consultancy firm on e-mobility pilots and technology
2.4.6	Twelve (12) monthly data monitoring reports on the governmental EV fleet pilot operations.	Based on reporting template provided by Consultancy Firm on e-mobility pilots and technology; report completed by participating agencies and revised by the Consultancy Firm.	Participating agencies	International consultancy firm on e-mobility pilots and technology
2.4.7	Final report on performances of the governmental EV fleet pilot, including recommendations for scale-up.	Recommendations addressed to the participating agencies and for other entities in the government.	Participating agencies	International consultancy firm on e-mobility pilots and technology / PMU
2.4.8	One (1) workshop to present the results of the governmental EV fleet pilot (presentation materials, workshop report, attendance list).	Participation facilitated through TWG-3 opened to national government, provincial and local governments and governmental agencies.	Cabinet / All ministries and government agencies / Large private fleets / ZEMIA	International consultancy firm on e-mobility pilots and technology / PMU

Table 12: Deliverables in output 2.4

### Component 3: Scale-up and replication of integrated electric mobility systems.

The project's action for scaling up electric mobility systems relies in the implementation of the national low-carbon mobility strategy established in output 1.2 through (1) the reform of regulations and technical standards to facilitate the adoption of electric vehicles beyond early adopters, reaching a growing part of entities and even individuals, (2) the development of an investment plan providing the necessary public and private resources to the implementation of the strategy, especially in what refers to the deployment of private and public charging facilities in the country, (3) supporting two additional elements of the strategy, besides electrification: non-motorized transport and public transport; the former through the update of the 2019 National NMT Strategy to accelerate its implementation and the latter through the preparation of the Concept Note for the modernization (including through the

consolidation of operators in cooperatives and private companies) and the electrification of public transport, which can be submitted by the government to international financial institutions. The latter is well aligned with the calls in the NTP and other documents<sup>[7]<sup>26</sup></sup>

 to create urban transport authorities in the main cities as a way to improve the service and overcome the current atomization and weakness of operators. Finally (4) under this component the project intends to develop financial instruments, which could support the modernization and electrification of public transport and other fleets, in close cooperation with the local financial industry.

As an essential contributor to the implementation of the national gender-responsive low carbon mobility strategy, the incentives and financial mechanism developed under this component (outputs 3.1 and 3.3) and the investment plan for the deployment of the charging infrastructure network (output 3.2) need to ensure the economic and financial viability of transport electrification for the main vehicle categories and end-use (with a priority to professional fleets and the most relevant public services and consistent with their business models) in terms of their total cost of ownership (TCO) in comparison with ICE vehicles.

Participation and stakeholder engagement within this component will be mainly channeled through TWG-2, chaired by the MoFNP, and materialized in various design and validation workshops. Gender aspects will be relevant especially in what refers to the update of the NMT strategy, and the access to women to the new financial instruments, as well as in the gender responsiveness of the Concept Note.

The main co-financing to this component is provided by the MoE, through the implementation of the government's energy plans to expand electricity generation from renewables, a necessary step to enable the deployment of electric vehicles in the country. In-kind contributions have been identified from **MoTL**, ZEMA and ZEMIA to support the regulatory and standardization effort.

Barrier addressed: Market failure: Regulatory barriers and absence of financial mechanisms to invest in e-mobility options.

***Outcome 3: The Government of Zambia adopts policies, regulations and technical standards and endorses a financing scheme to accelerate the introduction of integrated electric mobility systems.***

Output 3.1: Fiscal, regulatory and policy measures (i.e. financial incentives, building codes, standards, etc.) to incentivize the uptake of EVs and charging infrastructure are developed (or enhanced) and submitted to the government for approval.

Based on the gaps identified in the national low-carbon mobility strategy developed under component 1, an array of regulatory proposals will be developed and submitted to the government for adoption. These proposals may include (1) the reform of the fiscal policy on vehicle imports to incentivize the purchase of electric and other energy efficient vehicles and to disincentivize the purchase of pollution second-hand vehicles; (2) the reform of vehicle import regulations to facilitate the purchase of electric and other energy efficient vehicles and to ban the importation of polluting ones (e.g. based on combined age and emission standard limits for the import of used vehicles and containing clear regulations for the import of electric vehicles); (3) the reform of regulations on vehicle registration to incentivize the use of energy efficient and clean vehicles (e.g. through reduced registration fees and the issuing of special labelling, which can serve to provide other benefits in the use of the road and parking space); (4) the reform of the authorization system for the provision of urban public transport services, providing fairer competition conditions and assuring

reasonable quality of service and vehicle safety; (5) a new framework to regulate the provision of charging infrastructures for EVs, including for battery swapping schemes, ad hoc electricity fares and the provision of public charging services; (6) regulations for the import of used EVs (e.g., based on an age limit to prevent influx of used EVs with limited range until better measures such as mandatory battery state of health indicators are introduced globally).

This output addresses the market barrier created by the current fiscal and regulatory framework in Zambia, strongly favourable to the importation of polluting second-hand ICE vehicles, in particular in the public transport sector. The setting up of regulations and technical standards will be aligned with the national low carbon mobility strategy, including gender parity in the relevant meetings and assessment of gender impact of the regulations and standards. All the standards and fiscal and regulatory reform proposals will be validated with the project's stakeholders (mainly participating ministries, local governments, and regulatory and fiscal experts) through TWG-2 and TWG-2 as well as through workshops (with a participation of some 30 participants at each one).

The incentives developed under this output (and any regulations with a financial impact) will need to ensure the economic and financial viability of transport electrification for the main vehicle categories and end-use (with a priority to professional fleets and the most relevant public services and consistent with their business models) in terms of their total cost of ownership (TCO) in comparison with ICE vehicles.

The PMU will support ZEMA and other competent institutions in the process to obtain the government's official adoption and publication of the fiscal, regulatory and policy package.

Under Output 3.1., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
3.1.1	Three (3) consultation workshops on the needs / gaps in terms of fiscal / financial incentives, regulations and standards for EVs and charging infrastructure.	1 workshop on fiscal and financial incentives; 1 workshop on regulations; 1 workshop on standards.	Wide participation through TWG-2 and TWG-3	International consultancy firm on e-mobility pilots and technology / PMU
3.1.2	Draft proposals on financial and fiscal incentives for EVs and charging infrastructure.	Gender-responsive financial and fiscal incentives including fiscal incentives at EV procurement. Fiscal incentives at EV use. Financial incentives (grants, parking or toll rebates...)	MoFNP / ZRA / Bank of Zambia / ZANACO / BAZ / ZEMIA / ZIPAR	International consultancy firm on e-mobility pilots and technology
3.1.3	Draft regulatory package for EVs, charging infrastructure and working conditions in the public transport sector.	Regulations on vehicle approval, registration and inspection. Regulations on public transport services. Regulations on electricity access and tariffs.	MoE / ERB / MoTL / MoLGRD / ZEMIA / ZIPAR / PPTCoop/ BTOAZ / OTDAZ / BTDZ	International consultancy firm on e-mobility pilots and technology
3.1.4	Draft standards for EVs and charging infrastructure.	Screening of standardization needs and prioritization. Working plan. Drafting of standards with higher priority.	MoE / ZEMA / MoTL/ RTSA / ERB / ZABS / ZCSA / ZEMIA	International consultancy firm on e-mobility pilots and technology
3.1.5	Three (3) validation workshops on the fiscal / financial incentives, regulatory package and standards for EVs and charging infrastructure.	1 workshop on fiscal and financial incentives (including gender responsive criteria); 1 workshop on regulations; 1 workshop on standards.	Wide participation through TWG-2 and TWG-3	International consultancy firm on e-mobility pilots and technology / PMU

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
3.1.6	Three (3) reports including (1) the final package of fiscal / financial incentives, (2) the final regulatory package, and (3) the final package of standards for EVs and charging infrastructure.	Final proposals for approval by competent institutions. Roadmap for approval and implementation.	MoFNR / MoE / MoTL / ZABS / ZEMA	International consultancy firm on e-mobility pilots and technology
3.1.7	Report on technical assistance provided to support the approval process of the incentives, regulations and standards by the government.	Quarterly updated list of supportive actions (briefings, meetings, notes...) completed by the PMU until approval or end of project.	ZEMA / MoE / MoFNR / ZABS / International consultancy firm on e-mobility pilots and technology	PMU

Table 13: Deliverables in output 3.1

**Output 3.2:** An investment plan for implementing the low-carbon mobility strategy (output 1.2), including recommendations for scaling up charging infrastructure in Zambia is developed, presented to national stakeholders and submitted to the government for endorsement.

This output addresses the investment needs for the effective implementation of the national low-carbon mobility strategy, including (1) the identification of local industrial opportunities for investing in the electric-mobility manufacturing chain, including vehicles, batteries and charging equipment; and (2) an investment plan to assess and mobilize the necessary resources for the deployment of electric mobility along the guidelines established in the strategy. Both questions will be addressed through specific technical studies complemented with workshops with interested stakeholders and participation through TWG-2 and TWG-3. The engagement of SADC will be relevant for the study on industrial opportunities. The investment plan will inter alia build upon the studies already undertaken by the MoE for the deployment of the charging network in Zambia. Gender will be mainstreamed within this output, so that industrial opportunities are made fully accessible to women and the investment plan actively supports the advance of women in the economy. The investment plan will consider economic and financial viability of vehicles electrification in terms of their total cost of ownership (TCO) in comparison with ICE vehicles.

The activities under this output are closely connected to the MoE's efforts to expand electricity generation and availability in Zambia, with a focus on renewable sources. The investment plan provided by this output is crucial for scaling up electric mobility along the energy needs identified in the study of additional demand included in the national gender-responsive low-carbon mobility strategy (output 1.2), and in close alignment with the implementation by the MoE of the national energy policy, including the investments in electricity generation from renewables (refer to the MoE co-finance letter in Annex H).

The PMU will support ZEMA and other competent institutions in the process to obtain the government's official endorsement and publication of the investment plan.

Under Output 3.2., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
3.2.1	Recruitment of an International E-mobility Finance & Business Models Firm.	This step will comprise of the preparation of TORs, call for EOIs, selection process through a committee, contract issuance and signature. ToR prepared by PMU and endorsed by MoGEE and other relevant ministries.	UNEP / ZEMA	PMU / PTC
3.2.2	Study on industrial opportunities of electric mobility (assembly and manufacturing of vehicle and charging equipment).	Screening of local automotive and electric industry. Best practice in the region. Development of gender-responsive scenarios. Options for government's action and investors' engagement.	MoE / MoTC / SADC / ZEMIA	International E-mobility Finance & Business Models Firm
3.2.3	One (1) workshop to present the findings and recommendations of the study (presentation materials, workshop report, attendance list).	Workshop open to interested investors and start-ups.	Wide participation through TWG-2 and TWG-3	International E-mobility Finance & Business Models Firm / PMU
3.2.4	Draft investment plan to support the implementation of the low-carbon mobility strategy, with recommendations for the upscaling of charging infrastructure in Zambia.	Investment needs include (1) charging network deployment; (2) government fleet electrification; (3) public transport electrification; (4) inspection and control services; (5) maintenance services; (6) electrification and fiscal balance (7) female specific needs. Three scenarios, based on different macroeconomic assumptions.	MoE / MoGEE / MoTL / MoFNP / ZEMIA / ZIPAR	International E-mobility Finance & Business Models Firm
3.2.5	One (1) workshop to present and validate the investment plan (presentation materials, workshop report, attendance list)	Workshop open to interested investors.  Assessment of investment alternatives and proposal for selection.	Wide participation through TWG-2 and TWG-3	International E-mobility Finance & Business Models Firm / PMU
3.2.6	Final investment plan to support the implementation of the low-carbon mobility strategy, with recommendations for the upscaling of charging infrastructure in Zambia.	Includes final assessment of gender-responsive investment alternatives and selection of the preferred one.	MoE / MoGEE / MoTL / MoFNP / ZEMIA / ZIPAR	International E-mobility Finance & Business Models Firm
3.2.7	Report on technical assistance provided to support the investment plan endorsement process.	Quarterly updated list of supportive actions (briefings, meetings, notes...) completed by the PMU until approval or end of project.	MoE / MoGEE / MoTL / MoFNP / International E-mobility Finance & Business Models Firm	PMU

Table 14: Deliverables in output 3.2

Output 3.3: A financial mechanism is developed to support investments into EVs and charging infrastructure and is presented to national stakeholders.

The financial mechanisms will be based on the scenarios and guidelines provided by the national low-carbon mobility strategy. They will focus on the public transport sector, requiring close coordination with output 3.5 on business models, and on large private fleets. The study will assess users' technical requirements to identify the most appropriate vehicle categories for electrification, creditworthiness in the industries selected and best international practice, with support from the Global Programme. Financing options will include loans (adapted to the risks and revenue / savings streams associated to EVs), leasing options (including an assessment of the government's policy to expand the leasing sector within its national development strategy) and conditions for

the attraction of equity risk capital. Women's accessibility to such mechanisms will be explicitly assessed, so that equal access is guaranteed. The financial schemes will be designed and validated through workshops to facilitate stakeholder participation, and procurement guidelines will contribute to overcome the financial barriers involved in the purchase of electric vehicles by creating and strengthening strategies to finance the initial capital cost requirements, enabling the participation and investment of the private sector. It is noteworthy to highlight that the financial mechanism developed under this output will need to ensure the economic and financial viability of transport electrification for the main vehicle categories and end-use in terms of their total cost of ownership (TCO) in comparison with ICE vehicles.

The PMU will support ZEMA, the financial institution(s) and other relevant institutions in the process of operationalizing the financial mechanism.

Under Output 3.3., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
3.3.1	Draft financial mechanisms to support electric mobility investments by the private sector.	Best international practice, with a focus on the region. Identification of targeted consumers (focus on PT operators and large private fleets) and vehicle categories. Loan options. Leasing options. Equity options. Other instruments. Recommended instruments and their scope.	MoFNP / Bank of Zambia / ZANACO / BAZ / Gender Division	International E-mobility Finance & Business Models Firm
3.3.2	Two (2) workshops to discuss and validate the proposed financial mechanisms with financial institutions and transport operators / fleet owners (presentation materials, workshop report, attendance list).	Co-design workshop to present international practice and discuss local needs. Validation workshop to assess feasibility and interest by potential lenders and borrowers. With participation of women's organizations.	Wide participation including through TWG-2	International E-mobility Finance & Business Models Firm / PMU
3.3.3	Report on the technical support provided to one (1) financial institution in the operationalization of the selected financial mechanism.	Quarterly updated list of supportive actions (briefings, meetings, notes...) completed by the PMU until approval or end of project.	Bank of Zambia / ZANACO / BAZ / Gender Division / International E-mobility Finance & Business Models Firm	PMU

Table 15: Deliverables in output 3.3

#### Output 3.4: The National non-motorized transport (NMT) Strategy is updated to include the integration of NMT modes with public transport and to mobilize resources for its implementation in Lusaka.

This topic develops the NMT dimension of the national low-carbon mobility strategy. It builds upon the 2019 National NMT Strategy, learning from the challenges it has faced for its implementation since then to update it to the current post-COVID context and to strengthen the synergies with project's actions on electric mobility and public transport.



The project's approach to this update is based on strengthening local ownership, which can be facilitated by the engagement of local expertise, preferably through a local thinktank like ZIPAR or through an experienced team on local transport and urban planners and designers, and the continuation of the fruitful collaborative work among the government (MoLGRD, MoTL, Lusaka City Council), and international organizations (UNEP, UNDP) that allowed the preparation on the 2019 strategy. In particular, the project will provide one additional technical annex to the strategy, providing guidance for the facilitation of safe pedestrian access to the public transport system through well-designed bus stops. Such guidance will be based on a pilot study targeting one bus route in Lusaka, most probably the same one selected for the project's public transport demonstration.

Stakeholders' engagement will be facilitated through 3 workshops, the first one to identify the challenges faced by the 2019 strategy implementation, the second one for co-designing the pilot study and the technical guidelines, and the third one for validating the updated national NMT strategy. Furthermore, TWG-3 will serve to reach out to the public transport stakeholders engaged in the project's demonstration.

The 2019 NMT Strategy already mainstreamed women's accessibility. Under this output, the focus will be put in facilitating the implementation of those guidelines and in strengthening the current weak link of pedestrian access to public transport, which constitutes one relevant concern in terms of perceived security and safety for women in many urban areas, including Lusaka.

Sustainability will be facilitated by the project through the preparation of a Concept Note including the short-term financial needs for the implementation of the updated national NMT strategy (updating and further developing the action plan included in the 2019 strategy), which can be presented to the national government or international donors for funding.

Under Output 3.4., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
3.4.1	Recruitment of a national consultancy firm or thinktank for the NMT strategy update.	This step will comprise of the preparation of TORs, call for EOIs, selection process through a committee, contract issuance and signature. ToR prepared by PMU and endorsed by relevant ministries.	ZEMA / UNDP	PMU / PTC
3.4.2	One (1) field visit and consultation workshop to collect information on the implementation of the NMT strategy (presentation materials, workshop report, attendance list).	Information collection based on interviews and focus groups, including a review of gender challenges in NMT in Zambia. Includes collection of available statistical information (accidents, violence against women, etc.).	Local stakeholders, including through TWG-3	National consultancy firm for the NMT strategy update / PMU
3.4.3	Assessment report on existing barriers to the implementation of the national NMT strategy.	Based on workshop results, and experience in other countries. Should include aspects specific to gender difference in the framework of non-motorized transportation.	MoTL / MoLGRD / UNDP	National consultancy firm for the NMT strategy update
3.4.4	Pilot study on the facilitation of pedestrian access to public transport on one (1) route in Lusaka, including design options and investment estimates.	Selection of the PT route. Survey for Identification of preferred bus stops and main pedestrian access routes. Assessment of barriers, including gender related. Development of standardized gender-responsive design solutions, including detailed budget estimate and technical description.	MoTL / MoLGRD / UNDP / Lusaka City Council	National consultancy firm for the NMT strategy update
3.4.5	Draft updated National NMT strategy, including the design guidelines for the	Update presented as annexes including (1) recommendations to speed up implementation	MoTL / MoLGRD / UNDP	National consultancy firm

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
	integration of NMT with public transport.	(2) gender responsiveness (3) design guidelines and (4) revised action plan and budget.		for the NMT strategy update
3.4.6	Two (2) workshops to discuss and validate (1) the pilot study on pedestrian access to one public transport route in Lusaka and (2) the draft update of the National NMT Strategy (presentation materials, workshop report, attendance list).	Co-design workshop on pilot study emphasising local-based solutions.  Validation workshop focusing on implementation arrangements.	Local stakeholders, including through TWG-3	National consultancy firm for the NMT strategy update / PMU
3.4.7	Final updated National NMT strategy.	Final revision of the NMT strategy based on acceptance by key stakeholders, including (1) recommendations to speed up implementation (2) gender-responsiveness (3) design guidelines and (4) revised action plan and budget.	MoTL / MoLGRD / UNDP	National consultancy firm for the NMT strategy update
3.4.8	Concept note with institutional and financial options for the implementation of the NMT strategy in Lusaka.	Including assessment of co-financing sources and MoFNP support. Concept note following the template(s) required by the targeted donor(s).	MoTL / MoLGRD / MoFNP / UNDP	National consultancy firm for the NMT strategy update

Table 16: Deliverables in output 3.4

Output 3.5: A project concept note for scaling up e-mobility (i.e. for strengthening public transport cooperatives) is prepared and submitted to a financial institution or donor for approval.

These output addresses the current atomization of the public transport sector in Lusaka through (1) the provision of recommendations for the consolidation of individual owners into cooperatives (eventually including the incentives the government could provide for such consolidation) and a business plan providing guidance to individual owners about the recommended operation and management practices and the financial scenarios. (2) Based on these recommendations and business plans, the project will prepare a concept note for a project to be presented to international donors or financial institutions for accelerating the consolidation process in Lusaka and extending it to other cities and to interurban public transport.

As described in section A.1, PT services are currently provided by a myriad of small operators most of them with decrepit second-hand minibuses and without much respect to the schedules and routes assigned, which results in poor quality of the service. The consolidation of these operators into cooperatives is seen as a preliminary and necessary step to obtain economies of scale during operations, to facilitate control and enforcement by public authorities (schedules, vehicle conditions...) and to provide concession rights linked to the routes (which can be accepted as collateral by lenders), putting operators in a much better position to undertake the modernization and electrification of their fleets.

The existing organizations of public transport owners and drivers, as well as the already existing (although still not operating) cooperatives will be the key stakeholders in this output, together with the relevant ministries (mainly MoTL and MoLGRD) and Lusaka City Council in what refers to implementation in the city.

The consolidation of PT operators into cooperatives provide an opportunity to increase female participation in this sector, including through the setting up of requirements on gender parity to be accomplished in the short and medium term in the cooperatives membership, staff and management.

Under Output 3.5., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
3.5.1	Recommendations for the formalization and operation of public transport cooperatives in Lusaka and detailed business plan.	Review of legislation. Best international practice in PT consolidation. Recommendations for governmental action. Detailed sample data collection with associations. Detailed business plan showing financial feasibility and gender responsiveness.	PPTCoop / BTOAZ / BRDAZ / OTDAZ / MoTL / MoLGRD /Lusaka City Council	Consultancy on E-mobility Finance & Business Models
3.5.2	One (1) workshop to present the business plan to key stakeholders in the public transport sector (presentation materials, workshop report, attendance list).	Validation of the business plan by governmental entities and PT associations and relevant women's organizations.	Wide stakeholder participation, including through TWG-3	Consultancy on E-mobility Finance & Business Models / PMU
3.5.3	Concept note for scaling-up e-mobility in the public transport sector in Lusaka.	Following template(s) required by targeted donor(s).	PPTCoop / BTOAZ / BRDAZ / OTDAZ / MoTL / MoLGRD /Lusaka City Council	Consultancy on E-mobility Finance & Business Models
3.5.4	One (1) workshop to present and validate the concept note (presentation materials, workshop report, attendance list).	Validation of the business plan by governmental entities and PT associations and relevant women's organizations and presentation to interested IFIs and donors.	Wide stakeholder participation, including through TWG-3 / IFI and donors	Consultancy on E-mobility Finance & Business Models / PMU
3.5.5	Report on the technical support provided to the government in the submission process of the concept note to a donor / financial institution.	Quarterly updated with supporting actions (briefings, meetings, technical notes) provided by PMU.	MoTL / MoLGRD / MoFRD / Consultancy on E-mobility Finance & Business Models	PMU

Table 17: Deliverables in output 3.5

#### Component 4: Long-term environmental sustainability of electric mobility systems.

Long term sustainability of e-mobility addresses the end-of-life challenges raised by used EV batteries, an issue the country is likely to face relatively soon, as second-hand electric vehicles may start being imported in the country with limited remaining battery life. This will add to the current environmental pressure of e-waste. The country is already updating its e-waste management regulations, but still needs support to complement it with detailed official technical guidance, and to develop the professional competencies to implement it. This includes the collection and separation of e-waste and its subsequent recycling or disposal. So far, no global guidelines on how to deal with end-of-life EV batteries eventually ending up in low- and middle-income countries have been

established. UNEP and partnering organizations will work towards establishment of policies and guidelines on how to re-introduce end-of-life EV batteries in global EV value chains. In the meantime there is no time to lose to prepare local regulatory frameworks to ensure that used EV batteries will not end up in landfills but will be collected in an organized manner to prepare for subsequent steps. So far, companies and individuals dedicated to the management of end-of-life vehicles do not have the robustness and capacity necessary to address this additional challenge. As identified at the Safeguard Risk Identification Form (SRIF), the future management for EVs at their end-of-life requires strengthening of current e-waste management chains and to introduce an adequate management approach for end-of-life EV batteries.

So far, it is unclear whether the original EV (or battery) producer will be held responsible for the second-life use of its batteries, or whether this will be left to market forces, due to the relatively high value of some components of the used batteries. It is however clear that most of the regulation to be developed in the short term will mainly concern primary markets in Europe, North America and Asia. Extended producer responsibility will most likely not be an efficient tool to regulate secondhand EV end-of-life issues in the Global South. It is therefore of utmost urgency to investigate the options for collection of used EV batteries for re-use, recycling and safe disposal. For example, in the early stages of EV deployment in Zambia, finding options for used EV batteries for second life applications either for energy storage, or for production of new battery packs based on tested used battery can be smart ways to tackle the issue of end-of-life EV batteries. This component will address these issues comprehensively, including the promotion of second-life battery use.

Therefore, this component targets the development of initial strategies to ensure environmental sustainability of the introduction of electric mobility in Zambia by focusing on two areas, each with one specific output: (1) The implementation of the new legal framework on e-waste management with official technical guidelines in accordance with good international practice, so that it can foster a reliable e-waste collection and management system; and (2) the provision of a detailed roadmap to operationalize the sustainable management building of batteries at their end of life, including the assessment of the technical and equipment needs of the companies licensed for that activity and the provision of technical assistance to them.

The co-financing partner for this component is ZEMA, which is actively engaged in the preparation of the new legislation and the licensing of e-waste management companies.

Barrier addressed: Potentially high environmental and social impact of the transition towards e-mobility.

***Outcome 4: The Government of Zambia endorses a roadmap with measures to ensure the long-term environmental sustainability of integrated electric mobility systems including EV and battery end-of-life.***

**Output 4.1: A technical guidance package on environmentally sound management of end-of-life EVs is developed to support government officers in the implementation of the legislative and regulatory framework on e-waste management.**

The project intends to provide the government with a factual, data-based assessment of the current situation on e-waste generation and management and an estimate of the expected future generation of additional e-waste from electric vehicles. This will be followed by the provision of detailed technical guidance for government's supervision and control (through ZEMA), and for the operation of the licensed e-waste management companies, including a safeguards management plan for end of life (EOL) vehicles and batteries. The recommendations to address the new challenge of EV batteries will therefore be embedded within the on-going government's wider effort to strengthen the general e-waste management system. The needs assessment study and the technical guidance will

be carried out with the support of an international consultant and the latter will be submitted to the government through ZEMA for official approval.

The support to the consolidation of an e-waste management industry will be coupled with a focus on the women's role in these activities and the needs to strengthen gender parity in this sector. Stakeholders' engagement will be facilitated by the activities of TWG-4, chaired by ZEMA or by the MoGEE. Professional training will also be provided through output 1.4. The PMU will support ZEMA, the MoGEE and other competent institutions in the process to obtain the government's approval of the technical guidance package.

Under Output 4.1., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
4.1.1	Recruitment of an international consultancy firm on EVs and batteries end-of-life management.	This step will comprise of the preparation of TORs, call for EOIs, selection process through a committee, contract issuance and signature. ToR prepared by PMU and endorsed by ZEMA	ZEMA	PMU / PTC
4.1.2	Needs assessment report on e-waste regulations, technical guidelines and enforcement in Zambia, with a focus on EoL EVs and batteries.	Data collection on e-waste. Assessment of current regulations and enforcement in the country and the region (SADC). Challenges for EPR implementation. Assessment of needs and scope of official technical guidelines, including their gender-responsiveness.	ZEMA / SADC	Consultancy firm on EVs and batteries end-of-life management.
4.1.3	Draft technical guidance package for environmentally sound management of EoL EVs and batteries.	Gender-responsive management plan for end of life (EOL) vehicles and batteries including collection, re-use, recycling, re-integration into value chains and safe disposal and safeguards.  Review of best international practice. List of topics to be addressed and priority. Development of guidance for high priority topics.	ZEMA / ZEMIA	Consultancy firm on EVs and batteries end-of-life management.
4.1.4	Two (2) workshops on the technical guidance package (presentation materials, workshop reports, attendance lists).	One design workshop and one validation workshop.	ZEMA / ZEMIA / Wide participation through TWG-4	Consultancy firm on EVs and batteries end-of-life management / PMU
4.1.5	Final technical guidance package for environmentally sound management of EOL EVs and batteries.	Update of 4.1.3. Includes collection, re-use, recycling, re-integration into value chains and safe disposal.	ZEMA / ZEMIA	Consultancy firm on EVs and batteries end-of-life management.
4.1.6	Report on technical assistance provided to support technical guidance approval process.	Quarterly updated list of supportive actions (briefings, meetings, notes...) completed by the PMU until approval or end of project.	ZEMA / MoGEE / Consultancy firm on EVs and batteries end-of-life management	PMU

Table 18: Deliverables in output 4.1

Output 4.2: A roadmap to operationalize the environmentally sound management of end-of-life EVs and batteries (collection, re-use, recycling, re-integration into value chains and sound disposal) is developed, discussed with national stakeholders (including e-waste companies) and submitted to the government for endorsement.

This output provides a roadmap to the operationalization of state-of-the-art e-waste management in three stages, with a focus on EV batteries: (1) at the country level, identifying existing or future value chains which could be established, (2) at the operational level, providing a detailed assessment of the current demand (in terms of e-waste produced and managed), supply (in terms of the final destination of the managed e-waste) and technical capacities in the country, and (3) at the implementation level, in terms of the short term actions required to upgrade the technical and operational capacities of the e-waste management sector in line with the value chains to be strengthened, and the government's and financial support required. It includes the implementation of the safeguards management plan for end of life (EOL) vehicles and batteries developed in output 4.1.

The review and recommendations on value chains provide an opportunity to replicate lessons from other countries in empowering female participation in this sector. Stakeholders' engagement may be particularly challenging in this output, as e-waste management is likely to include a significant informal sector and companies with limited capacities; this will be strengthened through the action of TWG-4. ZEMIA's engagement will facilitate discussion on the effective implementation of EPR principles, especially with car dealers and importers. The PMU will support ZEMA and other competent institutions in the process to obtain the government's official endorsement of the roadmap.

Under Output 4.2., the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
4.2.1	Technical report with benchmarking of best international practices in the development of local e-mobility value chains and recommendations for Zambia.	Detailed description of e-mobility value chains. Best international practices in value chain circularity and consolidation (including women's engagement). The Zambian e-mobility ecosystem. Opportunities for value chain consolidation in Zambia. Policy recommendations, with a gender focus.	ZEMA / ZEMIA	Consultancy firm on EVs and batteries end-of-life management.
4.2.2	Assessment report on the training, equipment and facilities needs of the e-waste management sector in Zambia to manage EVs and batteries.	Screening and data collection of the formal and informal e-waste management sector. E-mobility sector compliance with EPR requirements. Setting up minimum requirements (technical capacities, equipment and facilities). Selection of a sample of entities for detailed assessment of capacities and needs (D.4.2.7).	ZEMA / ZEMIA / Local stakeholders through TWG-4	Consultancy firm on EVs and batteries end-of-life management.
4.2.3	Detailed roadmap to operationalize the environmentally sound management of EOL EVs and batteries, including local governments' control of illegal dumping and the feasibility of establishing one site for EV battery management.	Roadmap covering technical upgrade and government's inspection needs for (1) EPR implementation and enforcement, (2) local governments' empowerment, (3) waste management companies' consolidation and technical upgrade, (4) business model for battery repurposing (5) feasibility study for EV battery recycling site, (6) guidance for the implementation of the safeguards management plan.	ZEMA / Local stakeholders, through TWG-4	Consultancy firm on EVs and batteries end-of-life management.
4.2.4	Two (2) workshops (consultation + validation) on the roadmap (presentation materials,	One design and consultation workshop and one validation workshop (with participation of relevant women's organizations).	Wide participation of local stakeholders,	Consultancy firm on EVs and batteries end-of-life management.

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
	workshop report, attendance list).		including through TWG-4	
4.2.5	Report on technical assistance provided to support the roadmap endorsement process.	Quarterly updated list of supportive actions (briefings, meetings, notes...) completed by the PMU until approval or end of project.	ZEMA / MoGEE / Consultancy firm on EVs and batteries end-of-life management.	PMU
4.2.6	Detailed assessment of accredited local e-waste management companies' technical and equipment upgrade requirements to ensure environmentally sound management of EV batteries at end-of-life.	Selection of 2 companies. Data collection on current activity, served markets and future prospects. Assessment of technical capacities. Assessment of facilities and equipment.	ZEMA	Consultancy firm on EVs and batteries end-of-life management.
4.2.7	Ad hoc technical assistance to interested e-waste companies, including business plans and upgrading of their facilities.	Provision of operating protocols. Upgrade recommendations, including business plan, investment estimate and financing options.	ZEMA	Consultancy firm on EVs and batteries end-of-life management.
4.2.8	Two (2) workshops / roundtables on the application of value chain development practices to Zambia (presentation materials, workshop report, attendance list).	Workshop or roundtable format to choose in accordance with expected audience at the time of implementation. Focus on the presentation and discussion of business and investment opportunities (including women's organizations).	Wide participation of local stakeholders, including through TWG-4. Open to potential investors.	Consultancy firm on EVs and batteries end-of-life management / PMU

Table 19: Deliverables in output 4.2

## Component 5: Monitoring and evaluation

In this component, project monitoring and evaluation will be undertaken in accordance with GEF and UNEP policies.

**Outcome 5. The project is effectively monitored and evaluated.**

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Output 5.1: Monitoring and evaluation products are delivered (see Annex J)



Under Output 5.1, the project will be producing the following deliverables:

Code / Ref.	Deliverable statement	Tentative content and required activities / work	Relevant stakeholders	Entity in charge of producing deliverable
5.1.1	One (1) Inception workshop (report, attendance list).	Identification of participants based on stakeholders' engagement plan. Prior hiring of PMU.	ZEMA / MoGEE / MoTL / MoE / MoLGRD / Gender Division/ UNEP	PTC / PMU
5.1.2	Eight (8) steering committee meetings (report, attendance list).	2 PSC meetings per year (1 every semester) with PSC members.	ZEMA / MoGEE / MoTL / MoE / MoLGRD / Gender Division/ UNEP	PTC / PMU
5.1.3	Progress reports, PIRs and project indicators' monitoring.	Based on monitoring reports and other information provided in the relevant project deliverables.	ZEMA / UNEP	PMU
5.1.4	Gender Action Plan and Environmental and Social safeguards monitoring.	The PTC will implement the Gender Action Plan (GAP) as part of project activities implementation. The PTC will monitor the implementation of the GAP and report on it twice a year, as part of the half-yearly progress reports and PIRs. The implementation of the GAP will also be reviewed and assessed as part of the MTR and TE. Based on the guidance provided in the project's SRIF (Annex F), the PTC will ensure safeguards management plans and other environmental / social safeguards are implemented and will report on these twice a year (half-yearly progress reports and PIRs).	Gender Division, ZEMA	PTC / PMU
5.1.5	One (1) Mid Term Review (optional).	Optional independent review managed by UNEP, depending on the Task Manager's assessment of the level of risk of the project.	ZEMA / MoGEE / MoTL / MoE / MoLGRD / Gender Division/ UNEP	UNEP / Mid-term review consultant
5.1.6	One (1) final closure workshop (report, attendance list).	Workshop format to be established at the knowledge management and communications plan.	Engagement of local stakeholders through all TWGs	PMU
5.1.7	One (1) Terminal Evaluation or Review.	Independent evaluation managed by UNEP.	ZEMA / MoGEE / MoTL / MoE / MoLGRD / Gender Division/ UNEP	UNEP / Terminal evaluation consultant

Table 20: Deliverables in output 5.1

[1] ZIPAR, IRENA, or another local or international think tank.

[2] University of Zambia (or another educational partner).

[3] In accordance with the Concept Note prepared by PPTCoop in 2021. *Integrated Public Passenger Transport Systems: Key to Economic Growth and Infrastructure Development. Promoting Business and Investment for Employment Opportunities in an Eco-Friendly Environment.*

[4] <https://diggers.news/business/2023/10/10/govt-resolves-to-begin-purchasing-electric-vehicles/>

[5] Radial routes generally being simpler to manage so that schedules are respected and requiring smaller fleets for operation.

[6] Ministry of Works and Supply (2019?). National Plan of Action: Fleet Management Policy.

[7] For example, ZIPAR (2013). Trip Modeling and Cost Analysis for Public Transport System for the City of Lusaka.

## Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this child project, including framework and mechanisms for coordination, governance, financial management and procurement. This should include consideration for linking with other relevant initiatives at country-level (if a country child project) or regional/global level (for coordination platform child project). If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

Project implementation organogram:

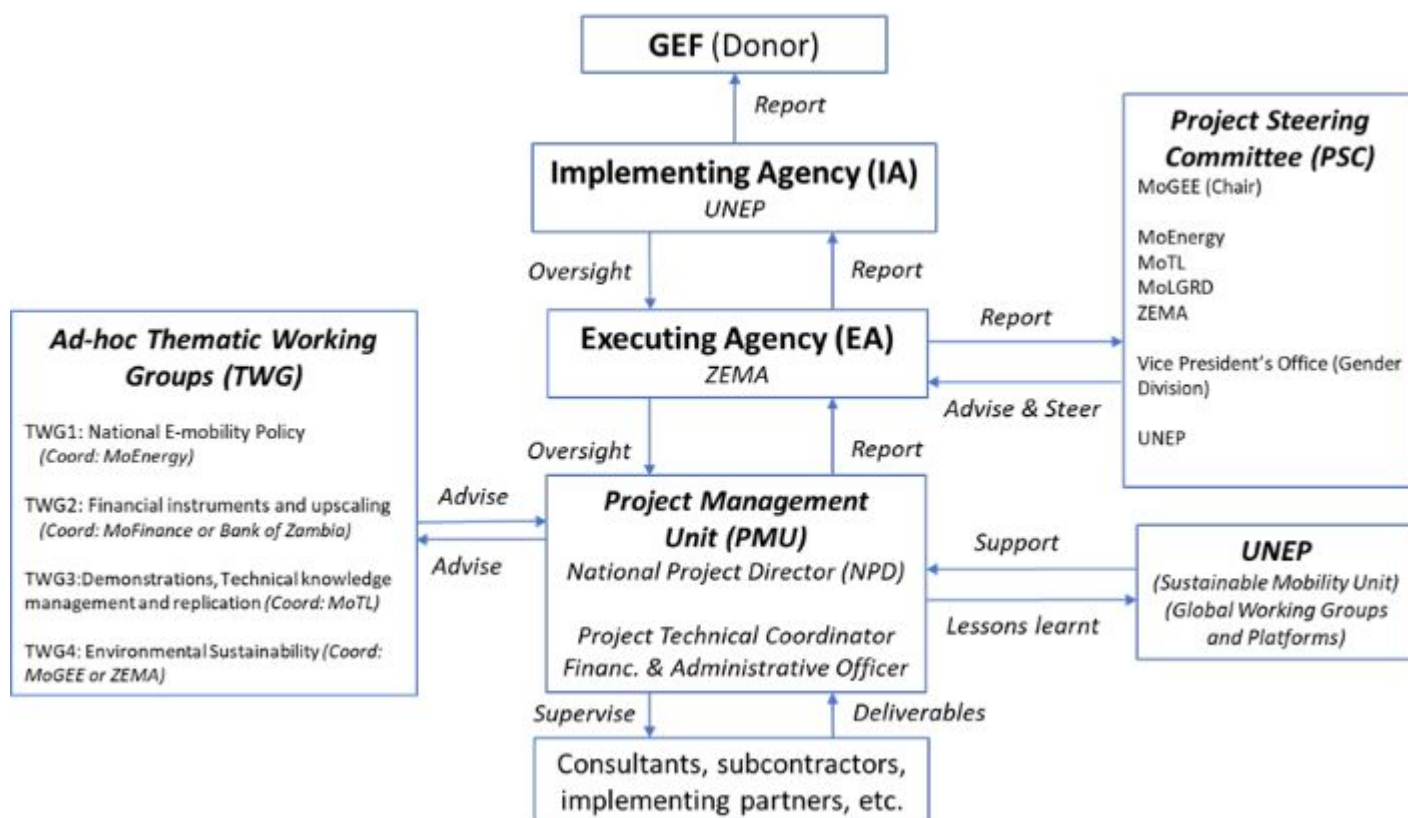


Figure 5: Project's Organogram

## Institutional arrangements:

A Project Steering Committee (PSC) will be established to provide overall guidance and oversee the progress and performance of the project as well as to enhance and optimize the coordination and contribution with various project partners. The PSC will be chaired by a senior official from MoGEE and will convene twice per year. PSC will also be in charge of overseeing adequate gender mainstreaming and mobilization of gender expertise in the relevant project activities, as well as ensuring that environmental and social safeguards are properly monitored.

A Project Management Unit (PMU) will be established within the Executing Agency (ZEMA) to manage day-to-day operation of the project. The PMU will include the National Project Director (NPD), the Project Technical Coordinator (PTC) and the Financial and Administrative Officer (FAO). The PTC will be responsible for implementing and monitoring the gender action plan in partnership with the Gender Division of the Vice President's Office (see Annex K) as well as the environmental and social safeguards (see Annex F) for the project. The PTC will also be the first point of contact for the project's Stakeholder Response Mechanism (see Annex L). The PMU can also include ZEMA officials, as part of ZEMA's in-kind contribution to project management.

Four ad-hoc Thematic Working Groups (TWG) will be formed (output 1.1) to facilitate the mobilization of technical expertise and the involvement of interested partners in the implementation of the project components, providing advice to the PMU, the PSC and the National Intersectoral Coordination Platform on E-Mobility. Participation will be open to interested stakeholders upon invitation or request addressed to the PTC. The TWGs will meet on an ad-hoc basis during project implementation, with the secretarial support of the PMU. Every effort will be made to ensure that the working groups are gender-balanced, include participation of relevant gender-representative groups, and follow gender-responsive deliberation processes. Minutes will be prepared after each meeting and made publicly available on the project's knowledge management platform a maximum of one month after the meeting. TWGs may decide on a case-by-case basis the need to keep information confidential. Resources may be requested and will be considered on a case-by-case basis by the PSC.

In particular, the TWG3 (demonstrations, technical knowledge management and replication) will include relevant local stakeholders in Lusaka (such as representatives from local civil society organizations, including gender groups, academia and the private sector), making sure that the project intervention on public transport in the capital is aligned with local priorities and needs. The TWG3 will strive to be gender balanced and will meet at least twice a year to discuss the progress in the implementation of the project's demonstrations.

The coordination with the Global Electric Mobility Programme and the Africa Regional Support and Investment Platform will be established through the PTC, in order to participate in its regional and global activities, to exchange materials and to report on progress in the relevant global indicators.

## Implementation arrangements:

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

Body	Composition	Role and description	Frequency of meetings
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Project Steering Committee (PSC)	MoGEE (Chair, National Project Director) MoEnergy MoTL MoLGRD ZEMA Vice President's Office. Gender Div. UNEP	<ul style="list-style-type: none"> <li>• Oversight of the project progress and implementation of Outputs;</li> <li>• Approve workplans and budget revisions;</li> <li>• Approve management decisions to ensure timely delivery of quality outputs;</li> <li>• Provide overall guidance and strategic direction;</li> <li>• Enhance and optimize the contributions of various partner organizations through coordination of all activities and inputs;</li> <li>• MoGEE will appoint a National Project Director (PD) that will act as the PSC Chairperson</li> <li>• The Project Technical Coordinator (PTC) will act as the PSC Secretary.</li> <li>• The member institutions will need to ensure that at least 50% female representatives are appointed to the PSC.</li> </ul>	Twice a year
Implementing GEF Agency (IA)	UNEP	<ul style="list-style-type: none"> <li>• Ensure timely disbursement/sub-allotment to executing agency based on agreed legal document and in accordance with UNEP and GEF fiduciary standards;</li> <li>• Follow-up with Executing agency for progress, equipment, financial and audit reports;</li> <li>• Provide consistent and regular oversight on project execution and conduct project supervisory missions as per Supervision Plans and in</li> </ul>	Periodic meetings (calls) with the EA's Project Management Unit (PMU), at least once per month

		<p>doing so ensures that all UNEP and GEF criteria, rules and regulations are adhered to by project partners;</p> <ul style="list-style-type: none"> <li>• Technically assess and oversee quality of project outputs, products and deliverables – including formal publications;</li> <li>• Provide no-objection to main TORs and subcontracts issued by the project, including selection of the Project Manager (PM);</li> <li>• Attend and facilitate inception workshops, field visits where relevant, and selected steering committee meetings;</li> <li>• Assess project risks, and monitor and enforce a risk management plan;</li> <li>• Regularly monitor project progress and performance and rate progress towards meeting project objectives, project execution progress, quality of project monitoring and evaluation, and risk;</li> <li>• Monitor reporting by project executing partners and provide prompt feedback on contents of the report;</li> <li>• Promptly inform the management of any significant risks or project problems and take action and follow up on decisions made;</li> <li>• Apply adaptive management principles to the supervision of the project;</li> <li>• Review of reporting, checking for consistency between execution activities and expenditures, ensuring that it respects GEF rules;</li> <li>• Clear cash requests, and authorization of disbursements once reporting found to be complete;</li> <li>• Approve budget revision, certify fund availability and transfer funds;</li> <li>• Ensure that GEF and UNEP quality standards are applied consistently to all projects, including branding and safeguards;</li> <li>• Certify project operational completion;</li> <li>• Link the project partners to any events organized by GEF and UNEP to disseminate information on project results and lessons;</li> <li>• Manage relations with GEF.</li> </ul>	
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Executing Agency (EA)	ZEMA	<ul style="list-style-type: none"> <li>• Ensure that the project meets its objectives and achieves expected outcomes;</li> <li>• Ensure technical execution according to the execution plan laid out in the project document;</li> <li>• Ensure technical quality of products, outputs and deliverables;</li> <li>• Ensure compilation and submission of progress, financial and audit reporting to IA;</li> <li>• Submit budget revisions to IA for approval;</li> <li>• Address and propose solutions to any problem or inconsistency raised by the IA;</li> <li>• Bring issues raised by or associated with clients to the IA for resolution;</li> <li>• Facilitate meetings of Steering Committees and other oversight bodies of the project;</li> <li>• Day to day oversight of project execution;</li> <li>• Submit all technical reports and completion reports to IA (realized outputs, inventories, verification of co-finance, terminal reporting, etc.);</li> <li>• Monitoring and evaluation of the project outputs and outcomes;</li> <li>• Effective use of both international and national resources</li> <li>• Timely availability of financing to support project execution;</li> <li>• Proper coordination among all project stakeholders; in particular national parties;</li> <li>• Timely submission of all project reports, including work plans and financial reports,</li> <li>• Follow-up with, or progress, procurement, financial and audit reports.</li> </ul>	Periodic meetings (calls) with the IA's Task Manager, at least once per month
Project Management Unit (PMU)	National Project Director (NPD)	<ul style="list-style-type: none"> <li>• Will be a national/governmental officer appointed by MoGEE</li> <li>• Act as the PSC's Chairperson;</li> <li>• Report to and receive advice from the PSC;</li> <li>• Identify and secure partner support for the implementation of project activities;</li> <li>• Advise on hiring processes.</li> <li>• Act as the project's entry point within the government of Zambia</li> </ul>	Regular meetings with the PTC, at least twice per month

	Project Technical Coordinator (PTC)	<p>The PTC will be hosted within ZEMA premises and have the following duties:</p> <ul style="list-style-type: none"> <li>• Take responsibility for day-to-day project operations;</li> <li>• Take responsibility for the execution of the project in accordance with the project objectives, activities and budget;</li> <li>• Deliver the outputs and demonstrate its best efforts in achieving the project outcomes;</li> <li>• Coordinate project execution and liaison with national counterparts (relevant ministries, national agencies, private sector, NGOs etc.);</li> <li>• Manage financial resources and processing all financial transaction relating to sub-allotments;</li> <li>• Prepare all annual/year-end project revisions;</li> <li>• Attend and facilitate inception and other workshops and national PSC meetings;</li> <li>• Assess project risks in the field, monitor risk management plan;</li> <li>• Ensure technical quality of products, outputs and deliverables;</li> <li>• Coordinate the project team of consultants and subcontractors;</li> <li>• Coordinate with strategic taskforces (i.e. thematic or technical working groups);</li> <li>• Act as Secretary of the PSC;</li> <li>• Plan and organize the PSC bi-annual meetings;</li> <li>• Periodic reporting to UNEP and the PSC for allocation of the GEF grant according to the approved workplan and budget, in coordination with UNEP and ZEMA;</li> <li>• Notify UNEP and the PSC in writing if there is need for modification to the agreed implementation plan and budget, and to seek approval;</li> <li>• Address and rectify any issues or inconsistencies raised by the Implementing Agency;</li> <li>• Support compilation and submission of progress, financial and audit reporting to the Implementing Agency;</li> <li>• Prepare, at the end of the project, the project Final Report.</li> <li>• Implementation of the project's Stakeholder Engagement Plan and participation strategies.</li> </ul> <p>The PTC will also be responsible for implementing and monitoring the gender action plan (Annex K) and the environmental and social safeguards (Annex F) in project implementation, including:</p> <ul style="list-style-type: none"> <li>• The analysis and action plans on gender and social issues integrated in the documents and materials prepared by the project.</li> <li>• The integration of gender and social issues in the project demonstrations at the various planning and implementation stages (from feasibility studies to monitoring and evaluation).</li> <li>• Estimates of the indicators of the project's Gender Action Plan and of the gender indicators included in the Project Results Framework.</li> </ul>	<p>Regular meetings with the NPD, at least twice per month</p> <p>Weekly meeting with the project's Financial and Administrative Officer</p> <p>Ad-hoc meetings with project team members (consultants, subcontractors, etc.)</p>
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	Financial and Administrative Officer	<p>The Administrative and Financial assistant will be hosted within ZEMA and have the following duties:</p> <ul style="list-style-type: none"> <li>Budgetary control and processing of all financial transactions</li> <li>Support to process procurements and other administrative tasks.</li> <li>Assist in the production of financial reports (expenditures, co-finance, etc.)</li> <li>Assist with the annual audit exercise / reports</li> <li>Assist in organisation of events (workshops, trainings, meetings) and traveling</li> </ul> <p>Help in the production of progress reports</p>	Regular meetings with the PTC, at least once weekly
Thematic / Technical Working Groups (TWG)	TWG1: National E-mobility Policy (Coord: MoEnergy)	<ul style="list-style-type: none"> <li>Facilitates the interaction and coordination of key services within the GRZ with competences in the electrification of the transport sector</li> <li>Facilitates the engagement of non-governmental stakeholders in the preparation of the National E-Mobility Strategy.</li> <li>Provides advice to the PMU and PSC, and will serve as a participatory channel for deliberation on sustainable mobility and electrification, involving stakeholders as well as individual experts not formally included in the PSC.</li> </ul>	Regular meetings with the PTC, at least twice a year
	TWG2: Financial instruments and upscaling (Coord: MoFinance or Bank of Zambia)	<ul style="list-style-type: none"> <li>Provides highly specialized technical expertise and support to the PMU by engaging a wider array of expertise (including the academia) on an ad hoc basis.</li> <li>Revises and provides feedback to the project's technical reports on electric mobility financing.</li> <li>Supports the monitoring on the support of the financial sector to transport electrification.</li> <li>Facilitates the liaison of the project with relevant sectoral bodies, such as the Bankers Association of Zambia.</li> <li>Facilitates wide dissemination of available electric mobility financing instruments among the Zambian financial sector.</li> </ul>	Regular meetings with the PTC, at least twice a year

	TWG3: Demonstrations, Technical knowledge management and replication (Coord: MoTL)	<ul style="list-style-type: none"> <li>Provides technical expertise to the PMU by engaging a wider array of expertise on electric mobility technologies on an ad hoc basis.</li> <li>Supports the adoption of innovative electric mobility equipment and management in Zambia.</li> <li>Provides feedback to the electric fleet demonstrations and facilitates wide dissemination of their achievements among the research and professional communities.</li> <li>Facilitates wide participation of local stakeholders in the design, implementation, monitoring and evaluation of the project's demonstrations in Lusaka, including: <ul style="list-style-type: none"> <li>Ensuring political buy-in of the local government.</li> <li>Ensuring buy-in of key local stakeholders, including academia, private sector and civil society.</li> <li>Providing guidance for the drafting of technical terms of reference (TOR), reviewing TORs and providing technical input to support their elaboration and finalization.</li> <li>Identifying possible key local partners for project activities.</li> <li>Reviewing and providing technical input to technical documents as related to local project activities.</li> <li>Ensuring the design of local project interventions is aligned with local priorities.</li> <li>Facilitating the execution of project activities in the local jurisdiction, including the obtaining of local governmental permissions.</li> <li>Facilitating and supporting M&amp;E activities.</li> <li>Supporting communication and diffusion of information on the project with local stakeholders.</li> <li>Serving as a first point for local stakeholders to express grievances who may be adversely affected by the GEF UNEP project. In the event that such concerns are not resolved at the local level, such stakeholders may access UNEP's Stakeholder Response Mechanism, operated through the Independent Office for Stakeholder Safeguard-related Response (IOSSR).</li> </ul> </li> </ul>	Regular meetings with the PTC, at least twice a year
	TWG4: Environmental Sustainability (Coord: MoGEE or ZEMA)	<ul style="list-style-type: none"> <li>Facilitates the engagement of stakeholders in the implementation and monitoring of the Component 4 activities, addressing the potential environmental impacts of electrification.</li> <li>Facilitates dissemination of results among formal and informal actors in the waste management sector dealing with EoL EV and batteries.</li> </ul>	Regular meetings with the PTC, at least twice a year

Will the GEF Agency play an execution role on this child project?

If so, please describe that role here and the justification.

N/A

Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing (max. 500 words, approximately 1 page)

## Coordination with the Global E-mobility Programme

The GEF-8 Global Child Project “Global Programme to Support Countries to Upscale Integrated Electric Mobility Systems” aims to provide support to countries in several key areas including upscaling of integrated e-mobility systems as well as investment, in addition to establishing a Global Partnership to address key challenges associated with used electric vehicles, end-of-life of EVs, and batteries & circularity. The Global Child Project will add value to Country Child Projects by providing the following support:

- **Knowledge creation and management**, ensuring new global knowledge is created and applied in participating countries, and that decision makers at the global, regional, and national level use knowledge materials developed by the Global Programme’s Thematic Working Groups and disseminated through one central Integrated E-Mobility Systems Knowledge Hub:
  - Opportunities to engage with thematic working groups, benefit from networking opportunities and access knowledge products made available through the e-mobility toolbox.
- **Global Partnership on used EVs, EVs and batteries end-of-life & circularity**, ensuring the participation of key stakeholders from national governments, international organizations, academia and private sector associations in a global consultation process to build consensus and a draft policy framework on used EVs, battery end-of-life and circularity:
  - Opportunities to participate in global consultations on good practices, experiences and lessons learned in managing used EVs, end-of-life batteries & circularity, and trainings for decision makers on EV battery end-of-life management.
- **Readiness support for upscaling of integrated e-mobility systems**, providing the tools and support for participating countries to implement policies, business models and financing schemes to accelerate investment in integrated electric mobility systems:
  - Opportunities to participate in trainings and access enhanced regional support through the Regional Support and Investment Platforms (Africa, Asia-Pacific, Eastern Europe, Western & Central Asia, Latin America & Caribbean).
- **Integrated electric mobility systems, advocacy, coordination and communications programme**, ensuring wider uptake of electric mobility providing the tools and support for participating countries to promote policies, business models and financing schemes to accelerate investment in integrated electric mobility systems:
  - Opportunities to access Global EV publications, datasets and assessments, relevant case studies as well as expanded e-mobility monitoring frameworks, in addition to participation in high-level events.

The Zambia Child Project will be able to engage in the Global Project activities through the following actions:

1. The *project* will **set aside resources for relevant stakeholders to participate in peer-to-peer capacity building workshops, and regional trainings**. The Zambia Child Project will ensure the engagement (with gender balanced participation) of national and local government officials, academia, private sector and civil society in Global Project activities. This will allow the country to not only learn but also share knowledge with other countries on how to accelerate action towards integrated e-mobility systems. The country will also be able to share the knowledge gained within the country to maximize engagement of a broad set of stakeholders.
2. The *project* will apply knowledge acquired through the Global Project, the thematic working groups as well as the Global Partnership on Used EVs, Battery End-of-Life & Circularity across components, for instance on developing national e-mobility strategies, business models and financing schemes to accelerate investments in integrated mobility systems.
3. The *project* will **share the national knowledge products developed, experiences, best practices and lessons learnt with the Global Project** particularly from demonstrations and pilots. The Zambia Child project will generate gender responsive lessons learnt and success stories from these experiences and share them with the Global Platform for fine-

tuning knowledge products, training and for broader dissemination through the “E-mobility Knowledge Hub” as well as through Regional Support and Investment Platforms. The country project will be responsible for tracking the progress of the projects against selected Programme level indicators that the Global Project will compile and disseminate in the programme annual reports.

The *project* will **appoint a country focal point to coordinate activities and ensure the flow of information with the Global Project**. The focal point for the Zambia Child Project will be the Project Technical Coordinator (PTC). This focal point role will facilitate effective and ongoing communication between the Global Project and the country project team, ensuring that necessary actions are well-coordinated and communicated, and information is shared in a timely fashion.

### Coordination with ongoing initiatives and projects

The table below provides information on on-going initiatives with synergy potential with this project. More information on these initiatives is provided in Table 3. Project co-financing includes some of the actions envisaged in the *Africa Environmental Health and Pollution Management Program* (through ZEMA), in the MoTL’s *Concept Note* and in ZEMIA’s *Zambiaemobilize* project.

Project	Objectives and relevance to this project	Intended coordination and synergies
FP080. Zambia Renewable Energy Financing Framework	Increasing clean electricity generation to cope with demand from EVs.	Coordination through MoE, in the framework of the assessment of RE capacities and expansion needs to cope with transport electrification (Component 1).
EDFI Electrifi. Zambia Window	Increasing clean electricity generation to cope with demand from EVs.	Coordination through MoE, in the framework of the assessment of RE capacities and expansion needs to cope with transport electrification, with a focus on private investment (Component 1).
Africa Environmental Health and Pollution Management Program	Management and regulation of e-waste provides the framework for EV battery management at end of life.	The project is providing the support for the current update of e-waste legislation and regulations by ZEMA. The project will provide follow-up in the form of detailed official technical regulations on e-waste management (Component 4).
Concept Note on the Road Traffic Challenges and Proposed Solutions for Decongestion of Traffic in Zambia with Focus on the Greater City of Lusaka	Includes infrastructure improvements for the facilitation of public transport services in Lusaka such as bus lanes, BRT lines and tram lines.	The follow-up to this concept note by the GRZ will be influential in the design of the public transport demonstration within Component 2. Coordination with MoTL and MoIHUD.
National NMT Strategy	Implementation hampered by COVID pandemic. Provides general guidance for future NMT investments.	Current implementation of the Strategy will be taken over by the project. Coordination with UNDP (focal point until now for implementation of the NMT strategy)
Zambiaemobilize	Analysis of barriers to electrification and proposals for government’s action from the industry’s perspective.	The proposals for government’s action will serve as input to project components 1 and 3. ZEMIA will be engaged in several project’s activities within these components.

Table 21: Project's coordination with on-going initiatives

## Table On Core Indicators

### Core Indicators

Indicate expected results in each relevant indicator using methodologies indicated in the GEF-8 Results Measurement Framework Guidelines. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SDCF.

#### Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>	666889	611957	0	0
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>	1550513	1417788	0	0

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>				
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>				
<b>Anticipated start year of accounting</b>				
<b>Duration of accounting</b>				

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
<b>Expected metric tons of CO<sub>2</sub>e (direct)</b>	666,889	611,957		
<b>Expected metric tons of CO<sub>2</sub>e (indirect)</b>	1,550,513	1,417,788		
<b>Anticipated start year of accounting</b>	2029	2029		
<b>Duration of accounting</b>	10	12		

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

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
<b>Target Energy Saved (MJ)</b>	22,250,843,322	23,468,942,906		

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

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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#### Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Female</b>	600	820		
<b>Male</b>	870	579		
<b>Total</b>	<b>1470</b>	<b>1399</b>	0	0

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

GHG emissions mitigated have been estimated using the e-MOB calculator developed by the UNEP Sustainable Mobility Unit. Full details are provided in Annex M. Separate estimates have been made for the electrification of buses and cars (also referred to in this document as light duty vehicles or LDV). Primary direct GHG emission reductions are considered only for the lifespan (15 years for buses and 12 years for cars) of the electric vehicles directly provided by the project.

Indirect (consequential) emission reductions are estimated considering a reasonable rate of fleet replacement from 2028 on (top-down approach). These additional emission reductions are estimated for a 10-year period after the termination of the project. A causality factor of 20% is used to quantify the amount of the benefits obtained as a result of the project execution and its influences (consequential project benefits). The project GHG emission reductions and energy saving impacts are summarized in the table below. 30% of the GHG emission savings mitigated are considered to correspond to secondary direct emissions reduction (due to the policy and replication activities implemented by the project) and the remaining 70% are considered to correspond to indirect emission reductions.

The anticipated start year of indirect GHG accounting is year 2029 – which is the year of the GEF project’s anticipated technical completion. This is an approach taken for all child projects under the GEF-8 e-mobility programme. Indeed, given that the GHG emission reductions outlined in the calculations (Annex M) are largely based on the top-down impact of the adoption of the national strategy (component 1) and policies / regulations (component 3) by the government of Zambia, the conservative assumption is that these benefits will start materializing in year 2029.

Differences compared to the estimate at the concept note stage are due to the availability of updated 2022 vehicle fleet data, and the adjustment of future fleet growth to the expected GDP growth.

People benefiting from GEF-financed investments have been estimated including (1) the participants at the 9 training workshops organized by the Global Programme, (2) the participants at the 16 training workshops organized by the project, (3) the number of users of the 4 electric buses operated in the public transport demonstration, and (4) the number of users of the 8 electric cars operated in the fleet demonstration. As the Gender Action Plan is aiming at gender parity in all project activities, it has been considered that women participation would be 50% for (1), (2) and (4). Regarding the public transport demonstration (3), it has been considered that the share of women could be 60%, based on the anecdotal evidence provided by public transport operators. Details of the assumptions for each category of beneficiaries are provided in the tables below.

The project’s direct beneficiaries are estimated at 1,399 persons, of which 820 (59%) women.

Further information on the assumptions and calculations of the Core Indicators may be found in Appendix M of the CEO Endorsement Document.

## Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Moderate	Assessment: Extreme climate events (particularly extreme wind and rain events) or disasters (earthquakes) can never be fully excluded and could potentially delay execution of some of the project activities. In particular, the

		charging stations to be installed as part of the project (component 2) can be exposed and vulnerability to the effects of climate change. As such, this risk is considered Moderate. Mitigation measures: In the event of delays due to extreme weather event, the project workplan can be accommodated to reschedule activities. For the charging infrastructure, the location sites will take into consideration reliability of electricity supply and climate risks, especially heavy rain and flooding. The pilot project design will also include climate adaptation measures, if deemed necessary.
Environmental and Social	Moderate	Assessment: Electric vehicles batteries include hazardous materials. Electric vehicles at their end of life and during maintenance will need adequate management. However, given the little number of EVs to be piloted as part of the project, the risk is Moderate. Mitigation measures: The generation of waste will be addressed through project component 4, which will support the country in developing a roadmap and technical guidance for the environmentally sound management of end-of-life EVs and batteries, including aspects of collection, re-use, recycling, re-integration into value chains and sound disposal. As part of this component, the project will also offer technical assistance to accredited e-waste handlers to enhance their technical capacities through trainings, as well as technical recommendations to upgrade their facilities.
Political and Governance	Low	Assessment: While risk related to changes in the government's leadership and priorities can never be excluded, the political and governance risk for the Zambia e-mobility project is considered Low, given the level of governmental stakeholder consultations and ownership demonstrated during project design. The project is designed around a strong collaborative approach, working with government, private stakeholders and civil society to build up support and interest in e-mobility. The project has a robust Stakeholder Engagement Plan (Annex L), and the appropriate coordination bodies (PSC, national coordination platform, TWGs, etc.) to ensure institutional continuity of the project even if the country experiences political change. Mitigation measures: N/A

#### INNOVATION

Institutional and Policy	Moderate	Assessment: The current institutional and policy context have been identified as important barriers to the transition towards e-mobility in Zambia. But this is specifically what the project intervention seeks to work on. As such, the risk is considered Moderate. Mitigation measures: The component 1 of the project is dedicated to institutional strengthening in Zambia on the topic of e-mobility through the creation of an intersectoral coordination platform, the development of a national strategy, capacity building and proper knowledge management. Under component 3, a policy / regulatory framework will also be developed to support the uptake of e-mobility in the country. The success of the project will depend on the ability to have the strategy and policies / regulations adopted by the government before project completion.
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Technological	Low	Assessment: The technologies implemented by the project are already mature at the global level. A few companies have started commercializing EVs and chargers in Zambia, although limited to in specific market niches. Mitigation measures: Demonstrations in component 2 will substantially expand the existing experience, while making use of proven technologies consolidated in other countries. Participation in the Global E-mobility Programme facilitates access to experienced partners and know-how to cope with the technological risk.
Financial and Business Model	Substantial	Assessment: There is a substantial risk fleet managers / operators (public transport, public and private) participating in the electric fleet demonstrations fail to obtain the financial resources necessary to procure the electric vehicles. Mitigation measures: The inclusion in the demonstration of different profiles of partners (public transport cooperatives, government agencies and private corporations) and the engagement of the BOZ provides flexibility and resilience, increasing the likelihood of implementing at least some of the demonstrations.

#### EXECUTION

Capacity	Low	Assessment: The risk is considered low, since ZEMA has already executed GEF-funded projects in the past. The executing agency (ZEMA) has been chosen due to its experience in project implementation, and its proven institutional capacity for horizontal action within the government with different ministries. Mitigation measures: UNEP's oversight will support ZEMA in project implementation.
Fiduciary	Low	Assessment: The risk is considered low, since ZEMA has the adequate capacities and procedures for financial management and procurement. ZEMA has been chosen because it has already executed GEF-funded projects in the past. In addition, an administrative and financial officer will be recruited to support the financial management and procurement activities of the project. Mitigation measures: N/A
Stakeholder	Low	Assessment: The risk associated with stakeholder engagement (such as relevant ministries or entities participating in the pilots) is considered Moderate. Mitigation measures: The project has a robust Stakeholder Engagement Plan (Annex L), and the appropriate coordination bodies (PSC, national coordination platform, TWGs, etc.) and financial resources (for workshops, trainings, meetings) to ensure regular stakeholder engagement.
Other		N/A
Overall Risk Rating	Moderate	Based on the above analysis, the overall risk rating is considered Moderate

### C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Explain how the proposed interventions are aligned with GEF- 8 programming strategies, including the specific integrated program priorities, and country and regional priorities, Describe how these country strategies and plans relate to the multilateral environmental agreements, such as through NDCs, NBSAPs, etc.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how.

(max. 500 words, approximately 1 page)

### Alignment with GEF-8 Programming Directions

This project is fully aligned with the strategy set up in the GEF-8 Programming Directions for the climate change focal area and more specifically to objective 1.3 (scale up zero-emission mobility of people and goods) within Pillar I (Promote innovation, technology development and transfer, and enabling policies for mitigation options with systemic impacts). The project provides an integrated approach to support the transition towards zero-emission mobility and which fosters inclusive and gender-responsive decision making and policies in transport electrification. South-south cooperation is facilitated through the inclusion of this project within the UNEP Global Programme on Electric Mobility.

### Alignment with Zambia's national priorities, strategies and plans

The project is aligned with national priorities, strategies and plans. It is consistent with the general national development strategy as established in *Vision 2030* and in the *8<sup>th</sup> National Development Plan*, which identify the improvement of transport and logistics as key instrument for the country's socioeconomic development.

The project is also aligned with the National Transport Policy (NTP-2019) and its Implementation Plan, especially in the NTP ambition to introduce road taxes and tolls and vehicle taxes favoring the uptake of environmentally friendly vehicles.

The project is also aligned with the NDC-2021 and its 2023-2030 Implementation Framework in the implementation of low-carbon and energy efficient systems in Lusaka and other major cities as a way to achieve emissions reduction in the transport sector of 1,973 Gg CO<sub>2</sub>e.

The project is also consistent with the country's policy to increased electricity accessibility and reliability and to expand its generation from renewable sources, as established in the NEP-2019, the Renewable Energy Strategy and Action Plan (2022) and the Energy Efficiency Strategy and Action Plan (2022). Such consistency will be formalized through the alignment of the future National Low-Carbon Mobility Strategy with the expansion of renewables.

The project is also consistent with the National NMT Strategy (2019), especially in what refers to the facilitation of non-motorized modes and the development of the urban public transport system in Lusaka and other cities.

Such ambitions are already included in the Concept Note prepared by the MoTL and the policy proposals and studies presented by different entities and CSOs such as ZIPAR, ZEMIA and PPTCoop.

The project is also consistent with the contents of the updated National Waste Management Strategy currently under preparation with ZEMA in what refers to addressing e-waste management, to which EV batteries could raise additional challenges.

Finally, the project is also aligned with the “Planet Pillar” of Zambia’s United Nations Sustainable Development Cooperation Framework (UNSDCF) 2023-2027. Indeed, some of the areas of focus under this pillar include:

- Support a just transition to a low carbon and climate-resilient economy through the integration of low emission measures into development policies and strategies
- Promote innovative financing instruments for investment in low carbon solutions
- Support technology transfer and innovations for sustainable management of natural resources, climate change adaptation and mitigation, and resilience building

The project will coordinate regularly with the United Nations Resident Coordinator’s Office and other relevant resident UN agencies to ensure continuous synergies and alignment with the UNDSF. The UN Resident Coordinator will be invited to participate in the inception workshop of the project, and other relevant events organized during the life of the project.

#### Alignment with UNEP Programme of Work

-

The GEF-8 Zambia e-mobility project is part of UNEP’s Decarbonization Programme Coordination Project (PCP). In particular, this Global Project will directly support UNEP in implementing its Programme of Work through outcomes 1.1,1.2, 1.4, 1.5, 1.6, 1.8 (Climate Action Sub-programme) well as the following indicators (Climate Action):

- (i) Number of national, subnational, and private-sector actors that adopt climate change mitigation and/or adaptation and disaster risk reduction strategies and policies with UNEP support
- (ii) Amounts provided and mobilized in \$ per year in relation to the continued existing collective mobilization goal of the \$100 billion commitment through to 2025 with UNEP support

-

#### Alignment with SDGs

While the Zambia E-Mobility Project mainly aligns with SDG 13 on climate action, it is also aligned with several other Sustainable Development Goals (SDGs):

- SDG 7 on sustainable energy

- SDG 8 on decent work and economic growth
- SDG 9 on industry, innovation, and infrastructure
- SDG 11 on sustainable cities
- SDG 12 on responsible consumption and production

## D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

**We confirm that gender dimensions relevant to the project have been addressed during Project Preparation as per GEF Policy and are clearly articulated in the child Project Description (Section B).**

Yes

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

Yes

If the child project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

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

**Improving women's participation and decision-making; and/or**

Yes

**Generating socio-economic benefits or services for women.**

Yes

**2) Does the child project's results framework or logical framework include gender-sensitive indicators?**

Yes

## Stakeholder Engagement

We confirm that key stakeholders were consulted during Project Preparation as required per GEF policy, their relevant roles to project outcomes has been clearly articulated in the Child Project Description (Section B) and that a Stakeholder Engagement Plan has been developed before CEO endorsement.

Yes

**Select what role civil society will play in the Project:**

Consulted only; Yes

Member of Advisory Body; Contractor; Yes

Co-financier;

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

Executor or co-executor;

Other (Please explain)

## Private Sector

Will there be private sector engagement in the Child project?

Yes

And if so, has its role been described and justified in section B "Child project description"?

Yes

## Environmental and Social Safeguards

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed child project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

Yes

Please provide overall Project/Program Risk Classification

### Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
	Medium/Moderate		

## E. OTHER REQUIREMENTS

### Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted and an anticipated timeline for delivery of relevant outputs has been provided. This includes budget for linking with and participation in knowledge exchange activities organized through the coordination platform.

Yes

### Socio-economic Benefits

We confirm that the child project design has considered socio-economic benefits to be delivered by the project and these have been clearly described in the Project Description and will be monitored and reported on during project implementation (at MTR and TER).

The main socio-economic benefits of the project are related to (1) decreasing dependence on imported fuels, liberating resources for economic development and facilitating the stability of transport prices, (2) decreasing operating costs of public transport services, providing the basis for quality improvement, (3) opening new business and employment opportunities with a strong potential for innovation and professional development as well as for women engagement, and (4) contributing to the improvement of air quality in cities.

## ANNEX A: FINANCING TABLES

### GEF Financing Table

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

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
UNEP	GET	Zambia	Climate Change	CC STAR Allocation: CCM-1- 3	Grant	2,000,000.00	180,000.00	2,180,000.00
<b>Total GEF Resources (\$)</b>						<b>2,000,000.00</b>	<b>180,000.00</b>	<b>2,180,000.00</b>

### Project Preparation Grant (PPG)

Was a Project Preparation Grant requested? true

PPG Amount (\$) 50000

PPG Agency Fee (\$) 4500

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
UNEP	GET	Zambia	Climate Change	CC STAR Allocation: CCM-1-3	50,000.00	4,500.00	54,500.00
<b>Total PPG Amount (\$)</b>					<b>50,000.00</b>	<b>4,500.00</b>	<b>54,500.00</b>

Please provide Justification

### Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)

UNEP	GET	Zambia	Climate Change	CC STAR Allocation	2,234,500.00
<b>Total GEF Resources</b>					<b>2,234,500.00</b>

## Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
CCM-1-3	GET	2,000,000.00	8571104
<b>Total Project Cost</b>		<b>2,000,000.00</b>	<b>8,571,104.00</b>

## Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Zambia Environmental Management Agency (ZEMA)	In-kind	Recurrent expenditures	350000
Recipient Country Government	Zambia Environmental Management Agency (ZEMA)	Public Investment	Investment mobilized	150000
Recipient Country Government	Ministry of Infrastructure, Housing and Urban Development (MoIHUD)	Public Investment	Investment mobilized	2200000
Recipient Country Government	Ministry of Infrastructure, Housing and Urban Development (MoIHUD)	In-kind	Recurrent expenditures	25000
Recipient Country Government	Road Transport and Safety Agency (RTSA)	In-kind	Recurrent expenditures	181104
Recipient Country Government	Ministry of Energy (MoE)	Public Investment	Investment mobilized	5500000
Recipient Country Government	Ministry of Energy (MoE)	In-kind	Recurrent expenditures	25000
Civil Society Organization	Zambian Electric Mobility Innovation Alliance (ZEMIA)	In-kind	Recurrent expenditures	40000
Recipient Country Government	Ministry of Transport and Logistics (MoTL)	In-kind	Recurrent expenditures	100000
<b>Total Co-financing</b>				<b>8,571,104.00</b>



## Please describe the investment mobilized portion of the co-financing

The investment mobilized by ZEMA corresponds to the possible purchase of additional electric vehicles by ZEMA, as a follow up to the procurement and transfer to ZEMA of one electric car for the demonstration (Component 2).

The investment mobilized by MoIHUD consists of the implementation of reserved bus lanes along Great East Road Corridor, from the Kabwe roundabout to the east up to the Munali roundabout/flyover bridge (15 km approx.).

The investment mobilized by MoE contribution consists of some of the investments in electricity generation from renewables foreseen in the Ministry of Energy's Integrated Resource Plan for the Power Sector in Zambia (2023). This plan foresees investments in renewables of USD 2,943 million for a generation capacity of 967 MW until 2026 and additional USD 3,638 million for a generation capacity of 1,113 MW until 2030. It is estimated that 0.90% of this generation capacity would be sufficient to cover the energy demand from 50% of the electric vehicles newly registered in the country as a result of the project's activities by 2030 (around 2,900 EVs, as the number of registered electric LDV and buses are expected to be 5,500 and 300 respectively, in accordance with the E-mob model used in Annex M). Assuming a causality factor of the project of 10%, the total public investment co-financing is estimated at around USD 5,500,000. Increasing the electricity generation in Zambia is essential for scaling up the road fleet electrification, and doing so through the expansion of renewables will reduce its carbon footprint.

Note on ZEMIA's in-kind co-finance contribution: ZEMIA's co-financing is linked to the completion of the 24-month ZAMBIAeMOBILIZE project, with a total budget of USD 150,000. As the ZAMBIAeMOBILIZE project started in August 2023, only the portion of its budget for year 2025 has been considered as a contribution to this GEF project, i.e. USD 40,000. ZEMIA's however expects to provide additional co-financing after the termination of ZAMBIAeMOBILIZE in July 2025, but the exact activities and budget to be undertaken have not been approved yet.

## ANNEX B: ENDORSEMENT

### GEF Agency(ies) Certification

GEF Agency Coordinator	Date	Project Contact Person	Telephone	Email
GEF Agency Coordinator		Julien LHEUREUX		julien.lheureux@un.org
Project Coordinator		Godfrey MWIINGA		gmwiinga@zema.org.zm

### Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Please attach the Operational Focal Point endorsement letter(s) with this template.

Name of GEF OFP	Position	Ministry	Date (MM/DD/YYYY)
Mr. Godwin F. Gondwe	Director, Environmental Management Department	Ministry of Green Economy and Environment	4/5/2023

## ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document. For the Integrated Programs' global/regional coordination child project, please include the program-wide results framework, inclusive of results specific to the coordination child project. For any country child project, please ensure that relevant program level indicators are included.

### Objective level indicators:

Project Objective	Objective level Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS PoW Outcomes	Relevant SDG target(s) and indicators
<i>Lasting and significant changes to which the project is expected to contribute</i>	<i>How contributions to the objective will be measured including quantity, quality, time</i>	<i>Initial -Baseline for Objective indicator(s)</i>	<i>End of project Target</i>  <i>Mid-Point Target</i>	<i>How the information required to measure the indicator will be collected, when, and by whom</i>	<i>Assumptions and Risks that affect objective level</i>	Primary sub-programme :  - Climate Action	SDG 13: Target 13.2; Indicator: 13.2.1; 13.2.2.
Objective:  The project aims at accelerating the introduction of electric mobility in Zambia with a focus on reducing GHG emissions, energy use, improving air quality, environmental sound e-waste management and increasing the efficiency of the transport sector.	Indicator A:  Direct GHG emissions mitigated by the project (2028-2042).	Baseline A:  N/A	Mid-term target A:  N/A  End target A:  611,957 t CO2e	Calculation based on UNEP Sustainable Mobility Unit (SMU) Emob calculator at project completion.	Based on adoption of recommended policies and introduction of financial mechanism.  Assumption: adoption of policies and introduction of financial mechanism by the Government of Zambia  Risk: Change in leadership or priorities in the government.	PoW Outcomes:  - Outcome 1A  - Outcome 1B	
	Indicator B:  Number of direct project beneficiaries (disaggregated by sex)	Baseline B:  0	Mid-term target B:  Women: 235	Attendance lists to workshops, trainings and events.	Assumption: All demonstrations implemented.		

			Men: 165 Total: 400  End target B:  Women: 820  Men: 579  Total: 1,399	Report from fleet managers in demonstrations .	Risk: Change in leadership or priorities in the government.		
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## Outcome level indicators:

Project Outcomes	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	Relevant PoW Outcome(s) and indicator(s) <a href="#">[1]</a> <sup>27</sup>	Relevant SDG target(s) and indicators
<i>Capacity or behavioral changes to which the project is expected to contribute</i>	<i>How the outcome will be measured including quantity, quality, time</i>	<i>Initial Baseline for Outcome Indicator(s)</i>	<i>End of project Target  Mid-Point Target</i>	<i>How the information required to measure the indicator will be collected, when, and by whom</i>	<i>Assumptions and Risks that affect processes by which outcomes contribute to objectives</i>	<i>Insert relevant PoW Outcome(s) and indicator(s)</i>	<i>Insert relevant SDG target and indicator</i>
Outcome 1: The Government of Zambia promotes integrated electric mobility systems by enhancing e-coordination, capacity, planning and endorsing a national gender-responsive low carbon mobility strategy.	Indicator 1.1:  National intersectoral coordination platform on e-mobility operational and formally established	Baseline 1.1:  No platform on e-mobility	Mid-term target 1.1:  National intersectoral coordination platform on e-mobility meets twice a year, with 50% female participation  End target 1.1:	Reports of the national intersectoral coordination platform on e-mobility meetings, including gender disaggregated attendance list	Assumptions: Based on on-going government support.  Risks: Lack of support to the e-mobility strategy due to poor involvement of key stakeholders or to lack of consideration of the mobility needs of women and socially	Primary PoW Outcomes:  - Outcome 1A  - Outcome 1B  Indicators:  1.1, 1.2, 1.4, 1.5, 1.6	<a href="#">SDG 13</a>  Target 13.2; Indicator: 13.2.1; 13.2.2.

Project Outcomes	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	Relevant PoW Outcome(s) and indicator(s) <a href="#">[1]</a> <sup>27</sup>	Relevant SDG target(s) and indicators
			The government signs an executive order / decree to institutionalize the national intersectoral coordination platform on e-mobility	Signed decree / executive order.	marginalized groups.		
	Indicator 1.2: National gender-responsive low-carbon mobility strategy adopted by the Cabinet	Baseline 1.2: No	Mid-term target 1.2: Draft strategy prepared.  End target 1.2: Yes	Official publication / gazette with the adopted national gender-responsive low-carbon mobility strategy  The strategy must be gender-responsive.	Assumptions: political support from government  Risks: Lack of support to the e-mobility strategy due to poor involvement of key stakeholders or to lack of consideration of the mobility needs of women and socially marginalized groups.		
	Indicator 1.3: # of reports on best practices and lessons learned on e-mobility shared with the Global e-mobility project	Baseline 1.3: 0	Mid-term target 1.3: 0  End target 1.3: 2	Deliverables 1.1.5 and 1.4.14. of the project.  Submission of the report to the Global Programme	Best practices and lessons learned are generated early enough so that they can be fed into/included in the support activities by the global programme.		
Outcome 2: The government of Zambia takes steps to the scale-up of integrated electric mobility systems based on the	Indicator 2.1: # of private public transport fleet operators committed to procure EVs as	Baseline 2.1: 0	Mid-term target 2.1: At least 1	Private sector public transport fleet operator has identified and communicated mode, number of EVs and	Assumptions: at least 1 operator committed by mid-term and participates in the demonstration. Additional 3	Primary PoW Outcomes:  - Outcome 1A  - Outcome 1B	<a href="#">SDG 13</a>  Target 13.2; Indicator: 13.2.1; 13.2.2.

Project Outcomes	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	Relevant PoW Outcome(s) and indicator(s) <a href="#">[1]</a> <sup>27</sup>	Relevant SDG target(s) and indicators
evidence provided by demonstrations.	part of their operations		End target 2.1:  At least 4	expected purchase date.	operators committed by end of project.  Risk: Uncertain economic and financial situation may prevent entities to consider fleet electrification.	Indicators:  1.1, 1.2, 1.4, 1.5, 1.6	
	Indicator 2.2:  # of electric vehicles procured by the government of Zambia for its own fleets	Baseline 2.2:  0	Mid-term target 2.2:  2  End target 2.3: At least 10	Based on the government's database of EVs, fleet monitoring system and RTSA official statistics-	Assumptions: government institutions have gained sufficient knowledge of the technical characteristics and benefits of EV in Zambia and the pilot of government owned EVs is successful,  Risk: Uncertain economic situation may deter government to invest in EVs for its fleets		
	Indicator 2.3:  # of mid-size <a href="#">[2]</a> <sup>28</sup> buses operating in the public transport system in Lusaka	Baseline 2.3:  0	Mid-term target 2.3:  0  End target 2.3: At least 4	Based on the government's database of EVs and RTSA official statistics	Assumptions: At least one public transport operator is engaged in the implementation of the demonstrations (output 2.3).  Risk: Uncertain economic situation may		

Project Outcomes	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	Relevant PoW Outcome(s) and indicator(s) <sup>[1]</sup> <sup>27</sup>	Relevant SDG target(s) and indicators
					deter PT operators to renew their fleets.		
Outcome 3: The Government of Zambia adopts policies, regulations and technical standards and endorses a financing scheme to accelerate the introduction of integrated electric mobility systems.	Indicator 3.1:  The fiscal / financial incentives, regulations and standards for EVs and charging infrastructure are adopted by the government	Baseline 3.1:  No	Mid-term target 3.1:  No  End target 3.1:  Yes	Official publication / gazette with the adopted package of fiscal / financial incentives, regulation and standards for EVs and charging infrastructure	Assumptions: Based on on-going government support and successful demonstrations, with relevant ministries strongly involved in the national coordination platform.  Risks: Negative perception of e-mobility technology and its benefits by key Zambian stakeholders (including the financial sector) and the public.	Primary PoW Outcomes:  - Outcome 1A  - Outcome 1B  Indicators:  1.1, 1.2, 1.4, 1.5, 1.6	<u>SDG 13</u>  Target 13.2; Indicator: 13.2.1; 13.2.2.
	Indicator 3.2:  One financial mechanism to support investments into EVs and charging infrastructure is operationalized with a financial institution	Baseline 3.2:  No	Mid-term target 3.2:  No  End target 3.2:  Yes	Publication by relevant banks or financial institutions	Assumptions: Growing financial sector's interest in the transport sector.  Risks: Negative perception of e-mobility technology and its benefits by the financial sector.  Market appetite for cheap second-hand ICE vehicles reduce the public's interest on financial instruments		

Project Outcomes	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	Relevant PoW Outcome(s) and indicator(s) [1] <sup>27</sup>	Relevant SDG target(s) and indicators
					supporting electric mobility		
	Indicator 3.3:  The project concept note for scaling up e-mobility in Zambia developed as part of the project is submitted to a financial institution or donor for approval	Baseline 3.3:  No	Mid-term target 3.3:  No  End target 3.3:  Yes	Evidence of submission of the concept note to the donor institution	Assumptions: the demonstrations project yields successful results, triggering the interest for scale up.  Risks: Insufficient political support and priority to electric mobility; insufficient collaboration among the relevant ministries to develop the concept note		
Outcome 4: The Government of Zambia endorses a roadmap with measures to ensure the long-term environmental sustainability of integrated electric mobility systems including EV and battery end-of-life.	Indicator 4.1:  The official technical guidance on the management of EV and batteries at their end of life is approved by the government	Baseline 4.1:  No	Mid-term target 4.1:  Draft technical guidance prepared.  End target 4.1:  Yes	Official publication / approval of the guidance package by the government	Assumptions: the WB funded project leads to approved regulations on EV and batteries waste management.  Risks: The reduced number of vehicles to be recycled in the short-term discourages government to approve technical guidance, to focus on more urgent priorities.	Primary PoW Outcomes:  - Outcome 1A  - Outcome 1B  Indicators:  1.1, 1.2, 1.4, 1.5, 1.6	<u>SDG 13</u>  Target 13.2; Indicator: 13.2.1; 13.2.2.
	Indicator 4.2:	Baseline 4.2:	Mid-term target 4.2:	Official publication / gazette with	Assumptions: Current regulations on e-		



Project Outcomes	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	Relevant PoW Outcome(s) and indicator(s) <a href="#">[1]</a> <sup>27</sup>	Relevant SDG target(s) and indicators
	The national roadmap to operationalize the environmentally sound management of end-of-life EVs and batteries is endorsed by the government	No	Draft roadmap under preparation  End target 4.2:  Yes	the endorsement of the roadmap	waste management are expanded to include EV batteries.  Risks: The reduced number of vehicles to be recycled in the short-term results in low interest for government to elaborate a roadmap.		

[\[1\]](#) When a project is relevant to more than one PoW outcome indicator, provide outcomes and outputs for each indicator in order to enable budget details per output and PoW Outcome.

[\[2\]](#) Note that the type of vehicle could change as a result of the technical studies for the preparation of this demonstration under outputs 2.1 and 2.2.

## ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount (\$)		
	Budgeted Amount	Amount Spent To date	Amount Committed
National consultant	8,500.00	0.00	8,500.00
Scoping / consultation workshops with national stakeholders	2,500.00	2,092.00	
Final validation workshop with national stakeholders	2,500.00	2,198.00	710.00
International E-mobility Expert	29,000.00	29,000.00	0.00
International travel costs	2,500.00	2,077.00	423.00
Capacity assessment	5,000.00		5,000.00

Total	50,000.00	35,367.00	6,133.00
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## ANNEX E: PROJECT MAP AND COORDINATES

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

Location Name	Latitude	Longitude	GeoName ID
Lusaka	-15.40667	28.28694	

Location Description:

Activity Description:

Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.

While the policy and strategy work of the project will have a national reach, the pilot / demonstration activities will be undertaken in Zambia's capital, Lusaka (Figure 6). The public transport demonstration is initially considering to be based on the corridor along T-4 road, eventually as a part of a circular public transport route (Figure 7).

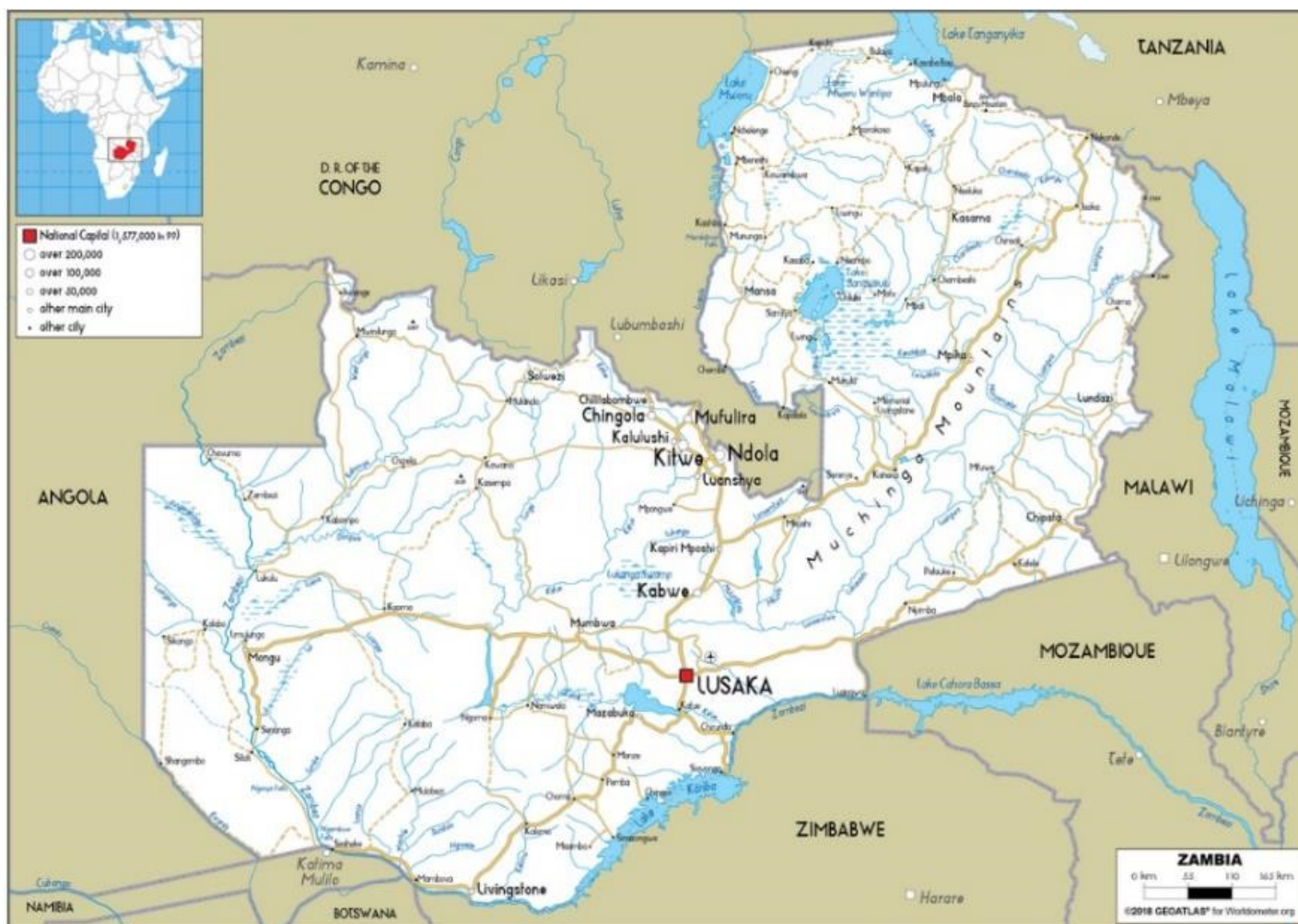
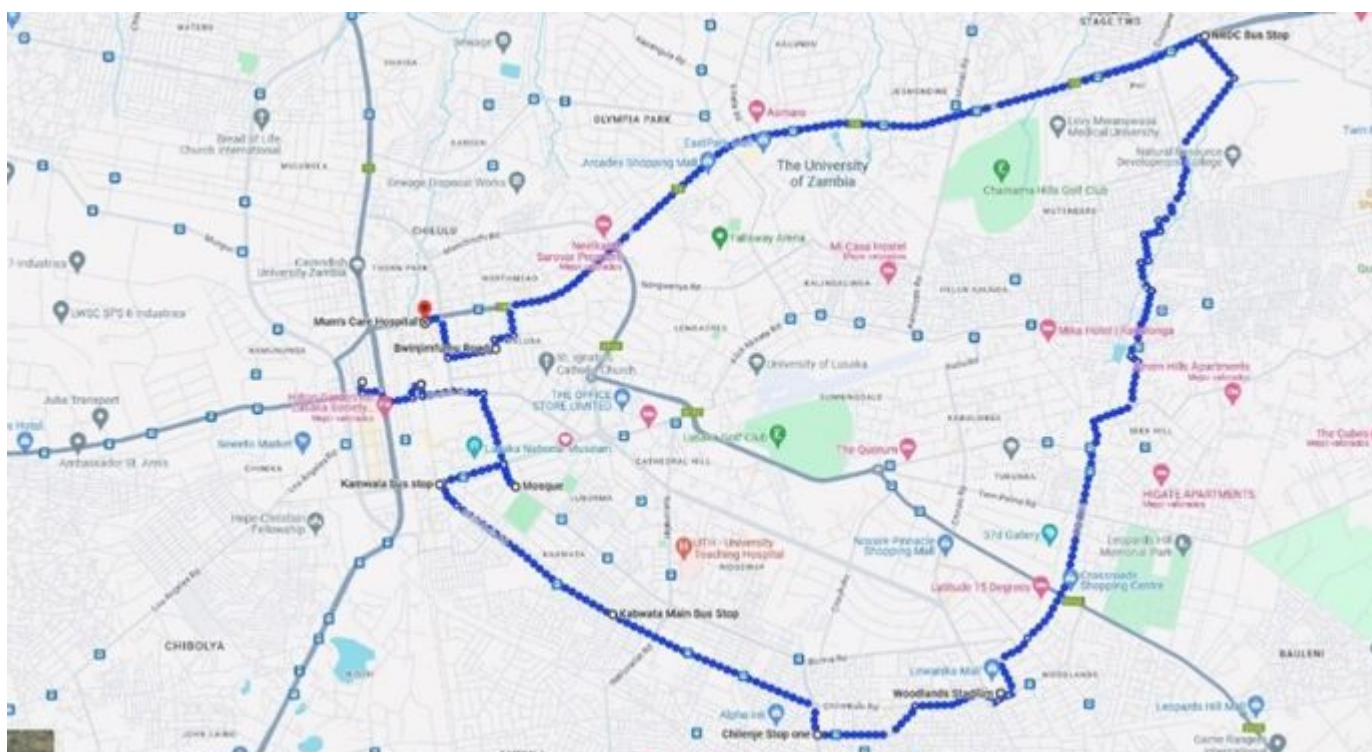


Figure 6: Map of Zambia (Roads)<sup>[1]<sup>29</sup></sup>

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Figure 7: Possible route for the public transport demonstration

[1] Source: Worldometer (n.d.). URL: <https://www.worldometers.info/maps/zambia-road-map/>

## ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS DOCUMENTS INCLUDING RATING

Attach agency safeguard datasheet/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts (as applicable).

Title

11082\_EM Zambia\_Annex F\_SRIF



## ANNEX G: BUDGET TABLE

Please upload the budget table here.

GEF budget category & detailed description	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Subtotal	M&E	PMC	Total
<b>02. Goods</b>		\$ 70,000			\$ 70,000		\$ 10,000	\$ 80,000
Procurement, installation and transfer of dispatching system for the pilot bus		\$ 35,000			\$ 35,000			\$ 35,000
Procurement, installation and transfer of fleet management system for pilot		\$ 35,000			\$ 35,000			\$ 35,000
IT equipment for PMU							\$ 10,000	\$ 10,000
<b>03. Vehicles</b>		\$ 80,000			\$ 80,000			\$ 80,000
Procurement of electric cars for government pilot fleets.		\$ 80,000			\$ 80,000			\$ 80,000
<b>06. Sub-contract to executing partner/entity</b>	\$ 45,000				\$ 45,000			\$ 45,000
Academic institution to support the e-mobility capacity building program.	\$ 20,000				\$ 20,000			\$ 20,000
Thinktank on coordination of renewable energy and electric mobility policies	\$ 25,000				\$ 25,000			\$ 25,000
<b>07. Contractual services (company)</b>	\$ 247,915	\$ 588,607	\$ 330,000	\$ 143,478	\$ 1,310,000	\$ 45,000	\$ 10,000	\$ 1,365,000
International consultancy firm on e-mobility / low-carbon mobility policy and	\$ 100,000				\$ 100,000			\$ 100,000
National consultancy firm for knowledge management and communications	\$ 120,000				\$ 120,000			\$ 120,000
International consultancy firm on e-mobility pilots and technology	\$ 21,393	\$ 188,607	\$ 80,000		\$ 290,000			\$ 290,000
International consultancy firm on e-mobility financing and business models			\$ 100,000		\$ 100,000			\$ 100,000
National consultancy firm for the NMT strategy update.			\$ 150,000		\$ 150,000			\$ 150,000
International consultancy firm on EVs and batteries end-of-life management.	\$ 6,522			\$ 143,478	\$ 150,000			\$ 150,000
Operations of the EV public transport pilot for 12 months.		\$ 400,000			\$ 400,000			\$ 400,000
Annual financial audits							\$ 10,000	\$ 10,000
Mid-term review (optional)						\$ 15,000		\$ 15,000
Terminal evaluation						\$ 30,000		\$ 30,000
<b>11. Salary and benefits/Staff Costs</b>	\$ 13,318	\$ 1,245	\$ 3,246	\$ 2,090	\$ 19,898	\$ 2,101	\$ 123,200	\$ 145,200
Project Technical Coordinator	\$ 13,318	\$ 1,245	\$ 3,246	\$ 2,090	\$ 19,898	\$ 2,101	\$ 88,000	\$ 110,000
Administrative and Financial Officer							\$ 35,200	\$ 35,200
<b>12. Training, Workshops, Meetings</b>	\$ 89,000	\$ 36,000	\$ 60,000	\$ 24,000	\$ 209,000	\$ 12,000		\$ 221,000
Support to the organization of training events	\$ 64,000				\$ 64,000			\$ 64,000
Support to the organization of non-training workshops	\$ 12,000	\$ 36,000	\$ 60,000	\$ 24,000	\$ 132,000	\$ 8,000		\$ 140,000
Support to the organization of meetings	\$ 13,000				\$ 13,000	\$ 4,000		\$ 17,000
<b>13. Travel</b>	\$ 45,000				\$ 45,000		\$ 7,000	\$ 52,000
International travel to attend Global Programme activities	\$ 45,000.00				\$ 45,000.00			\$ 45,000.00
Travel of PMU members							\$ 7,000.00	\$ 7,000.00
<b>14. Office supplies</b>							\$ 4,500.00	\$ 4,500.00
Miscellaneous office supplies							\$ 4,500.00	\$ 4,500.00
<b>15. Other operating costs</b>							\$ 7,300.00	\$ 7,300.00
Miscellaneous costs: bank charges, cleaning services, communications.							\$ 7,300.00	\$ 7,300.00
<b>Grand Total</b>	\$ 440,233	\$ 775,852	\$ 393,246	\$ 169,568	\$ 1,778,899	\$ 59,101	\$ 162,000	\$ 2,000,000

Please explain any aspects of the budget as needed here

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## ANNEX I: RESPONSES TO PROJECT REVIEWS

From GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF.

### Response to GEF Sec Project PIF/PFD Reviews

	GEF Secretariat Comments (extract of comments to be addressed during PPG)	Response from UNEP
1	Comment: The new working group on financing/financial instruments & models is very welcome and timely. However, the description/plans to engage further the private sector are weak. The PFD states that commercial banks have been consulted and engaged, but fails to explain further these consultations and engagement. Additional information would be welcomed on their potential role under the project, particularly on developing new business models and providing innovative financial instruments.	The development of innovative business models and financing schemes is contemplated in this child project. In this work, commercial Bank of Zambia, ZANACO and the Bankers Association of Zambia will be involved. In parallel, the Global Project will further assist with the development of financing mechanisms (including facilities secured by first loss guarantees) and links to global and regional funding opportunities.  -
2	Comment (Re: Component 3.1): While this is cleared for PFD stage, the following request has been included as a point to be further developed during PPG: The share between TA and INV for the GEF component is approximately 24% or 34% depending on is the resources for the Global Child Project, which are 100% TA, are accounted for. <b>The GEFSEC considers that while there is a strong additionality for the use of GEF resources as TA funds, there is also a strong case to use GEF resources as direct investments to re-risk and incentivize pilot activities. The Lead Agency is encouraged to work with Country Child Projects to increase the share of GEF resources used as INV, where possible, during PPG stage.</b>	The institutions in this country child project defined during the PPG phase that 70% of GEF resources should be used for TA and 30% destined to INV (PMC excluded). While the GEF may be well poised to de-risk otherwise risky investments, in this case the priority is in the preceding stage, and the need for increased institutional preparedness and capacities. Through TA, having an enabling framework for e-mobility will then pave the way for heavy INV in key sectors, such as the public transport, government and/or corporate fleets. It is expected that the creation of policies, alliances and instruments for innovative financing for this sector will be conducive to lasting impacts on a larger scale, in particular a reduction in overall GHG emissions.
3	Comment (Re: Gender & Stakeholder consultation):  Gender activities will have to be reflected in relevant components in all child projects  Relevant Stakeholders have been identified and consulted. However:  2.1: (From PPO) Please include a short description of the approach and efforts to develop a Stakeholder Engagement Plan in the Coordination Child Project before CEO Endorsement	A number of gender-related activities are included in relevant components of the country child project, such as the national low-carbon mobility strategy (output 1.2), the capacity-building plan (output 1.4), the awareness-raising campaign (output 1.5) and the detailed design and implementation of the public transport pilot (output 2.2), so that all these are gender-responsive.

	GEF Secretariat Comments (extract of comments to be addressed during PPG)	Response from UNEP
4	Comment (Re: IEA participation in GP): Additional discussions with IEA as partner are strongly encouraged, and GEFSEC would like to be informed about progress on this during PPG.	This comment was addressed by the Global Coordination Child Project (GEF ID 11075).
5	Comment (Re: GEB calculation & POPs)  1. CI.6: Cleared. Additional work needed at PPG stage.  2. CI.9 on C&W Cleared, but GEF SEC is requesting the Agency that during PPG stage inclusion of the newly listed POPs is also investigated.	Initial GHG estimations for Core Indicator 6 were refined during the PPG phase, using the tool made available by UNEP. They will be reviewed at project mid-term and refined if needed.  -  Regarding the C&W Core Indicators, this comment was addressed by the Global Coordination Child Project (GEF ID 11075), where the impacts are allocated.
6	(Re : Indicators for component 3)  Component 3  1. Indicators 3.1, 3.2, and 4.1 could be more specific or relevant to the project outcome. It is recommended to review them. (Cleared at this stage. Comment remains to be addressed at PPG stage.)  2.3 The indicator on #of financiers/Financial institutions is not found, even though the answer below says it was added.	This comment is addressed below. The revision of the Programme indicators has been coordinated by the Global Coordination Child Project (GEF ID 11075).
7	The share between TA and INV for the GEF component is approximately 24% or 34% depending on is the resources for the Global Child Project, which are 100% TA, are accounted for. The GEFSEC considers that while there is a strong additionality for the use of GEF resources as TA funds, there is also a strong case to use GEF resources as direct investments to re-risk and incentivize pilot activities. The Lead Agency is encouraged to work with Country Child Projects to increase the share of GEF resources used as INV, where possible, during PPG stage.	This comment was addressed above (Outstanding comment 2).
8	Some of the indicators presented at PFD approval had room for improvement with a view to be made more specific to the Programme's objective and respective outcomes (including indicators 3.1, 3.2 and 4.1, which only count the # of countries with pilots, not the results of the actions/investments that are generated). A revised results framework should be completed soon in the PPG stage to be adopted by all child projects. The Lead Agency committed to work on this during PPG.	Programme indicators 3.1, 3.2 and 4.1 have been slightly revised to better show their focus. These indicators are mostly for country child projects to account for, facilitated by the global project.  In addition, Programme indicators are now shown as 3 groups: those that are the remit only of country projects (such as 3.1, 3.2 and 4.1); those that depend on country /regional inputs and on global consolidation; and those informed only by the global project. This has been helpful for country teams and has facilitated the confirmation of which Programme indicators each country will be contributing to.  The way Programme Outcome indicators have been incorporated into this country project is as follows: global



	GEF Secretariat Comments (extract of comments to be addressed during PPG)	Response from UNEP
		indicator 1.1.1 is covered by indicator 1.1; global indicators 2.1.1, 2.1.2 and 2.1.3, by indicator 3.1 and 3.2; global indicator 2.2.1, by indicator 3.3; global indicator 3.1 by indicators 2.1 and 2.2; global indicator 3.2 by indicator 3.3; and global indicators 4.1 and 4.2 by indicator 1.3.
9	On C&W Core Indicators: GEF SEC is requesting the Agency that during PPG stage inclusion of the newly listed POPs is also investigated	This comment was addressed by the Global Coordination Child Project (GEF ID 11075).
10	On CI.6 (GHG emission reduction): additional work is needed at PPG stage.	This comment was addressed above, in relation to GEBs and GHG calculations (see outstanding comment 5).

## Responses to GEF Council and STAP Comments

	GEF Council and STAP Comments	Response from UNEP
1	<p>Papua New Guinea, Solomon Islands, and Vanuatu: Global programs with wide ranges of partners can have their impacts severely diluted in the Pacific. <b>There are apparent opportunities for linkage to/need to coordinate with USTDA/DFC global programs.</b></p>	<p>Comment not applicable to the Zambia project.</p>
2	<p><u>Germany requests that the following requirements are taken into account during the design of the final project proposal:</u></p> <ul style="list-style-type: none"> <li>• Germany recommends to emphasise how project activities can contribute to <b>a just transition in the transport sector</b>, with reference to green job creation, low-income groups, drivers and workers and women's empowerment.</li> <li>• Germany supports a <b>high level of integration between project activities on e-buses, with the BMZ funded TUMI E-bus Mission</b>. Germany recommends seeking regular exchanges on project activities for both normative and country-level work.</li> <li>• Germany supports a high level of <b>integration between project activities on informal transport electrification with BMZ bilateral portfolio</b>. Germany recommends seeking regular exchanges on project activities for both normative and country-level work.</li> <li>• Germany appreciates the dedicated focus on the introduction of electric bus-rapid (BRT) systems. Germany recommends <b>close cooperation with bilateral country projects</b> working on this topic (Kenya, Senegal).</li> <li>• Germany appreciates the stronger focus on financing issues and recommends also a close <b>exchange with bilateral and multilateral development banks working on the electrification of public transport</b>.</li> <li>• While Component 1 has clear project outputs, <b>Germany asks that the overall outcome goes beyond 'national policy frameworks and established roadmaps' to include regional roadmaps</b>. This will ensure greater applicability, success, and scalability.</li> <li>• Germany appreciates the comprehensive list of stakeholders the projects aim to include. Germany</li> </ul>	<p><u>Just transition:</u> This aspect will be covered in national e-mobility strategies which are / will be developed in all GEF-7 and 8 country projects which do not already have such strategies, including in Zambia. This is key for countries to ensure the co-benefits are maximized. The countries will apply the materials developed by the BMZ funded project "E-Mobility as a Driver for Change – Towards a gender transformative and just transition to electric mobility" that will be disseminated by the Global Coordination Child Project.</p> <p><u>TUMI E-bus mission:</u> TUMI e-bus mission is an integral programme partner, as a co-financier and a member of the steering committee. UNEP's country project Task Managers are in contact with the respective GIZ regional focal points, and no concrete synergies have been identified in the countries at this early stage.</p> <p><u>Financing:</u> World Bank and UNEP are developing a joint proposal on funding E-BRTs in Africa for submission to GCF. A comprehensive stakeholder map will be developed through the RSIP for Africa, as part of the Global Coordination Child Project (GEF ID 11075).</p> <p><u>Mapping:</u> Please refer to the Stakeholder Engagement Plan in the respective Annex.</p> <p>-</p>

	GEF Council and STAP Comments	Response from UNEP
	would recommend a <b>greater understanding/mapping of the growing industry, private sector and private financiers involved in the transformation</b> and the role they will play in the project activities.	
3	The proposal <b>wrongly identified NOx, SOx, and PM as short-lived climate pollutants</b> . Although these are usually co-emitted with black carbon (a short-lived climate pollutant), they are not classified as short-lived climate pollutants. The primary short-lived climate pollutants are black carbon, methane, tropospheric ozone, and hydrofluorocarbons. It is also essential to note that SOx has a global climate cooling effect, which must be accounted for in projects that simultaneously address short-lived climate pollutants and SOx	This comment was addressed by the Global Coordination Child Project (GEF ID 11075).
4	Including women or vulnerable groups in this currently male-dominated industry will be vital in fostering equity in e-mobility systems. More details on how this will be done need to be included.	This has been taken into consideration when developing the Gender Action Plan for this Country Project. In addition, this aspect will be addressed in the national e-mobility strategy that will be developed as part of the country project.
5	<p>We recommend the following as the program is further developed:</p> <ol style="list-style-type: none"> <li>1. Include activities to undertake analysis of policies across the various economic sectors in each country to identify any incoherence or contradiction to ensure no conflicting policies could hinder the program objectives.</li> <li>2. Include Figure 2, which is currently missing.</li> <li>3. STAP encourages the global child project to distill <b>knowledge and lessons on effectively transitioning to a circular economy across the various targeted sectors</b> in the program and how policy design can be an effective enabler.</li> <li>4. Reflect and proactively include <b>interventions that foster innovation</b> and consider how to ensure scale-up and catalyze transformational change.</li> <li>5. Consider adding indicators for <b>tracking transformational change</b>. Please see STAP's paper on transformation for more details.</li> <li>6. Put in place the <b>provision to track, measure and report these co-benefits</b>. Please see STAP's paper on incorporating co-benefits in GEF's investments for guidance.</li> </ol>	<p>These comments were mostly taken up by the Global Coordination Child Project (GEF ID 11075), with the following applying to this country child project:</p> <ol style="list-style-type: none"> <li>1. Intersectoral policy gap analysis will be part of the national e-mobility strategy and will include the review of potentially conflicting policies that could affect the project objectives.</li> <li>4. Innovation is key across all programme components and outputs. For example, in the Zambia country project, innovation in governance is included in component 1, through the setting up of the national intersectoral coordination platform on e-mobility and a public knowledge management platform facilitating the public's access to information; technological innovation is facilitated through component 2, with public transport operators and governmental fleet managers gaining access to electric vehicles in combination with state-of-the-art fleet management tools; component 3 promotes innovation in the financial sector; and innovation in end-of-life battery management is embedded in component 4.</li> <li>5. A few indicators in the Global program level results framework do track <a href="#">transformational change</a><sup>[1]<sup>30</sup></sup> (particularly indicators 3.1, 3.2, 4.3, 2.2.4 that seek to measure the impact of the program through mobilization of non-program countries as well as additional private sector institutions and financiers); Country child projects will track them during implementation.</li> </ol>

	GEF Council and STAP Comments	Response from UNEP
		<p>6. Indicator 3.1 of the Global Programme level results framework has been revised to explicitly mention that socio-economic and environmental <a href="#">co-benefits generated</a><sup>[2]<sup>31</sup></sup> by pilots need to be tracked, measured and reported.</p>

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[1] <https://www.stapgef.org/resources/advisory-documents/achieving-transformation-through-gef-investments>

[2] [https://stapgef.org/sites/default/files/2023-06/Incorporating co-benefits in the design of GEF projects\\_posting.pdf](https://stapgef.org/sites/default/files/2023-06/Incorporating%20co-benefits%20in%20the%20design%20of%20GEF%20projects_posting.pdf)