Terms of Reference (ToR)

Issued by **ICLEI Africa**

on behalf of the **Rwanda Green Fund** (RGF)

Consultancy services to assess feasibility and compile an action plan for large scale retrofitting of internal combustion engine motos to electric motos

ToR issued: 23 July 2026
Final date for requesting clarification: 31 July 2026
Submission of bids: 21 August 2026

Please submit applications to Janvier Twagirimana (**janvier.twagirimana@iclei.org**) and Kennedy Kanyiha (**kennedy.kanyiha@iclei.org**) with Tony Shyaka (**t.shyaka@greenfund.rw**) and Meagan Jooste Upadhyaya (**meagan.jooste@iclei.org**) in copy.

Subject line: 'Service Provider: Rwanda E-Moto Project – Retrofitting Feasibility Study'

For further information on the E-Moto Project, visit the project page.

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The E-Moto Project is funded by: Mitigation Action Facility

Implemented by: Rwanda Green Fund; BRD

In partnership with: ICLEI Local Governments for Sustainability AFRICA; Global Clearinghouse for Development Finance

1. Introduction

This Terms of Reference (ToR) is issued by ICLEI Africa on behalf of the implementation organisations for the Accelerating the Deployment of E-Motos in Rwanda Project (Rwanda E-Moto Project), funded by the Mitigation Action Facility and implemented by the Rwanda Green Fund (RGF) and the Rwanda Development Bank (BRD), with technical support from ICLEI Africa and the Global Clearinghouse for Development Finance (GlobalDF).

The E-Moto Project aims to significantly increase the supply and demand of electric motorcycles (e-motos) in Rwanda, reducing greenhouse gas (GHG) emissions while delivering economic and social co-benefits. The Project's two financial mechanisms include the E-Moto Credit Enhancement Facility (E-CEF) managed by the National Bank of Rwanda (BRD) (to provide first-loss guarantees to financiers providing capital for increasing e-moto supply and adoption), and the E-Moto Rebate Scheme managed by the Rwanda Green Fund (RGF) (which provides subsidies to individuals with financial needs to acquire e-motos or retrofit their ICE-motos).

One Rwanda based company has piloted retrofits with funding from UNDP and RGF, stating success in achieving both safety and viability. However, some e-moto companies, asset financiers, and ICE-moto owners in Rwanda have expressed concerns about the safety and reliability of retrofits for use as moto taxis in Rwanda, and the need to improve the government's regulatory framework for retrofitting ICE-motos.

This ToR seeks to procure a suitably qualified and experienced team of experts to develop a comprehensive feasibility assessment of ICE-moto retrofitting at scale and the development of an Action Plan for scaling up the retrofitting of ICE-motos to e-motos. The overall objective of the assignment is to assess the feasibility of the large-scale retrofitting of ICE-motos to e-motos and development of an Action Plan for potentially reaching 30,000 retrofitted e-motos by mid-2030 based on a professional assessment of the technical, economic, environmental, regulatory, and financial requirements and actions required for retrofitting ICE-motorcycles to electric motorcycles.

Key project retrofit targets

The E-Moto Project's performance indicators require:

- Retrofitted e-motos contribute significantly to the total target of 65,000 e-motos adopted by mid-2030 (provided that large-scale retrofitting is feasible given safety, reliability, and financing options).
- Retrofitted e-motos contribute to the project target of 9,000 ICE-motos responsibly disposed of through sustainable waste processes by mid-2030 (entire ICE-motos or e-moto engines).

2. Project background

Motorcycle taxis are a dominant mode of urban transport across East Africa. Rwanda's motorcycle fleet represents over half of the national vehicle stock, with approximately 120,000 motorcycles in circulation as of 2025, the majority being ICE-motos.

Moto-taxis provide livelihoods for thousands of operators and serve as the dominant form of public transport in Kigali and secondary cities. However, conventional internal combustion engine motorcycles (ICE-motos) contribute significantly to greenhouse gas (GHG) emissions, urban air pollution, fuel import dependency, and high operating costs for riders. The Rwandan Government has prohibited new registrations of ICE moto-taxis from January 2025 and is actively accelerating the shift to electric mobility.

Electrification of motorcycles—either through new electric motorcycles (e-motos) or retrofitting existing ICE motorcycles—presents an opportunity to:

- Reduce transport-sector emissions
- Lower operating costs for riders
- Improve urban air quality
- Strengthen energy security

Retrofitting ICE motorcycles to electric presents a lower upfront-cost pathway compared to purchasing new e-motos. However, for large-scale uptake, retrofit solutions must be:

- Technically safe and certifiable
- Financially viable for riders
- Bankable for financiers
- Insurable for insurance providers

While financing models for new e-motos are emerging, there is limited structured analysis on the **technical, economic, regulatory, and financial viability of retrofitting existing ICE-motos to e-motos**. This assignment seeks to inform the design of scalable financing instruments for retrofit deployment, as well as the feasibility of attracting commercial insurance participation alongside financing.

3. Purpose and objectives

3.1 Purpose

The purpose of this ToR is to secure the services of a qualified team of experts to conduct a feasibility assessment of ICE-moto retrofitting at scale and the development of an Action Plan for scaling up the retrofitting of ICE-motos to e-motos.

The **Retrofit Feasibility Assessment and Action Plan** need to define the feasibility of scaling-up retrofits; the required standards and legal, regulatory, and policy frameworks; and resulting action plan. Findings will be used by the Rwanda E-Moto Project and partner government

institutions (e.g. Rwanda Standards Board (RSB), Rwanda Utilities Regulatory Authority (RURA), Ministry of Environment (MOE), Ministry of Infrastructure (MININFRA), City of Kigali, etc.) in establishing clear, enforceable standards that enable retrofitting to be viable, safe, and properly regulated, forming the basis for increased scale and access to finance.

3.2 Specific objectives

Assess the large-scale feasibility of retrofitting ICE-motorcycles to e-motorcycles and develop an Action Plan to achieve the e-moto project targets, leveraging on the results of the completed retrofitting pilots, companies' willingness to explore retrofitting, current government certification of retrofitting approaches, and international retrofitting lessons learned and success stories.

The analysis needs to include the following technical assessments and actions:

1. Assess the performance of the retrofit taxis done to date in terms of safety and performance, addressing the concerns of ICE-moto owners, e-moto companies, and the government.

2. Define the engineering standards and critical actions that need to be implemented by e-moto companies and the government to ensure the technical feasibility, safety, and viability of retrofitted e-motos as taxis in Rwanda, informed by technical feasibility and international benchmarking assessments.

3. Draft the standards to be used in government certifications detailing which institutions need to be involved and the industry governance structure.
4. Assess the viability of retrofitted e-motos against new e-motos of comparable use in terms of performance and lifespan.
5. Document all retrofit costs incurred by e-moto companies providing this service.
6. Define actions required for ICE-moto owners performing retrofits to access finance and insurance. Include options such as the retained ownership of the Retrofit Conversion Kit by the company implementing the retrofit and any other possible model.
7. Define the feasibility and actions required to significantly scale up the number of qualified retrofits to contribute to the project’s target of 65,000 e-motos by mid 2030, with estimated volumes by year and e-moto companies performing the retrofits. Scenarios need to be grounded in reality and based on evidence.

4. Scope of work

The following Scope of Work (SOW) has been identified as part of this assignment.

Inception Report

The inception report must include a brief inception note and finalised workplan with milestones, outputs, activities, and budget allocation by task, agreed with the E-Moto Project Team.

The inception report needs to demonstrate that the Service Provider understands the assignment, the project context, and operational priorities. It will include the methodology to be applied, approach to the assignment, any material updates to the stakeholder landscape and/ or current conditions identified during initial stakeholder engagement.

The report will include a revised workplan with milestones, outputs, anticipated risks and mitigation measures, activities, and budget allocation by task, as agreed with the E-Moto Project Team.

Task 1: International and Rwanda Retrofit Benchmark Assessment

- Assess the performance of the Rwanda retrofit taxis done to date in terms of safety and performance, addressing the concerns of ICE-moto owners, e-moto companies, and the government.
- Profile the success stories in other countries where retrofitting has been conducted on a large scale successfully, as well as lessons learnt from failures.
- For both Rwanda and other countries, on a best-efforts basis:
    - Where data are available, document annual mileage per moto type (retrofit e-moto and ICE-moto) and corresponding fuel consumption and energy cost.
    - Compare maintenance costs and rider income levels of retrofit e-moto and ICE-moto.
    - Compare accident frequency and claims patterns between ICE-motos and retrofit e-motos.
    - Identify regulatory changes and actions that led to successful retrofitting programmes and alternatively those that resulted in retrofit failures.
    - Assess insurance penetration rates among riders and challenges related to acceptability from the insurance service providers.
- Document lessons learnt and their applicability to the Rwandan moto taxi sector.

Deliverable: Comprehensive Rwanda and International Retrofit Benchmark Assessment on country retrofit programs, lessons learned, and implications for Rwanda.

Task 2: Technical Feasibility Assessment

- Review available retrofit technologies (motor, controller, battery, BMS).
- Assess compatibility with commonly available motorcycle models in Rwanda.
- Evaluate battery options (swappable versus fixed/ direct charging).
- Set comprehensive technical requirements guiding suitability of motorcycles to be retrofitted.
- Assess safety standards and structural implications.

- Assess structural integrity of post-conversion.
- Evaluate fire, electrical, and battery safety risks.
- Review applicable vehicle modification standards.
- Identify local assembly or retrofit workshop requirements.
- Analysis of resale and salvage values of retrofitted bikes.
- Assess and develop recommendations on the types and models of motorcycles suitable for retrofitting, the structural compatibility of chassis and frames, engine removal feasibility, weight distribution and stability after conversion, and availability of spare parts.
- Perform the evaluation of the technical configuration of the electric conversion kit, battery technology options, and energy infrastructure.
- Provide recommendations on the safe disposal of removed components.
- Assess technical implications for large-scale retrofitting of ICE motorcycles to electric motorcycles.

Deliverable: Comprehensive Technical Feasibility Assessment and implications for Rwanda.

Task 3: Comparative Financial Viability Assessment

- Estimate full retrofit cost (kit, labor, certification, battery) per bike.
- Compare CAPEX and OPEX of retrofitted motos versus new e-motos of similar age in operation.
- Conduct lifecycle cost analysis (fuel versus electricity savings).
- Assess payback period under different electricity and fuel price scenarios and EOL scenarios.
- Perform detailed breakdown of conversion costs, comparison of costs between ICE-motos and retrofitted motos
- Perform the Total Cost of Ownership (TCO) comparative scenarios,
- Conduct financial sustainability assessment with regards to payback periods and monthly rider savings
- Carry out the Cost Benefit Analysis and determine Internal Rate of Return (IRR), Net Present Value (NPV) of the large-scale retrofitting program.
- Assess the implication of large-scale retrofitting of ICE motorcycles. The assessment will include analysis of possible targets to be achieved within project duration (up to June 2030);
- Conduct various sensitivity analyses.

- Assess the ownership scheme of retrofits, indicating the advantages and disadvantages of owner versus other options (ICE-moto owner and e-moto owner).

Deliverable: Comparative Financial Viability Assessment (and excel-based model).

Task 4: Regulatory Gap Analysis and Required Changes to Achieve Safe, Reliable Retrofits at Scale

- Review vehicle registration and modification regulations.
- Assess certification requirements for retrofitted vehicles.
- Identify certification and homologation requirements.
- Identify tax and import duty implications for components.
- Assess insurance and roadworthiness compliance issues.
- Identify gaps in existing regulatory instruments and propose regulatory reforms, detailing institutional responsibilities and legislation needed to govern the sector.
- Draft customised regulatory instruments governing development, registration and inspection of retrofits.

Deliverable: Regulatory Gap Analysis and Roadmap to Achieve Safe, Reliable Retrofits at Scale and draft customised regulatory instruments governing development, registration and inspection of retrofits.

Task 5: Final Retrofit Market Adoption Plan and Action Plan (and workshop)

- Conduct stakeholder mapping (e.g. ICE-moto owners, cooperatives, retrofit providers, financiers, regulators, insurance providers, etc.).
- Host a stakeholder workshop to address key findings of tasks 1 – 4 to get input around key implications for Rwanda and the development of the action plan.
- Assess ICE-moto owner capacity and willingness to pay for retrofits and adoption barriers.
- Assess potential aggregation mechanisms (e.g. e-moto companies, cooperatives, leasing companies, etc.).
- Consolidate prior analysis and develop a Market Adoption report, including findings on market adoption and how to address market concerns, as well as recommendations on how to feed into market cultivation activities.
- Develop a detailed Large Scale Motorcycle Retrofitting Action Plan aimed at achieving up to 30,000 retrofitted motorcycles by June 2030. The Action Plan will detail how to ensure safety and reliability of retrofitted motorcycles, cultivate market demand, establish an enabling retrofit government framework, and achieve significant scale.

Deliverable: Market Adoption Assessment Report and Action Plan.

5. Deliverables and reporting structure

The service provider will report to ICLEI Africa, who will coordinate input from relevant E-moto Project team members and partners. The Service Provider will integrate the RGF Rebate Scheme's activities into the Action Plan. All relevant documents will be provided to enable an understanding of the project and the current baseline to enable deliverables 1 and 2. The duration of the assignment shall not exceed four (4) months from the date of contract signature. The total budget for the assignment shall not exceed EUR 40,000, inclusive of all professional fees and other associated costs.

The following table summarises the deliverables.

Deliverables	Description	Indicative Timing
Inception report	The report will include methodology to be used, a revised workplan with milestones, outputs, anticipated risks and mitigation measures, activities, and budget allocation by task, as agreed with the E-Moto Project Team.	2 weeks after start
Task 1: International and Rwanda Retrofit Benchmark Assessment	This assessment includes an assessment of the Rwanda pilot retrofit programs and other countries where motorcycle retrofitting has been implemented, detailing implications for the Rwanda market. The analysis will provide best practices to guide the design and implementation of the large-scale Rwandan Retrofitting Action Plan.	1 month after start
Task 2: Technical Feasibility Assessment	The technical assessment evaluates the robustness, practicality, and implementation of the conversion (retrofitting) of internal combustion engine (ICE) motorcycles into electric motorcycles (e-motos). Technical requirements that need to be assessed in this assignment encompass engineering standards and requirements, mechanical suitability, certification of safety and reliability, ownership of the retrofit conversion kit, insurability of retrofitted motorcycles, and liability management.	2.5 months after start
Task 3: Comparative Financial Viability	The feasibility assessment should provide a detailed breakdown of conversion costs, comparison of costs between ICE-motos and e-	3 months after start

Deliverables	Description	Indicative Timing
Assessment (with excel model)	motos, the total cost of ownership comparative scenarios, and financial sustainability with regards to payback periods, Internal Rate of Return (IRR), Net Present Value (NPV), monthly rider savings among others. The analysis will take into consideration aspects such as affordability for riders, financing viability, and default risk. It should be in the form of both a written assessment report and an editable Excel model.	
Task 4: Regulatory Gap Analysis and Required Changes to Achieve Safe, Reliable Retrofits at Scale	The report will include assessments on the enabling policy, regulatory, and legal frameworks. Aspects that need to be included are the approval process of retrofitted vehicles, inspection and certification and registration procedures, battery disposal rules and hazardous waste management, and recommendations provided to guide the retrofitting program.	3.5 months after start
Task 5: Market Adoption Assessment and Action Plan (with workshop)	Tasks will include: i. Hosting of a workshop with industry stakeholders to get their insight into the final stage of this appointment, which should include assessment of the market readiness, possible risks such as poor conversion quality, reduced performance, limited maintenance capacity, supply chain disruptions, policy changes. ii. Developing a Market Adoption report that includes findings on market adoption and how to address market concerns, as well as recommendations on how to feed into market cultivation activities.	4 months after start

Deliverables	Description	Indicative Timing
	iii. Elaborating an Action Plan for adoption of large-scale retrofits that includes mitigation measures.	

Regular progress meetings shall be held bi-weekly to review progress reports and proposed next steps to meet targets and resolve issues.

All reports must be submitted in English in editable Word format and include an executive summary in the project branding to be issued to the successful bidder. The final report must be professionally presented and well edited, with a clear and logical structure, appropriate referencing where required, and written in clear, concise language with consistent terminology and no grammatical or typographical errors. A formal quality assurance process must be applied, including internal review by the Service Provider, incorporation of project team feedback, and final proofreading prior to submission.

The Service Provider may be requested to present findings or provide ad hoc technical support to the E-Moto Technical Hub, Steering Committee, or E-moto Project partners on an as-needed basis (reserve 3 days for this).

6. Service provider requirements

This engagement requires a team of experts with strong in-country experience and networks, combined with demonstrated technical expertise in mobility and transport economics, as well as regulatory and policy frameworks. At least one expert needs to have previously been actively engaged in retrofitting assignments where it has been applied successfully on a large scale.

The Service Provider must meet the following mandatory requirements and provide evidence for each:

6.1. Mandatory requirements

1. **Engineering expertise and professional qualifications**

- Demonstrated experience in assessing the safety and sustainability of cars and motorcycles retrofits through engineering evaluations is mandatory;
- Demonstrated experience in providing services for a large-scale motorcycle retrofitting program is mandatory;
- Capacity to assess optimal approaches to retrofitting to ensure safety and viability for moto taxis in Rwanda;
- Demonstrated knowledge of motorcycle mechanics (both ICE and electric powered);
- Proven experience in conducting economic and financial analyses;

- The evidence of relevant technical engineering studies conducted in the past 5 years is mandatory.

2. **Country knowledge**

- Knowledge of Rwandan government institutions accountable for regulating standards for moto taxi sector, especially retrofits.
- Demonstrated and relevant knowledge in operationalisation of motorcycle taxi industry in Rwanda is a mandatory requirement.
- Proposals from non-Rwandan-based consultants must demonstrate in-country operational capacity, including details of past relevant experience and achievements and as well local expert based in Rwanda.

3. **Critical availability requirement**

This assignment requires strong knowledge of the motorcycle industry in Rwanda and continuous interactions with the motorcycle players in the country. To this end, it requires at least one expert in the team to be a resident in or regularly physically be in Rwanda throughout the contract. This needs to be clarified in the bid. Remote-only engagement from outside Rwanda for all team members will not be accepted. Proposals that do not meet these requirements will not be considered.

6.2. Organisational requirements

- The Service Provider may be a single organisation having required experts or a consortium of experts.
- Consortia must clearly designate a lead expert and a letter of intent confirming the roles, responsibilities, and resource commitments of each expert.

7. Proposal submission requirements

Proposals must not exceed 20 pages (excluding CVs and annexes) and must address the following components:

1. **Country knowledge**

A concise description of the Service Provider's experience in Rwanda and knowledge of Rwandan institutional arrangements related to the taxi motorcycle industry.

2. **Relevant experience**

A summary of relevant prior experiences of team members, specifically focused on retrofits. Also include:

- A table of prior assignments listing the client's name, assignment scope, dates, estimated value, and contact reference for verification.

- Professional resume for all experts, with designated roles aligned to the ToR tasks, and highlighting relevant experience.
- Written confirmation of the availability for each key expert meeting the requirements in Section 6.2.
- Copies of or links to no more than three relevant prior assignments with deliverables.
- Contact details for at least two professional references relevant to this assignment.

3. Demonstrated understanding of the ToR

A concise statement demonstrating the Service Provider's understanding of the E-Moto Project context, and how prior experience positions the Service Provider to deliver the scope defined in this ToR. The Service Provider should identify the two or three most critical implementation challenges and describe their proposed approach to tackle each.

4. Methodology and approach

A detailed methodology covering the five tasks defined in Section 4. The methodology should demonstrate operational credibility, including for the design of the feasibility assessment and workplan. Given the scope, proposals should realistically demonstrate the certainty of delivery within 4 months.

6. Proposed outline for key deliverables

Proposed approach for the five tasks, demonstrating the Service Provider's understanding of what these tasks need to encompass.

7. Data and information needs

Identification of additional data, access, or information needed from the E-Moto Project Team or project partners, with proposed approaches for obtaining these.

8. Work plan and budget in Euros

A detailed financial proposal indicating the contribution of each member of the team and corresponding time allocation and budget must be provided, clearly setting out the proposed activities, the expert/s assigned to each task, the number of expert days allocated per task and the person-day rate per expert in EUR. The budget must be fully inclusive of all costs required to deliver the assignment and cannot exceed EUR 40,000.

8. Evaluation criteria

Proposals will be assessed by a review panel including representatives of the E-Moto Project Team using the following criteria:

Criterion	Key assessment factors
Technical qualifications and relevant experience	Qualifications of key experts, understanding and proven experience of motorcycle retrofitting programs, the required standards and best practices, as well as depth and relevance of experience.
Understanding Rwandan transport system and motorcycle industry	Proven experience and understanding the Rwandan transport system in general and demonstrated knowledge in operationalisation of motorcycle taxi industry in Rwanda.
Understanding of ToR, proposed methodology and deliverables	Demonstrated understanding of the ToR, credibility and operational realism of the proposed approach, quality of workplan, methodology and deliverable outlines.
Key personnel availability and team composition	Team composition and realistic deployment plan.
Financial proposal	Budget efficiency and reasonableness, clear cost breakdown, and value for money relative to proposed scope.

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