TECHNOLOGY ACTION PLAN FOR MITIGTION

KIRIBATI

TNA TECHNOLOGY NEEDS ASSESSMENT

UN environment programme

gef

UN environment programme

copenhagen climate centre

USP THE UNIVERSITY OF THE SOUTH PACIFIC

TNA Step 3 Report: Technology Action Plan for mitigation technologies in Kiribati.

Author: **Kireua Bureimoa** (Consultant for TNA Mitigation)
with contributions and inputs from KNEG Mitigation Working Group

Reviewed by:
Subash Dhar, Senior Scientist at UNEP Copenhagen Climate Centre,
and **Mr. Jasha Dehm**, USP, Fiji.

Ms. Takena Redfern, National TNA Coordinator, Climate Change and Disaster Risk Management Department, Office of Te Beretitenti, Kiribati.

Ms. Tekimwau Otiawa, Senior Climate Change Officer, Climate Change and Disaster Risk Management Department, Office of Te Beretitenti, Kiribati.

Report completed:9/7/2025

Forewords

Kiribati, as a member of the Small Island Developing States (SIDS) and classified as a Least Developed Countries (LDC), remains highly vulnerable to the adverse impacts of climate change. The country continues to experience the escalating effects of extreme weather events, including intense storms and sea-level rise. These impacts are already undermining Kiribati's development aspirations and the wellbeing of its people. Without urgent action to address the drivers of climate change and to support the most vulnerable sectors, these challenges will continue to intensify.

As a party to the United Nations Framework Convention on Climate Change (UNFCCCC), the Government of Kiribati remains fully committed to developing and implementing measures that build resilience across key development sectors while reducing greenhouse gas emissions from potential sources. The Kiribati Nationally Determined Contribution (NDC) outlines a number of mitigation measures aimed at enabling sustainable, low carbon development and strengthening climate resilience.

To support the implementation of the NDC and other national strategies, Kiribati is currently undertaking a Technology Need Assessment (TNA) to identify priority technology transfer investments, and to determine which environmentally sound technologies (ESTs) will be most effective in addressing climate change mitigation challenges.

Kiribati is proud to have successfully completed this last phase of the TNA process in this Technology Action Plan, from the initial completion of the Identification and Prioritization of the Technologies Report followed by the BAEF Report for mitigation was made possible through the active participation and contributions of key stakeholders, including representatives from line ministries, state-owned enterprises, and non-government organization. Through this collaborative process, the barriers to technology adoption and deployment, along with corresponding enabling measures, were clearly identified.

I would like to extend my sincere gratitude to the members of the TNA National Team from both public and private sector entities, as well as my colleagues from the Climate Change and Disaster Risk Department, for their invaluable contributions in completing this critical final step for the Technology Action Plan (TAP) development. I also wish to acknowledge the important contributions of the national consultants and the experts of UNEP Climate Change Center (UCCC) and the University of the South Pacific (USP) for their constant support and guidance for the implementation of the TNA project.

Mr. Tebwaatoki. T. Taawetia
Secretary
Office of Te Beretitenti

Executive Summary

In this Technology Needs Assessment (TNA) for Kiribati, the sector prioritization was guided from the selection and prioritization carried out in the first deliverable of the TNA process where the Land Transport sector was selected. Subsequently, the land transport six technologies were further evaluated and reviewed on their GHG emission potentials and viability using the multi criteria analysis (MCA) prioritization screening. This screening led to the following Electric Vehicles (EVs) priority listing:

1. **Electric Buses** (E-Buses)- for Government Ministries and SOEs.
2. **Electric Motorbikes** (E-Motorbikes**)** - to be provided by private businesses.
3. **Electric SUV/Saloon cars** (E-SUVs) - for Government Ministries and SOEs.

The second deliverable the barrier analysis and enabling framework (BAEF reports) identified preliminary targets for technology transfer and diffusion and barriers to the implementation of the prioritized technologies. Following prioritization of barriers, Logical Framework Analysis (problem/objective trees) and Market Mapping tools were used to decompose the barriers into their root causes. Finally, a set of enabling measures to enhance the diffusion of each technology was identified through analysis of objective trees and presented enabling frameworks to the development of the TAP which is the final step of the TNA process. The BAEF has highlighted that funding is an apex barrier in the diffusion and adoption of EVs technologies.

The last TNA deliverable Technology Action Plan (TAP) have been developed for these three prioritized technologies. The development of the action plans involved a series of consultation processes that ensured that the key stakeholders participated in the decisions making of formulating the plan. The lead agencies that deliberated at the stakeholders' workshop during the Retreat on the technology action plans included the Plant Vehicle Unit, Kiribati Green Energy Solution, Energy Department, Kiribati Land Transport Authority, Marine Transport, Environment Conservation Department, Climate Change Department as listed in the participant list in Annex 2.

In the TAP, financial planning on the key activities cost were estimated consciously by Stakeholders based on available information and may be further reconsidered during the concept proposal stage. In addition to this, pilot studies for EVs and solar charging stations are also of utmost importance since it will be a new technology in the country and it is imperative that proper studies are carried out to avoid unwarranted issues. The TAP has developed actions and activities surrounding this. A lack of local capacity in the implementation and operations of EVs requires education and training institutions to develop appropriate interventions in order to bridge the gaps. Furthermore, supportive policies and financial support are also required to support the diffusion of EVs market in Kiribati as a plausible way forward to achieve our NDC targets.

The current trajectory surpassed Kiribati's NDC Investment Plan target for the road transport sector GHG emission, set at **18.8 $ktCO_2$ by 2030**. In fact, recent data showed the road transport emission overtook this target in 2017 by 19.6 $ktCO_2$ and reached 32.3 $ktCO_2e$ in 2023. Therefore, transitioning to EVs emerges as a critical pathway to realigning with NDC targets and achieving net-zero emissions by 2050.

Table of Content

Abbreviations and Acronyms

ASEAN	Association of Southeast Asian Nation
BAEF	Barrier Analysis and Enabling Framework
BAU	Business as Usual
CCDRM	Climate Change and Disaster Risk Management Unit at OB
ESTs	Environmentally Sound Technologies
GEF	Global Environment Fund
GHG	Greenhouse Gases
GOK	Government of Kiribati
KNEG	Kiribati National Expert Group
MELAD	Ministry of Environment, Lands and Agricultural Development
MFED	Ministry of Finance and Economic Development
MICT	Ministry of Information Communication and Transport
MISE	Ministry of Infrastructure and Sustainable Energy
NDC	Nationally Determined Contribution
OB	Office of the President
PVU	Plant Vehicle Unit
SOEs	State Owned Enterprise
SUV	Sport Utility Vehicle
TNA	Technology Need Assessment
UNEP	United Nations Environment Programme
UCCC	UNEP Copenhagen Climate Centre
UNFCCC	United Nations Framework Convention on Climate Change
KCCI	Kiribati Chamber of Commerce
$ktCO_2e$	metric kilo ton of carbon dioxide (equivalents) or 1,000,000kg equivalent
USD / US$	United States Dollar
USP	University of the South Pacific

Introduction

Kiribati, and Tarawa in particular, faces significant challenges in its transportation system including reliance on traditional internal combustion engine vehicles. High costs, environmental degradation, and the growing need for sustainable mobility have prompted a national interest in electric vehicles (EVs). Their adoption is seen as a viable solution to reduce greenhouse gas emissions and improve air quality while lowering overall transportation expenses.

Under Kiribati's Technology Needs Assessment (TNA), the Land Transportation sector was selected for mitigation technology prioritization. The selection of the sector was carried out in Step 1 of the TNA process whereby the specific technology prioritized was EVs.

In Tarawa, the critical barriers limiting the adoption of EVs, including the lack of adequate charging network and the high initial costs of EVs. Moreover, socio-economic factors such as affordability and consumer awareness must be effectively addressed to ensure successful integration (Clean Energy Rides, n.d.). Lessons from other developing regions demonstrate that successful EVs adoption requires robust infrastructure, financial incentives, and public education campaigns. Experiences and policy implementations in other developing regions have shown that establishing robust infrastructure, offering financial incentives, and launching public education campaigns are crucial to overcoming these barriers (IEA, 2021).

The situational analysis based on the *Energy Statistic Yearbook* (EPU, 2020) and current energy data from Energy Department (2019 – 2023) depict that road transport greenhouse gas (GHG) emissions have increased more than two-fold from **12.4 $ktCO_2e$ /year in 2010** to **32.3 $ktCO_2e$ /year in 2023**. This also reflects the increasing number of internal combustion engine vehicles used annually.

The current trajectory surpassed Kiribati's NDC Investment Plan target for the road transport sector GHG emission, set at **18.8 $ktCO_2e$ /year by 2030**. In fact, recent data showed the road transport emission overtook this target in 2017 with 19.6 $ktCO_2e$ /year and reached 32.3 $ktCO_2e$ /year in 2023. Therefore, transitioning to EVs emerges as a critical pathway to realigning with NDC targets and achieving net-zero emissions by 2050.

Kiribati should prioritize battery electric vehicles for buses, sport utility vehicles (SUVs), cars, pickup trucks, and motorbikes, using DC motors powered exclusively by batteries. Furthermore, to negate GHG emission from the transport sector due to electrical charging from the grid and the limited capacity of the grid, utilizing independent solar charging station for charging EVs in Kiribati will be more beneficial as the sun hours are highest in Kiribati all year round. This will completely complement the national contribution on reducing GHG emission from the land transport sector in the transition to EVs.

The working group agreed that since to avoid increasing grid-dependent emissions (given limited capacity), EVs should rely on decentralized solar charging stations, leveraging Kiribati's abundant sunlight year-round. The idea was to start with the government transportation fleet first, focusing on EVs mostly used by government ministries and SOEs. After the framework and resources are well established, then it would be extended to the private

sectors. Whereas Electric motorbikes due to its fewer framework and infrastructure requirements as well as its comparatively low-cost implication, could be adopted by the private sector right away.

After identifying and selecting land transport technologies, the Barrier Analysis and Enabling Framework (BAEF) were designed through the use of the Logical Framework Analysis for Electric Buses and Electric SUVs/Saloon cars and Market Mapping Analysis for Electric Motorbikes.

The final three prioritized technologies for prepared for the Technology Action Plan process are listed as:

4. **Electric Buses** (E-Buses)- for Government Ministries and SOEs.
5. **Electric Motorbikes** (E-Motorbikes**)** - to be provided by private businesses.
6. **Electric SUV/Saloon cars** (E-SUVs) - for Government Ministries and SOEs.

The Technology Action Plans have been developed for these three prioritized technologies. The development of the action plans involved a series of consultation processes that ensured that the key stakeholders participated in decisions making to formulate the plan to ensure that the chosen measures are appropriate for our national context. This process utilized guiding criteria such as:

- Effectiveness: How effectively do these actions contribute to achieving the implementation target?
- Efficiency: Does the action facilitate implementation at the lowest possible cost in terms of human and financial resources?
- Interactions: Does the action align with existing policies?
- Suitability: Are the actions well-suited to the country context?
- Cost and benefits: Do the anticipated benefits outweigh the projected social, environmental, and economic costs?

The selected measures were turned into concrete action plans in accordance to the guidelines provided for the TAP report.

Chapter 1 Action Plan for the Electric Bus

1.1 Introduction

The move toward electric transportation is essential for meeting environmental targets and reducing greenhouse gas emissions. Building on global evidence demonstrating the cost-effectiveness and environmental advantages of battery electric buses (Dirks et al., 2021; Holland et al., 2020), this plan adapts these insights to Kiribati's context, focusing on integrating E-Buses into Tarawa's public sector transport network. With a strategic focus on government ministries and schools, the plan aims to serve as a model for sustainable urban mobility.

While electric buses and solar charging infrastructure are mature technologies widely adopted in developed countries—with China leading global supply and deployment—their commercial viability in Kiribati remains untested. Private-sector adoption is currently limited by high costs

and lack of operational capacity. Thus, a public-sector-led approach, starting with government ministries and SOEs, is proposed to ensure manageable infrastructure and policy development.

Electric Buses for government ministries and SOEs were prioritized to pilot this technology in Kiribati, given the need for centralized oversight. Key to this effort is establishing reliable charging infrastructure, including depot stations at government complexes and schools, supplemented by opportunity charging at transit nodes to minimize downtime.
The transition to Electric Buses is projected to yield substantial environmental benefits. Holland et al. (2020) report significant annual reduction in air pollution and greenhouse gas emissions, with estimated economic benefits amounting to millions of dollars in improved air quality and associated public health outcomes. These benefits will directly contribute to reducing the burden of disease and enhancing the overall quality of life.

Additionally, economic analysis indicates a potential offset of initial capital as a result of long-term operational savings and reduced fuel costs, thereby providing a compelling financial return on investment while contributing to national sustainability goals.

1.2 Ambition for the TAP

The integration of electric buses requires a multi-phase strategy that encompasses planning, infrastructure development, training, and procurement. Building on the findings from Dirks et al. (2021), a cost-optimal, long-term transition plan is essential for minimizing total cost of ownership while maximizing environmental benefits in Tarawa's unique island context.

The overall intention of the TNA is to address the escalating GHG emission and pollution from Tarawa's transport sector by converting the Government ministries and SOE's current ICE bus transports to E-Buses with respective independent solar charging station established at the office parking space.

The Government targets 26% E-Buses adoption in its fleet by 2027, starting with 20 E-buses for selected institutions to reduce emissions by 0.47 kt CO_2/year.,

Formula to calculate greenhouse gas (GHG) emissions for E-Buses:

GHG emissions (kg CO2e) = Electricity Consumption (kWh) * Emission Factor (kg CO2e/kWh).

Assume the E-Buses energy efficiency is 1.65 kWh/km and the daily route is 100 km. Therefore, the total energy used for E-Bus is around 165kWh. Also, the GHG energy conversion factor is 0.545 kg CO2/kWh,

Using the formula GHG emission	= 165kWh x 0.545 kg CO2/kWh
GHG emission daily	= 89.925 kg CO_2/dayGHG
emission (working days 260)	= 89.925 x 260 = 23,380.50 CO_2/year
or	= 0.023 kt CO_2/year
Now using project 77 E-Buses	= 77 x 0.023 kt CO_2/year
	= 1.847 kt CO_2/year

The Stakeholders agreed to set the **Ambition** as follows:

A full-scale public E-Buses will be implemented up to 77 E-Buses for 53 Institutions with 9.24 kt CO2/year emission by 2030 (5 years).

1.3 Actions and Activities selected for inclusion in the TAP

Since Electric Bus would be a new technology for Kiribati, there are substantial challenges and risks, categorized as Barriers and Measures, and are identified in the BAEF report. Through comprehensive stakeholder-driven analysis that included barrier identification and systematic evaluation of enabling frameworks, specific actions and activities were determined for inclusion in this Technology Action Plan (TAP), as detailed in Table 1.1.

Table 1.1. Action and Activities for Electric Buses

Action	Activities
1. Establish appropriate institutional set up for the TAP	1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.
	1.2 Concept note and project proposal development.
	1.3 Hold a workshop for technology development financers
2. Improve access to product and services	2.1 PVU to establish joint venture with E-Buses suppliers
	2.2 KGES to establish joint venture with solar company
3. Procurement of product and services	3.1 Acquisition of E-Buses (estimated released cost @ $152,400 each)
	3.2 Procurement solar charging system (estimated released cost @ $102,000 each)
4. Strengthening human resource capacities	4.1 Strengthening KIT on EV training programmes
	4.2 Training of PVU mechanics/operators
	4.3 Training of KGES technicians on solar charging systems
	4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)
5. Centralizing and digitalizing of data/information	5.1 Collection of E-Buses and solar charging systems data
	5.2 Developing of E-Buses and solar charging systems database
	5.3 Improving accessibilities for E-Buses and solar charging systems database
	5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies
6. Design communication strategy and education campaign	6.1 Develop strategy to include clean energy initiatives into school curriculum
7. Review of existing regulations and policies	7.1 Secure funding to support policy review
	7.2 Conduct consultant-led policy review workshops

	7.3 Cabinet paper on the reviewed/revised regulations
8. Awareness workshop	8.1 Developed and provide Pamphlet, posters, flyers, etc
	8.2 Promotional design on the sides of each E-Buses (each bus $1,013)
9. Securing partnership for recycle and maintenance	9.1 Partnership guide developed that include process of how to select companies for recycle
	9.2 Develop MOU with companies for recycling and maintenance
	9.3 Evaluate the partnership for further improvement and recommendation

1.4 Stakeholders and Timeline for implementation of TAP

The CCDRMD (Climate Change and Disaster Risk Management Division) is the focal point for coordinating the TNA project activities with key stakeholders. The Ministry of Infrastructure and Sustainable Energy and the Energy Department will work on the policies and amendments to the existing legislation for supporting the E-Buses. Plant Vehicle Unit will be responsible for procuring, supplying and providing maintenance programs to the E-Buses while the Kiribati Green Energy Solution will be responsible procuring, installing and providing maintenance support to solar charging stations for the E-Buses. The Ministry of Information, Communication and Transport with the Kiribati Land Transport Authority (KLTA) will provide regulations and monitoring of E-Buses. The Kiribati Technical Institute (KTI) will be responsible for improving the capacity building on Electric Buses to staff and students who will be able to work in the industry. The Ministry of Finance and Economic Development will provide guidance on accessing the funds to recipient entities and managing the project fund disbursements and acquittal.

Table 1.2 outlines the proposed timelines with respective stakeholders that need to be involved at each stage. The timelines are estimates only. These can serve as a guideline for achieving the goals set in the TAP. The progress and findings will be ongoing and the timelines can be amended as new information becomes available.

Table 1.2: Electric Bus Timeline

Activities	Implementing Agency	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027	Q2 2027	Q3 2027	Q4 2027	Q1 2028	Q2 2028	Q3 2028	Q4 2028	Q1 2029	Q2 2029	Q3 2029	Q4 2029
1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	Ministry of Finance and Economic Development (MFED)																		
1.2 Concept note and project proposal development.	MFED																		
1.3 Hold a workshop for technology development financers	MFED																		
2.1 PVU to establish joint venture with E-Buses suppliers	Plant Vehicle Unit (PVU)																		
2.2 KGES to establish joint venture with solar company	Kiribati Green Energy Solution (KGES)																		
3.1 Acquisition of E-Buses (estimated released cost @ $152,400 each)	PVU/MFED																		
3.2 Procurement solar charging system (estimated released cost @ $102,000 each)	KGES/MFED																		
4.1 Strengthening KIT on EV training progrmammes	Kiribati Institute of Technology (KIT)																		
4.2 Training of PVU mechanics/operators	PVU																		
4.3 Training of KGES technicians on solar charging systems	KGES																		
4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)	PVU/KGES																		
5.1 Collection of E-Buses and solar charging systems data	Ministry of Information Communication and Transport (MICT)																		
5.2 Developing of E-Buses and solar charging systems database	MICT																		
5.3 Improving accessibilities for E-Buses and solar charging systems database	MICT																		
5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	MICT																		
6.1 Develop strategy to include clean energy initiatives into school curriculum	Ministry of Education (MOE)																		
7.1 Secure funding to support policy review	Ministry of Infrastructure and Sustainable Energy (MISE)																		
7.2 Conduct consultant-led policy review workshops	MISE																		
7.3 Cabinet paper on the reviewed/revised regulations	MISE																		
8.1 Developed and provide Pamphlet, posters, flyers, etc	MISE																		
8.2 Promotional design on the sides of each E-Buses (each bus $1,013)	MISE																		
9.1 Partnership guide developed that include process of how to select companies for recycle	MISE (KGES), Mitigation Group																		
9.2 Develop MOU with companies for recycling and maintenance																			
9.3 Evaluate the partnership for further improvement and recommendation																			

1.5 Estimation of Resources Needed for Action and Activities

Since E-Buses is new technology in the country, it is anticipated that current local capacities will not be available. However, as E-Buses technicalities are more simple and limited components existing PVU staff could be trained from external experts or sent for internship programs. The same applies to KGES for the solar charging infrastructure for the E-Buses. The KIT will be strengthened so that it can provide technical training on E-Buses and solar charging of E-Buses. Local trained experts are recommended to increase the capacity of locals and retain the know-how within the country. Entities responsible for economics and financing, reviewing policies, legislations, awareness/promotion in support for E-Buses will be strengthened and would also allow for efficient liaison with stakeholders, organizing visits, logistics, workshops and consultations, and providing information.

The Project activities cost are estimates and could be reviewed during the course of the project implementation. Table 1.3 provides details on the availability of local capacity and the training requirement priority for the project with project cost.

Table 1.3: E-Bus activities estimated costs

Activities	Budget per activity USD
1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	80,000.00
1.2 Concept note and project proposal development.	20,000.00
1.3 Hold a workshop for technology development financers	15,000.00
2.1 PVU to establish joint venture with E-Buses suppliers	60,000.00
2.2 KGES to establish joint venture with solar company	60,000.00
3.1 Acquisition of E-Buses (estimated released cost @ $152,400 each)	12,039,600.00
3.2 Procurement solar charging system (estimated released cost @ $102,000 each)	8,058,000.00
4.1 Strengthening KIT on EV training programmes	50,000.00
4.2 Training of PVU mechanics/operators	50,000.00
4.3 Training of KGES technicians on solar charging systems	50,000.00
4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)	20,000.00
5.1 Collection of E-Buses and solar charging systems data	10,000.00
5.2 Developing of E-Buses and solar charging systems database	10,000.00
5.3 Improving accessibilities for E-Buses and solar charging systems database	20,000.00
5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	15,000.00
6.1 Develop strategy to include clean energy initiatives into school curriculum	20,000.00
7.1 Secure funding to support policy review	Not applicable

7.2 Conduct consultant-led policy review workshops	60,000.00
7.3 Cabinet paper on the reviewed/revised regulations	Not applicable
8.1 Developed and provide Pamphlet, posters, flyers, etc	5,000.00
8.2 Promotional design on the sides of each E-Buses (each bus $1,013)	80,000.00
9.1 Partnership guide developed that include process of how to select companies for recycle	Not applicable
9.2 Develop MOU with companies for recycling and maintenance	10,000.00
9.3 Evaluate the partnership for further improvement and recommendation	
	20,732,600.00

1.6 Management Planning

The implementation of E-Buses in Tarawa's government fleet is envisioned as a multi-phased project spread over several years. The timeline is divided into distinct phases, each building upon the progress of the previous one while ensuring that any challenges encountered during earlier stages are effectively addressed.

Phase 1: Pilot Program (Year 1)
The initial phase includes:

- Procurement of a limited number approximately 20 of E-Buses for initial testing and evaluation.
- Installation of a pilot network of fast-charging stations at key government facilities.
- Deployment of training programs for technicians and drivers who will operate and maintain the new vehicles.
- Establishing a monitoring framework to analyze vehicle performance, infrastructure efficiency, and user feedback.

Phase 2: Evaluation and Capacity Building (Years 2-3)
Based on insights from the pilot program, the following steps should be taken:

- A comprehensive evaluation of the pilot program's outcomes to assess vehicle performance, environmental benefits, and economic returns.
- Scaling up to cover all government ministries and SOEs.
- Further training initiatives aimed at broader workforce development, ensuring widespread technical competence.
- Initial procurement targets for additional E-Buses to progressively replace aging vehicles in the fleet.

Phase 3: Full-Scale Integration (Years 4-5)
The final phase will involve:

- A gradual transition from pilot numbers to a complete replacement of government vehicles with E-Buses in the identified urban region.
- Full integration of charging infrastructure with smart grid technologies and renewable energy sources to optimize energy use.

- Ongoing monitoring and evaluation to maintain high efficiency and address potential technological upgrades.
- Establishment of long-term sustainability milestones, including annual reductions in greenhouse gas emissions and other environmental impact indicators.

Each phase of implementation will be reviewed by a dedicated oversight committee consisting of senior officials from the key stakeholders, finance, and infrastructure sectors. This committee will ensure that the project remains on track, adheres to budgetary constraints, and continues to meet the evolving needs of the government transport system.

The group had identified key risks and their associated contingency actions as shown in Table 1.4

Table 1.4: Table of Risk and contingency plans

Activities	Risks	Description	Contigency Action
1.1 Institutional and Policy review and risk management tools for tax incentives and	Risk to GoK revenue budget	Low revenue collectd from reduced tarrif	Explore additional funding opportunities, including international climate funds, grants, and public-private partnerships.
2.1 PVU to establish joint venture with e-bus suppliers	Collaboration risk and lack of interest by parties. Political instability.	No Supplier is interested in the Joint Venture	Identify Alternative Suppliers: Develop a list of alternative suppliers to avoid reliance on a single source, reducing the impact of any supply chain disruptions.
Procurement	Delay in delivery due to our remoteness	Disruptions in the global supply chain could delay the delivery of project materials	Place orders well in advance and maintain strong relationships with suppliers to mitigate potential delays.
4.1 Strengthening KIT on EV training progrmammes	Availability of experts for strenthening KIT capacity to conduct EV Training	Lack of expert to conduct training on EV infrastructure	Invest in comprehensive training programs. Partner with international experts or companies with experience in EV
7.2 Consultant/workshop review on the existing policies	Availability of expert for the review on existing policies and legislation to support EV	Delays or changes in government policies and regulations could create uncertainty thus hindering progress.	Identify alternative experts from the list list of alternative expert to avoid reliance on a single source.
8.1 Developed and provide Pamphlet, posters, flyers,etc	Limited public acceptnce on E-Buses	Resistance from the public due to a lack of awareness or trust on E-Buses	Intensify efforts to educate the public on the long-term benefits, cost savings, and environmental impacts of E-Buses

According to Halla (2024), by proactively identifying these risks and implementing the associated contingency actions, the likelihood of achieving the goals of the TAP can be significantly increased. Next, it is important to identify the immediate requirements to proceed and the critical steps to succeed.

Critical steps to ensure success:

1. Establish a robust project management framework with clear governance structures, timelines and accountability measures.
2. Foster participatory, early and active stakeholder engagement and coordination to ensure a shared understanding and commitment to the TAP objectives and workplan and clear lines of communication established.
3. Develop detailed workplan focused on phased implementation and flexibility allowing for adjustments based on initial outcomes, stakeholder feedback and changing circumstances.

1.7 TAP Overview Planning

Ambition	**A full-scale public E-Buses will be implemented up to 77 E-Buses for 53 Institutions with a saving in GHG within 5 years**							
Action	**Activities**	**Sources of funding**	**Implementing Agency**	**Timeframe**	**Risks**	**Success criteria**	**Indicators for monitoring of implementation**	**Budget per activity USD**
1. Establish appropriate institutional set up for the TAP	1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	Green Climate Fund (GCF)	Ministry of Finance and Economic Development (MFED)	12 months	Risk to GoK revenue budget	Establishment of incentive policies and 70% of risk management tools and techniques organize and utilize within 5 years	No. of Tax incentives. Increase in E-Buses imported	80,000.00
	1.2 Concept note and project proposal development.	GCF	MFED	3 months	Availability of experts	Proposal accepted and grants solicited from donors	Donor funded projects	20,000.00
	1.3 Hold a workshop for technology development financers	GCF	MFED	1 month	Availability of expert	increase of technology development financers	number of technology development financers	15,000.00
2. Improve access to product and services	2.1 PVU to establish joint venture with E-Buses suppliers	GCF	Plant Vehicle Unit (PVU)	1 month	Collaboration risk and lack of interest by parties. Political instability.	establishment of a JV collaboration	complete establishment of a new JV company	60,000.00

	2.2 KGES to establish joint venture with solar company	GCF	Kiribati Green Energy Solution (KGES)	1 month	Collaboration risk and lack of interest by parties. Political instability.	establishment of a JV collaboration	successful JV collaboration	60,000.00
3. Procurement of product and services	3.1 Acquisition of E-Buses (estimated released cost @ $152,400 each)	GCF	PVU/MFED	36 months	product substitute and cost inflation.	80% of the total intended E-Buses to be purchased, acquired within the 5 years	number of E-Buses acquired	12,039,600.00
	3.2 Procurement solar charging system (estimated released cost @ $102,000 each)	GCF	KGES/MFED	36 months	product substitute and cost inflation.	80% of the total intended charging stations installed within the 5 years	number of charging stations installed	8,058,000.00
4.Strengthening human resource capacities	4.1 Strengthening KIT on EV training programs	GCF	Kiribati Institute of Technology (KIT)	9 months	Availability of experts	60 % of KIT equipment well equipped and well skilled staff and output of qualified technicians	number of qualified technicians, number of KIT qualified E-Buses lecturers, number of E-Buses tools and equipment acquired	50,000.00
	4.2 Training of PVU mechanics/operators	GCF	PVU	6 months	Staff turnover	80% of current PVU mechanic and operators are qualified E-Buses mechanics and operators, 20%	number of PVU qualified E-Buses mechanics and operators, number of E-Buses tools and spares etc..	50,000.00

						increase in E-Buses tools and equipment and spares etc..,		
	4.3 Training of KGES technicians on solar charging systems	GCF	KGES	6 months	Staff turnover	80% of current KGES technicians are qualified E-Buses charging stations technicians ,80 % increase in E-Buses charging station	number of PVU qualified E-Buses charging station technicians, number of E-Buses charging station established	50,000.00
	4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)	GCF	PVU/KGES	3 months	Staff turnover	80% increase the number of work attachments on E-Buses and charging station maintenance	number of work attaches	20,000.00
5. Centralizing and digitalizing of data/information	5.1 Collection of E-Buses and solar charging systems data	GCF	Ministry of Information Communication and Transport (MICT)	12 months	Data limitation	80% of national data collection	establishment of a national data	10,000.00
	5.2 Developing of E-Buses and solar charging systems database	GCF	MICT	12 months	Data security	80% of national database developed	establishment of national database	10,000.00

	5.3 Improving accessibilities for E-Buses and solar charging systems database	GCF	MICT	12 months	Network connectivity	80%of targeted institutions accessing national database	number of people having access to database	20,000.00
	5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	GCF	MICT	4 months	Availability of experts	80% of targeted institutions aligning mandate with clean energy	number of institutions aligning mandate, number of workshop and awareness conducted	15,000.00
6. Design communication strategy and education campaign	6.1 Develop strategy to include clean energy initiatives into school curriculum	GCF	Ministry of Education (MOE)	12 months	relevance and acceptance to the subject	part of clean energy is included in the curriculum	revise curriculum includes a number of clean energy technology	20,000.00
7. Review of existing regulations and policies	7.1 Secure funding to support policy review	GOK	Ministry of Infrastructure and Sustainable Energy (MISE)	6 months	lack of donor interest	2/3 of existing of regulations and policies reviewed and revise to include clean energy approach	number of updated regulations	
	7.2 Conduct consultant-led policy review workshops	GCF	MISE	12 months	Availability of expert	80% of existing policies reviewed and revised	the number of consultants engaged, number of workshops conducted and revised	60,000.00
	7.3 Cabinet paper on the reviewed/revised regulations	GOK	MISE	3 months	Cabinet issue	cabinet approval	number of cabinet papers developed	

8. Awareness workshop	8.1 Developed and provide Pamphlet, posters, flyers, etc.	GCF	MISE	3 months	Printery issue	100% availability of Pamphlet	number of pamphlet and poster, flyers, etc printed and distributed	5,000.00
	8.2 Promotional design on the sides of each E-Buses (each bus $1,013)	GCF	MISE	36 months	Lack of resource and quality	100% displayed of promotional designed	number of promotional designs displayed	80,000.00
9. Securing partnership for recycle and maintenance	9.1 Partnership guide developed that include process of how to select companies for recycle	MAF, GCF	MISE (KGES), Mitigation Group	10 months	Lack of recycling facilities for bigger items	Cabinet approval	Number of companies secured and MOU signed	
	9.2 Develop MOU with companies for recycling and maintenance					MOU review		10,000.00
	9.3 Evaluate the partnership for further improvement and recommendation							
								20,732,600.00

Chapter 2 Action Plan for the Electric Motorbike

2.1 Introduction

Electric motorbikes (E-Motorbikes), including both 2-wheel and 3-wheel models, are a fully commercialized technology widely adopted, with the largest market in Asian countries. In 2023, the total sales of E-Motorbikes reach record level, with China leading production and sales, which accounted for 78% with nearly 6 million electric 2Wheels sold, followed by India 880 000 sold and ASEAN countries with a total of 380 000 sold (IEA, 2024).

This action plan outlines a strategy for promoting electric motorbike adoption in Kiribati, recognizing benefits such as reduced GHG emissions, improved air quality, and economic savings. The plan proposes including reduced GHG emissions, improved air quality, and economic savings. this plan proposes a structured approach aimed at achieving a 30% adoption rate annually. Key components include the development of a robust charging infrastructure that can be installed at home, targeted financial incentives and subsidies, consumer awareness campaigns, and supportive policy frameworks that consider the socio-economic context of Tarawa.

Stakeholders agreed that private businesses should lead the diffusion of this technology. The plan is tailored for policymakers and transport planners, focusing on integrating sustainable transportation solutions while addressing infrastructure, economic, and environmental challenges to support private businesses.

Furthermore, Government support in providing grants and loans for the private sectors will boost the wider scale uptake especially in the outer islands where fuel outage is becoming a new normal. The strategy adapts lessons from other developing nations while tailoring measures to Kiribati's unique context (EV EXPOSE, n.d).

2.2 Ambition for the TAP

The primary objective of this action plan is to achieve a 90% of existing motorbikes be replaced with E-Motorbikes bike in Kiribati by 2030. The strategy is underpinned by several key objectives:

- Infrastructure Development: Establish a network of strategically located charging stations including urban centers, public transport hubs, and major thoroughfares.
- Socio-Economic Accessibility: Reduce the economic barriers to E-Motorbikes ownership through subsidies, tax incentives, and flexible finance options.
- Public Awareness and Education: Launch information campaigns to promote the environmental and economic benefits of electric motorbikes.
- Supportive Policy Framework: Develop regulatory measures, fiscal policies, and industry incentives that foster the growth of E-Motorbikes infrastructure and technology.
- Environmental Sustainability: Reduce greenhouse gas emissions and improve urban air quality while contributing to broader climate change mitigation efforts.

Stakeholders agreed to set the **Ambition** as follows:

Developing a private sector business to deploy 2,000 E-Motorbike as a consumer good, with solar charging for private users with a saving of 0.8 kt CO2 in the first year and then scale up to obsolete all ICE motorbikes and new imported motorbikes to be E-Motorbikes in the next 5 years.

2.3 Actions and Activities selected for inclusion in the TAP

Stakeholders identified key barriers and enabling factors through a systematic analysis. The selected actions and activities for the TAP are summarized in Table 2.1

Table 2.1: E-Motorbike action and activities

Action	Activities
1. Establish appropriate institutional set up for the TAP	1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.
	1.2 Concept note and project proposal development.
	1.3 Hold a workshop for technology development financers
2. Improve access to product and services	2.1 Private sector business to establish joint venture with E-Motorbikes suppliers
	2.2 Private sector business to establish joint venture with solar company
3. Procurement of product and services	3.1 Acquisition of E-Motorbikes
	3.2 Procurement solar charging system
4. Strengthening human resource capacities	4.1 Strengthening KIT on E-Motorbikes and solar charging
	4.2 Training of Private sector mechanics/operators
	4.3 Training of private technicians on solar charging systems
	4.4 Private sector business to provide placement for attachment training PPEs (personal protective equipment)
5. Centralizing and digitalizing of data/information	5.1 Collection of E-Motorbikes and solar charging systems data
	5.1 Collection of E-Motorbikes and solar charging systems data
	5.2 Developing of E-Motorbikes and solar charging systems database
	5.3 Improving accessibilities for E-Motorbikes and solar charging systems database
6. Design communication strategy and education campaign	6.1 Develop strategy to include clean energy initiatives into school curriculum
7. Review of existing regulations and policies	7.1 Secure funding to support policy review
	7.2 Conduct consultant-led policy review workshops
	7.3 Cabinet paper on the reviewed/revised regulations
8. Awareness workshop	8.1 Developed and provide Pamphlet, posters, flyers, etc
	8.2 Promotional design on the sides of each E-Motorbike (@ $5 each)
9. Securing partnership for recycle and maintenance	9.1 Partnership guide developed that include process of how to select companies for recycle
	9.2 Develop MOU with companies for recycling and maintenance
	9.3 Evaluate the partnership for further improvement and recommendation

2.4 Stakeholders and Timeline for implementation of TAP

The CCDRMD is the focal point for coordinating the TNA project activities with key stakeholders. The MISE and the Energy Department will work on the policies and amendment to the existing legislation for supporting the E-Motorbikes. The KCCI will be responsible to coordinate with the business sectors dealing with motorbikes and solar charging systems. The KLTA will provide regulations and monitoring of E-Motorbikes. The KTI will be responsible for improving the capacity building on EV to staff and students who will be able to work in the E-Motorbikes industry. The Ministry of Finance and Economic Development will provide guidance on accessing the funds to recipient entities and managing the project fund disbursements and acquittal.

Table 2.2 outlines the proposed timelines with respective stakeholders that need to be involved at each stage. The timelines are estimates only. These can serve as a guideline for achieving the goals set in the TAP. The progress and findings will be ongoing and the timelines can be amended as new information becomes available.

Table 2.2: Project tentative timeline

Activities	Implementing Agency	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027	Q2 2027	Q3 2027	Q4 2027	Q1 2028	Q2 2028	Q3 2028	Q4 2028	Q1 2029	Q2 2029	Q3 2029	Q4 2029
1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	MFED																		
1.2 Concept note and project proposal development.	MFED																		
1.3 Hold a workshop for technology development financers	MFED																		
2.1 Private sector business to establish joint venture with e-motorbike suppliers	KCCI & KC																		
2.2 Private sector business to establish joint venture with solar company																			
3.1 Acquistion of e-motorbike	KCCI																		
3.2 Procurement solar charging system	KCCI																		
4.1 Strengthening KIT on E-motorbike	MEHR/KIT																		
4.2 Strengthening of Private sector mechanics/operators	KCCI																		
4.3 Training of KGES technicians on solar chargining systems	KIT/KGES																		
4.4 Private sector business to provide placement for attachment and training (safety kits)	KCCI/KGES																		
5.1 Collection of E-Motorbikes and solar charging systems data	MICT																		
5.2 Developing of E-Motorbikes and solar charging systems database	MICT																		
5.3 Improving accessibilities for E-Motorbikes and solar charging systems database	MICT																		
5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	MICT																		
6.1 Develop strategy to include clean energy initiatives into school curriculum	MOE																		
7.1 Secure funding to support policy review	MISE																		
7.2 Consultant/workshop review on the existing policies	MISE																		
7.3 Cabinet paper on the reviewed/revised regulations	MISE																		
8.1 Developed and provide Pamphlet, posters, flyers,etc	KCCI																		
8.2 Promotional design on the sides of each motor-bike	KCCI																		
9.1 Partnership guide developed that include process of how to select companies for recycle	KCCI and Mitigation Group																		
9.2 Develop MOU with companies for recycling and maintenance																			
9.3 Evaluate the partnership for further improvement and recommendation																			

2.5 Estimation of Resources Needed for Action and Activities

As E-Motorbikes are a new technology in the country, it is anticipated that current local capacities will not be available. However, as the technology is simpler with limited main components local mechanics could be trained from external experts or send for internship programs. The same applies to small sized solar charging infrastructure. The KCCI will be coordinating the project roll out with respective local private business dealing with motorbikes and solar system. The KIT will be strengthened so that it can provide technical training on E-Motorbikes and solar charging of E-Motorbikes. Training local experts will build domestic capacity and retain technical knowledge within Kiribati. Entities responsible for economics and financing, reviewing policies, legislations, awareness/promotion in support for E-Motorbikes will be strengthened and would also allow for efficient liaison with stakeholders, organizing visits, logistics, workshops and consultations, and providing information.

Project activity costs are estimates and may be revised during the cause of the project implementation. Table 2.3 provides details on the availability of local capacity and the training requirement priority for the project with project cost.

Table 2.3: Electric Motorbike plan activities estimated cost

Activities	Budget per activity USD
1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	80,000.00
1.2 Concept note and project proposal development.	20,000.00
1.3 Hold a workshop for technology development financers	15,000.00
2.1 Private sector business to establish joint venture with e-motorbike suppliers	20,000.00
2.2 Private sector business to establish joint venture with solar company	20,000.00
3.1 Acquisition of e-motorbike	6,552,000.00
3.2 Procurement solar charging system	3,240,000.00
4.1 Strengthening KIT on E-motorbike	50,000.00
4.2 Strengthening of Private sector mechanics/operators	20,000.00
4.3 Training of KGES technicians on solar charging systems	10,000.00
4.4 Private sector business to provide placement for attachment and training (safety kits)	5,000.00
5.1 Collection of E-Motorbikes and solar charging systems data	10,000.00
5.2 Developing of E-Motorbikes and solar charging systems database	10,000.00
5.3 Improving accessibilities for E-Motorbikes and solar charging systems database	20,000.00
5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	15,000.00
6.1 Develop strategy to include clean energy initiatives into school curriculum	20,000.00
7.1 Secure funding to support policy review	
7.2 Consultant/workshop review on the existing policies	20,000.00
7.3 Cabinet paper on the reviewed/revised regulations	

8.1 Developed and provide Pamphlet, posters, flyers, etc.	1,000.00
8.2 Promotional design on the sides of each motorbike	10,000.00
9.1 Partnership guide developed that include process of how to select companies for recycle	
9.2 Develop MOU with companies for recycling and maintenance	10,000.00
9.3 Evaluate the partnership for further improvement and recommendation	
	10,148,000.00

2.6 Management Planning

The implementation of this technology action plan spans four years, divided into three main phases: planning, execution, and evaluation.

Phase 1: Planning and Stakeholder Engagement (Year 1)
Key Activities:

- Establish a steering committee comprising policymakers, transport planners, industry experts, and community representatives.
- Conduct a detailed feasibility study to map potential locations for rural businesses who can assist in the training on operation and maintenance of E-Motorbikes and home solar charging system for rural customers.
- Initiate partnerships with private sector stakeholders, including local businesses and international investors, to finance infrastructure projects.
- Develop a comprehensive public awareness strategy to educate potential users about E-Motorbikes.

Phase 2: Execution and Infrastructure Deployment (Years 2-3)
Key Activities:

- Roll out the first wave of deployments in high-priority zones such as islands with high use of motorbikes.
- Launch financial incentive programs aimed at reducing the upfront purchase cost of electric motorbikes through subsidies and tax breaks.
- Implement pilot projects for mobile charging units and battery swapping stations, evaluating their effectiveness and scalability.
- Expand public education efforts through workshops, demonstration projects, and community outreach programs

Phase 3: Evaluation, Policy Adjustment, and Scale-Up (Year 4)
Key Activities:

- Monitor the performance of E-Motorbikes and solar charging system for the motorbikes and gather user feedback.
- Adjust policies and incentive programs based on empirical data and stakeholder feedback.
- Plan for further scale-up and related initiatives in preparation for long-term sustainability.

- A robust project management framework will support these phases, with milestones and timelines clearly defined to ensure accountability and measurable progress toward the 30% adoption target.

The Stakeholders had identified the key risks and their associated contingency actions to E-Motorbikes as shown in Table 2.4

Table 2.4: Table of Risk and contingency plans

Risks	Description	Contingency Action
Risk to GoK revenue budget	Low revenue collected from reduced tax and duty exemptions.	Explore additional funding opportunities, including international climate funds, grants, and public-private partnerships.
Collaboration risk and lack of interest by parties. Political instability.	No Supplier is interested in the Joint Venture	Identify Alternative Suppliers: Develop a list of alternative suppliers to avoid reliance on a single source, reducing the impact of any supply chain disruptions.
Delay in delivery due to our remoteness	Disruptions in the global supply chain could delay the delivery of project materials	Place orders well in advance and maintain strong relationships with suppliers to mitigate potential delays.
Availability of experts for strengthening KIT capacity to conduct EV Training	Lack of expert to conduct training on E-Motorbikes infrastructure	Invest in comprehensive training programs. Partner with international experts or companies with experience in E-Motorbikes
Availability of expert for the review on existing policies and legislation to support E-Motorbikes	Delays or changes in government policies and regulations could create uncertainty thus hindering progress.	Identify alternative experts from the list of alternative experts to avoid reliance on a single source.
Limited public acceptance on E-Motorbikes	Resistance from the public due to a lack of awareness or trust on E-Motorbikes	Intensify efforts to educate the public on the long-term benefits, cost savings, and environmental impacts of E-Motorbikes

According to Halla (2024), by proactively identifying these risks and implementing the associated contingency actions, the likelihood of achieving the goals of the TAP can be significantly increased. Next, it is important to identify the immediate requirements to proceed and the critical steps to succeed.

Critical steps to ensure success:

- Establish a robust project management framework with clear governance structures, timelines and accountability measures.
- Foster participatory, early and active stakeholder engagement and coordination to ensure a shared understanding and commitment to the TAP objectives and workplan and clear lines of communication established.

Develop detailed workplan focused on phased implementation and flexibility allowing for adjustments based on initial outcomes, stakeholder feedback and changing circumstances.

2.7 TAP Overview Planning

Ambition	**Developing a private sector business to deploy 2,000 electric E-Motorbike as a consumer good, with solar charging for private users with a saving of 0.8 kt CO2 in the first year and then scale up to obsolete all ICE motorbikes and new imported motorbikes to be E-Motorbikes in the next 5 years.**							
Action	**Activities**	**Sources of funding**	**Implementing Agency**	**Timeframe**	**Risks**	**Success criteria**	**Indicators for monitoring of implementation**	**Budget per activity USD**
1. Establish appropriate institutional set up for the TAP	1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	Green Climate Fund (GCF)	Ministry of Finance and Economic Development (MFED)	12 months	Risk to GoK revenue budget	Establishment of incentive policies and 70% of risk management tools and techniques organize and utilize within 5 years	No. of Tax incentives. Increase in E-bus imported	80,000.00
	1.2 Concept note and project proposal development.	GCF	MFED		Availability of experts	Proposal accepted and grants solicited from donors	Donor funded projects	20,000.00
	1.3 Hold a workshop for technology development financers	GCF	MFED		Availability of expert	increase of technology development financers	number of technology development financers	15,000.00

2. Improve access to product and services	2.1 Private sector business to establish joint venture with E-Motorbikes suppliers	GCF	Kiribati Chamber of Commerce Institute (KCCI)		Collaboration risk and lack of interest by parties. Political instability.	establishment of a JV collaboration	complete establishment of a new JV company	20,000.00
	2.2 Private sector business to establish joint venture with solar company	GCF	KCCI		Collaboration risk and lack of interest by parties. Political instability.	establishment of a JV collaboration	successful JV collaboration	20,000.00
3. Procurement of product and services	3.1 Acquisition of E-Motorbikes	GCF	KCCI		product substitute and cost inflation.	80% of the total intended E-Motorbikes to be purchased, acquired within the 5 years	number of E-Motorbikes acquired	6,552,000.00
	3.2 Procurement solar charging system	GCF	KCCI		product substitute and cost inflation.	80% of the total intended charging stations installed within the 5 years	number of charging stations installed	3,240,000.00
4. Strengthening human resource capacities	4.1 Strengthening KIT on E-Motorbikes and solar charging	GCF	Kiribati Institute of Technology (KIT)		Availability of experts	60 % of KIT equipment well equipped and well skilled staff and output of	number of qualified technicians	50,000.00

						qualified technicians		
	4.2 Training of Private sector mechanics/operators	GCF	KCCI		Staff turnover	80% of private business adopt the E-Motorbikes	number of qualified private mechanics, number of E-Motorbikes	20,000.00
	4.3 Training of private technicians on solar charging systems	GCF	KCCI		Staff turnover	80% of current KGES technicians are qualified E-Motorbikes charging stations technicians ,80 % increase in E-Motorbikes charging station	number of qualified private E-Motorbikes charging station technicians, number of E-Motorbikes charging station established	10,000.00
	4.4 Private sector business to provide placement for attachment training PPEs (personal protective equipment)	GCF	KCCI/KGES/PVU		Staff turnover	80% increase the number of work attachments on E-Motorbikes and charging station maintenance	number of work attaches	5,000.00

5. Centralizing and digitalizing of data/information	5.1 Collection of E-Motorbikes and solar charging systems	GCF	Ministry of Information Communication and Transport (MICT)		Data limitation	80% of national data collection	establishment of a national data	10,000.00
	5.1 Collection of E-Motorbikes and solar charging systems data	GCF	MICT		Data security	80% of national database developed	establishment of national database	10,000.00
	5.2 Developing of E-Motorbikes and solar charging systems database	GCF	MICT		Network connectivity	80%of targeted institutions accessing national database	number of people having access to database	20,000.00
	5.3 Improving accessibilities for E-Motorbikes and solar charging systems database	GCF	MICT		Availability of experts	80% of targeted institutions aligning mandate with clean energy	number of institutions aligning mandate, number of workshop and awareness conducted	15,000.00
6. Design communication strategy and education campaign	6.1 Develop strategy to include clean energy initiatives into school curriculum	GCF	Ministry of Education (MOE)		relevance and acceptance to the subject	part of clean energy is included in the curriculum	revise curriculum includes a number of clean energy technology	20,000.00

7. Review of existing regulations and policies	7.1 Secure funding to support policy review	GOK	Ministry of Infrastructure and Sustainable Energy (MISE)		lack of donor interest	2/3 of existing of regulations and policies reviewed and revise to include clean energy approach	number of updated regulations	
	7.2 Conduct consultant-led policy review workshops	GCF	MISE		Availability of expert	80% of existing policies reviewed and revised	the number of consultants engaged, number of workshops conducted and revised	20,000.00
	7.3 Cabinet paper on the reviewed/revised regulations	GOK	MISE		Cabinet issue	cabinet approval	number of cabinet papers developed	
8. Awareness workshop	8.1 Developed and provide Pamphlet, posters, flyers,etc	GCF	KCCI		Printery issue	100% availability of Pamphlet	number of pamphlet and poster flyers etc printed and distributed	1,000.00
	8.2 Promotional design on the sides of each E-Motorbike (@ $5 each)	GCF	KCCI		Lack of resource and quality	100% displayed of promotional designed	number of promotional designs displayed	10,000.00

9. Securing partnership for recycle and maintenance	9.1 Partnership guide developed that include process of how to select companies for recycle	MAF, GCF	Private Sector, Mitigation Group	10 months	Lack of recycling facilities for bigger items	Cabinet approval	Number of companies secured and MOU signed	
	9.2 Develop MOU with companies for recycling and maintenance					MOU review		10,000.00
	9.3 Evaluate the partnership for further improvement and recommendation							
								10,148,000.00

Chapter 3 Action Plan for the Electric SUVs

3.1 Introduction

This plan outlines Kiribati's strategy to integrate E-SUVs into the government fleet by 2030, targeting 30% adoption to reduce fuel costs and emissions.

Almost 14 million new electric cars were registered globally in 2023, bringing their total number on the roads to 40 million, closely tracking the sales forecast from the 2023 edition of the Global EV Outlook (IEA, 2023).

While sales of electric cars are increasing globally, they remain significantly concentrated in just a few major markets. According to the IEA, in 2023, just under 60% of new electric car registrations were in China, just under 25% in Europe, and 10% in the United States – corresponding to nearly 95% of global electric car sales combined. In these countries, electric cars account for a large share of local car markets: more than one in three new car registrations in China was electric in 2023. While these markets dominate EV adoption, Kiribati's small scale and renewable energy potential offer unique advantages for localized E-SUVs deployment.

Tarawa's government fleet of 133 vehicles currently emits 1.51 tons of CO2 annually; replacing 30% with E-SUVs could cut emissions by 5% in 2023 road emission. Given Tarawa's unique geographic and socio-economic context as a small island region with short driving distances with solar potential of 5.5kWh/m^2/day can power E-SUVs charging stations without grid strain., the shift to electric mobility represents both a practical and visionary step toward a cleaner, more efficient public sector. The strategic plan described herein provides policy makers and senior officials responsible for transport policy, budget allocation, and infrastructure planning with a detailed guide on how to implement a phased integration starting with a pilot program of E-SUVs into the government fleet.

Recent studies have revealed that the adoption of electric vehicles (EVs) in government fleets can lead to significant operational savings and environmental advantages. For instance, research indicates that state and local governments in the United States could collectively save nearly $11 billion by transitioning from retiring light-duty vehicles to EVs, primarily due to reduced fuel and maintenance costs (Dutzik & Brown, 2022). While this U.S. study demonstrates potential savings, Kiribati's shorter travel distances may yield even greater per-vehicle cost reductions. This trusted analysis paves the way for GoK to capitalize on both economic savings and environmental benefits while setting an example for sustainable transport practices in the region.

The plan's sections—Environmental Impact, Infrastructure Needs, and Budget—focus on Kiribati's top barriers: high fuel costs, limited charging infrastructure, and upfront investment hurdles. Each section has been constructed using evidence-based findings extracted from extensive research in the field of electric vehicle technology. The plan aims to guide the government through a methodical approach ensuring that all critical concerns—from the technological to the financial—are addressed with clarity and precision.

3.2 Ambition for the TAP

The Government targets 2% E-SUVs adoption in its fleet by 2027, starting with 62 electric SUVs across 53 institutions to reduce emissions by 0.703 kt CO_2/year.,

Formula for to calculate greenhouse gas (GHG) emissions for E-SUVs:

GHG emissions (kg CO2e) = Electricity Consumption (kWh) * Emission Factor (kg CO2e/kWh).

Assume the E-SUV energy efficiency is 0.2 kWh/km and the daily route is 400 km. Therefore, the total energy used for E-SUV is around 80kWh. Also, the GHG energy conversion factor is 0.545 kg CO2/kWh,

Using the formula GHG emission = 80kWh x 0.545 kg CO2/kWh
GHG emission daily = 43.6 kg CO_2/dayGHG emission (working days 260)
= 43.6 x 260 = 11,336.00 CO_2/year
or = 0.0113 kt CO_2/year
Now using project 62 E-SUVs = 62 x 0.0113 kt CO_2/year
= 0.703 kt CO_2/year

The Stakeholders agreed to set the **Ambition** as follows:

Deployment of 62 E-SUVs for 53 Institutions with a saving of 3.5 kt CO_2/year emission by 2030 (5 years).

3.3 Actions and Activities selected for inclusion in the TAP

Since E-SUVs would be a new technology for Kiribati, there are substantial challenges and risks, categorized as Barriers and Measures, and are identified in the BAEF report. Through comprehensive stakeholder-driven analysis that included barrier identification and systematic evaluation of enabling frameworks, specific actions and activities were determined for inclusion in this Technology Action Plan (TAP), as detailed in Table 3.1.

Table 3.1: E-SUVs Action and Activities

Action	Activities
1. Establish appropriate institutional set up for the TAP	1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.
	1.2 Concept note and project proposal development.
	1.3 Hold a workshop for technology development financers
2. Improve access to product and services	2.1 PVU to establish joint venture with E-SUVs suppliers
	2.2 KGES to establish joint venture with solar company
3.Procurement of product and services	3.1 Acquisition of E-SUVs (estimated released cost @ $84,000 each)
	3.2 Procurement solar charging system (estimated released cost @ $28,800 each)
	4.1 Strengthening KIT on EV training programme

4. Procurement of product and services	4.2 Training of PVU mechanics/operators
	4.3 Training of KGES technicians on solar charging systems
	4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)
5. Centralizing and digitalizing of data/information	5.1 Collection of E-SUVs and solar charging systems data
	5.2 Developing of E-SUVs and solar charging systems database
	5.3 Improving accessibilities for E-SUVs and solar charging systems database
	5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies
6. Design communication strategy and education campaign	6.1 Develop strategy to include clean energy initiatives into school curriculum
7. Review of existing regulations and policies	7.1 Secure funding to support policy review
	7.2 Conduct consultant-led policy review workshops
	7.3 Cabinet paper on the reviewed/revised regulations
8. Awareness workshop	8.1 Developed and provide Pamphlet, posters, flyers, etc
	8.2 Promotional design on the sides of each E-SUVs (@$1048.50 each)
9. Securing partnership for recycle and maintenance	9.1 Partnership guide developed that include process of how to select companies for recycle
	9.2 Develop MOU with companies for recycling and maintenance
	9.3 Evaluate the partnership for further improvement and recommendation

3.4 Stakeholders and Timeline for implementation of TAP

The CCDRMD is the focal point for coordinating the TNA project activities with key stakeholders. The MISE and the Energy Department will work on the policies and amendments to the existing legislation for supporting the E-SUVs. The PVU will be responsible for procuring, supplying and providing maintenance programs to the E-SUVs while the KGES will be responsible procuring, installing and providing maintenance support to solar charging stations for the E-SUVs. The MICT with the KLTA will provide regulations and monitoring of E-SUVs. The KTI will be responsible for improving the capacity building on EV to staff and students who will be able to work in the E-SUVs industry. The MFED will provide guidance on accessing the funds to recipient entities and managing the project fund disbursements and acquittal.

Table 3.2 outlines the proposed timelines with respective stakeholders that need to be involved at each stage. The timelines are estimates only. These can serve as a guideline for achieving the goals set in the TAP. The progress and findings will be ongoing and the timelines can be amended as new information becomes available.

Table 3.2: Electric-SUVs project timeline

Activities	Implementing Agency	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027	Q2 2027	Q3 2027	Q4 2027	Q1 2028	Q2 2028	Q3 2028	Q4 2028	Q1 2029	Q2 2029	Q3 2029	Q4 2029
1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	Ministry of Finance and Economic Development (MFED)																		
1.2 Concept note and project proposal development.	MFED																		
1.3 Hold a workshop for technology development financers	MFED																		
2.1 PVU to establish joint venture with E-SUVs suppliers	Plant Vehicle Unit (PVU)																		
2.2 KGES to establish joint venture with solar company	Kiribati Green Energy Solution (KGES)																		
3.1 Acquisition of E-SUVs (estimated released cost @ $84,000 each)	PVU/MFED																		
3.2 Procurement solar charging system (estimated released cost @ $28,800 each)	KGES/MFED																		
4.1 Strengthening KIT on EV training progrmammes	Kiribati Institute of Technology (KIT)																		
4.2 Training of PVU mechanics/operators	PVU																		
4.3 Training of KGES technicians on solar chargining systems	KGES																		
4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)	PVU/KGES																		
5.1 Collection of E-SUVs and solar charging systems data	Ministry of Information Communicati																		
5.2 Developing of E-SUVs and solar charging systems database	MICT																		
5.3 Improving accessibilities for E-SUVs and solar charging systems database	MICT																		
5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	MICT																		
6.1 Develop strategy to include clean energy initiatives into school curriculum	Ministry of Education (MOE)																		
7.1 Secure funding to support policy review	Ministry of Infrastructure and Sustainable Energy (MISE)																		
7.2 Conduct consultant-led policy review workshops	MISE																		
7.3 Cabinet paper on the reviewed/revised regulations	MISE																		
8.1 Developed and provide Pamphlet, posters, flyers,etc	MISE																		
8.2 Promotional design on the sides of each E-SUVs	MISE																		
9.1 Partnership guide developed that include process of how to select companies for recycle	MISE (KGES), Mitigation Group																		
9.2 Develop MOU with companies for recycling and maintenance																			
9.3 Evaluate the partnership for further improvement and recommendation																			

3.5 Estimation of Resources Needed for Action and Activities

Since E-SUVs is new technology in the country, it is anticipated that current local capacities will not be available. However, as E-SUVs have fewer moving parts than combustion engines, simplifying maintenance. Existing PVU staff could be trained from external experts or sent for internship programs. The same also applies to KGES for the solar charging infrastructure for the E-SUVs. The KIT will be strengthened so that it can provide technical training on E-SUVs and solar charging of E-SUVs. Local trained experts are recommended to increase the capacity of locals and retain the know-how within the country. Entities responsible for economics and financing, reviewing policies, legislations, awareness/promotion in support for E-SUVs will be strengthened and would also allow for efficient liaison with stakeholders, organizing visits, logistics, workshops and consultations, and providing information.

The Project activities cost are estimates and could be reviewed during the cause of the project implementation. Table 3.3 provides details on the availability of local capacity and the training requirement priority for the project with project cost.

Table 3.3. E-SUVs activities with budget

Activities	**Budget per activity USD**
1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	80,000.00
1.2 Concept note and project proposal development.	20,000.00
1.3 Hold a workshop for technology development financers	15,000.00
2.1 PVU to establish joint venture with E-SUVs suppliers	60,000.00
2.2 KGES to establish joint venture with solar company	60,000.00
3.1 Acquisition of E-SUVs (estimated released cost @ $84,000 each)	5,208,000.00
3.2 Procurement solar charging system (estimated released cost @ $28,800 each)	1,785,600.00
4.1 Strengthening KIT on EV training programs	50,000.00
4.2 Training of PVU mechanics/operators	50,000.00
4.3 Training of KGES technicians on solar charging systems	50,000.00
4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)	20,000.00
5.1 Collection of E-SUVs and solar charging systems data	10,000.00
5.2 Developing of E-SUVs and solar charging systems database	10,000.00
5.3 Improving accessibilities for E-SUVs and solar charging systems database	20,000.00
5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	15,000.00
6.1 Develop strategy to include clean energy initiatives into school curriculum	20,000.00
7.1 Secure funding to support policy review	
7.2 Conduct consultant-led policy review workshops	20,000.00
7.3 Cabinet paper on the reviewed/revised regulations	
8.1 Developed and provide Pamphlet, posters, flyers, etc	2,000.00
8.2 Promotional design on the sides of each E-SUVs (@$1048.50 each)	65,000.00
9.1 Partnership guide developed that include process of how to select companies for recycle	
9.2 Develop MOU with companies for recycling and maintenance	10,000.00
9.3 Evaluate the partnership for further improvement and recommendation	
	7,570,600.00

3.6 Management Planning

The implementation E-SUVs in Tarawa's government fleet is envisioned as a multi-phased project spread over several years. The timeline is divided into distinct phases, each building upon the progress of the previous one while ensuring that any challenges encountered during earlier stages are effectively addressed.

Phase 1: Pilot Program (Year 1)
The initial phase includes:

- Procurement of a limited number of E-SUVs approximately 20 vehicles for initial testing and evaluation.
- Installation of a pilot network of fast-charging stations at key government facilities.
- Deployment of training programs for technicians and drivers who will operate and maintain the new vehicles.
- Establishing a monitoring framework to analyse vehicle performance, infrastructure efficiency, and user feedback.

Phase 2: Evaluation and Capacity Building (Years 2-3)
Based on insights from the pilot program, the following steps should be taken:

- A comprehensive evaluation of the pilot program's outcomes to assess vehicle performance, environmental benefits, and economic returns.
- Scaling up to cover all government ministries and SOEs.
- Further training initiatives aimed at broader workforce development, ensuring widespread technical competence.
- Initial procurement targets for additional E-SUVs to progressively replace aging vehicles in the fleet.

Phase 3: Full-Scale Integration (Years 4-5)
The final phase will involve:

- A gradual transition from pilot numbers to a complete replacement of government vehicles with E-SUVs in the identified urban region.
- Full integration of charging infrastructure with smart grid technologies and renewable energy sources to optimize energy use.
- Ongoing monitoring and evaluation to maintain high efficiency and address potential technological upgrades.
- Establishment of long-term sustainability milestones, including annual reductions in greenhouse gas emissions and other environmental impact indicators.

Each phase of implementation will be reviewed by a dedicated oversight committee consisting of senior officials from the key stakeholders, finance, and infrastructure sectors. This committee will ensure that the project remains on track, adheres to budgetary constraints, and continues to meet the evolving needs of the government transport system.

The group had identified key risks and their associated contingency actions as shown in Table 3.4

Table 3.4: Table of Risk and contingency plans

Risks	Description	Contingency Action
Risk to GoK revenue budget	Low revenue collected from reduced tax and duty exemptions.	Explore additional funding opportunities, including international climate funds, grants, and public-private partnerships.
Collaboration risk and lack of interest by parties. Political instability.	No Supplier is interested in the Joint Venture	Identify Alternative Suppliers: Develop a list of alternative suppliers to avoid reliance on a single source, reducing the impact of any supply chain disruptions.
Delay in delivery due to our remoteness	Disruptions in the global supply chain could delay the delivery of project materials	Place orders well in advance and maintain strong relationships with suppliers to mitigate potential delays.
Availability of experts for strengthening KIT capacity to conduct E-SUVs Training	Lack of expert to conduct training on E-SUVs infrastructure	Invest in comprehensive training programs. Partner with international experts or companies with experience in E-SUVs
Availability of expert for the review on existing policies and legislation to support E-SUVs	Delays or changes in government policies and regulations could create uncertainty thus hindering progress.	Identify alternative experts from the list of alternative experts to avoid reliance on a single source.
Limited public acceptance on E-SUVs	Resistance from the public due to a lack of awareness or trust on E-SUVs	Intensify efforts to educate the public on the long-term benefits, cost savings, and environmental impacts of E-SUVs

According to Halla (2024), by proactively identifying these risks and implementing the associated contingency actions, the likelihood of achieving the goals of the TAP can be significantly increased. Next, it is important to identify the immediate requirements to proceed and the critical steps to succeed.

Critical steps to ensure success:

4. Establish a robust project management framework with clear governance structures, timelines and accountability measures.
5. Foster participatory, early and active stakeholder engagement and coordination to ensure a shared understanding and commitment to the TAP objectives and workplan and clear lines of communication established.
6. Develop detailed workplan focused on phased implementation and flexibility allowing for adjustments based on initial outcomes, stakeholder feedback and changing circumstances.

3.7 TAP Overview Planning

Ambition	**Deployment of 62 Electric SUVs for 53 Institutions with a saving of 0.7 kton CO2/year emission within 5 years.**							
Action	**Activities**	**Sources of funding**	**Implementing Agency**	**Timeframe**	**Risks**	**Success criteria**	**Indicators for monitoring of implementation**	**Budget per activity USD**
1. Establish appropriate institutional set up for the TAP	1.1 Institutional and Policy review and risk management tools for tax incentives and exemptions policy.	Green Climate Fund (GCF)	Ministry of Finance and Economic Development (MFED)	12 months	Risk to GoK revenue budget	Establishment of incentive policies and 70% of risk management tools and techniques organize and utilize within 5 years	No. of Tax incentives. Increase in E-SUVs imported	80,000.00
	1.2 Concept note and project proposal development.	GCF	MFED	3 months	Availability of experts	Proposal accepted and grants solicited from donors	Donor funded projects	20,000.00
	1.3 Hold a workshop for technology development financers	GCF	MFED	1 month	Availability of expert	increase of technology development financers	number of technology development financers	15,000.00
2. Improve access to product and services	2.1 PVU to establish joint venture with E-SUVs suppliers	GCF	Plant Vehicle Unit (PVU)	1 month	Collaboration risk and lack of interest by parties. Political instability.	establishment of a JV collaboration	complete establishment of a new JV company	60,000.00
	2.2 KGES to establish joint venture with solar company	GCF	Kiribati Green Energy Solution (KGES)	1 month	Collaboration risk and lack of interest by parties. Political instability.	establishment of a JV collaboration	successful JV collaboration	60,000.00

3.Procurement of product and services	3.1 Acquisition of E-SUVs (estimated released cost @ $84,000 each)	GCF	PVU/MFED	36 months	product substitute and cost inflation.	80% of the total intended E-SUVs to be purchased, acquired within the 5 years	number of E-SUVs acquired	5,208,000.00
	3.2 Procurement solar charging system (estimated released cost @ $28,800 each)	GCF	KGES/MFED	36 months	product substitute and cost inflation.	80% of the total intended charging stations installed within the 5 years	number of charging stations installed	1,785,600.00
4. Procurement of product and services	4.1 Strengthening KIT on EV training progrmammes	GCF	Kiribati Institute of Technology (KIT)	9 months	Availability of experts	60 % of KIT equipment well equipped and well skilled staff and output of qualified technicians	number of qualified technicians, number of KIT qualified E-SUVs lecturers, number of E-SUVs tools and equipment acquired	50,000.00
	4.2 Training of PVU mechanics/operators	GCF	PVU	6 months	Staff turnover	80% of current PVU mechanic and operators are qualified E-SUVs mechanics and operators,20% increase in E-SUVs tools and equipment and spares etc..,	number of PVU qualified E-SUVs mechanics and operators, number of E-SUVs tools and spares etc..	50,000.00
	4.3 Training of KGES technicians on solar charging systems	GCF	KGES	6 months	Staff turnover	80% of current KGES technicians are qualified E-SUVs charging stations technicians ,80% increase in E-SUVs charging station	number of PVU qualified E-SUVs charging station technicians, number of E-SUVs charging	50,000.00

							station established	
	4.4 PVU and KGES to provide placement for attachment and training PPEs (personal protective equipment)	GCF	PVU/KGES	3 months	Staff turnover	80% increase the number of work attachment on E-SUVs and charging station maintenance	number of work attaches	20,000.00
5. Centralizing and digitalizing of data/information	5.1 Collection of E-SUVs and solar charging systems data	GCF	Ministry of Information Communication and Transport (MICT)	12 months	Data limitation	80% of national data collection	establishment of a national data	10,000.00
	5.2 Developing of E-SUVs and solar charging systems database	GCF	MICT	12 months	Data security	80% of national database developed	establishment of national database	10,000.00
	5.3 Improving accessibilities for E-SUVs and solar charging systems database	GCF	MICT	12 months	Network connectivity	80%of targeted institutions accessing national database	number of people having access to database	20,000.00

	5.4 Conduct workshop and awareness to support mandate alignment of all ministries for clean technologies	GCF	MICT	4 months	Availability of experts	80% of targeted institutions aligning mandate with clean energy	number of institutions aligning mandate, number of workshop and awareness conducted	15,000.00
6. Design communication strategy and education campaign	6.1 Develop strategy to include clean energy initiatives into school curriculum	GCF	Ministry of Education (MOE)	12 months	relevance and acceptance to the subject	part of clean energy is included in the curriculum	revise curriculum include a number of clean energy technology	20,000.00
7. Review of existing regulations and policies	7.1 Secure funding to support policy review	GOK	Ministry of Infrastructure and Sustainable Energy (MISE)	6 months	lack of donor interest	2/3 of existing of regulations and policies reviewed and revise to include clean energy approach	number of updated regulations	
	7.2 Conduct consultant-led policy review workshops	GCF	MISE	12 months	Availability of expert	80% of existing policies reviewed and revised	the number of consultants engaged, number of workshops conducted and revised	20,000.00
	7.3 Cabinet paper on the reviewed/revised regulations	GOK	MISE	3 months	Cabinet issue	cabinet approval	number of cabinet papers developed	
8. Awareness workshop	8.1 Developed and provide Pamphlet, posters, flyers,etc	GCF	MISE	3 months	Printery issue	100% availability of Pamphlet	number of pamphlet and poster flyers etc	2,000.00

							printed and distributed	
	8.2 Promotional design on the sides of each E-SUVs (@$1048.50 each)	GCF	MISE	1	Lack of resource and quality	100% displayed of promotional designed	number of promotional designs displayed	65,000.00
9. Securing partnership for recycle and maintenance	9.1 Partnership guide developed that include process of how to select companies for recycle	MAF, GCF	MISE (KGES), Mitigation Group	10 months	Lack of recycling facilities for bigger items	Cabinet approval	Number of companies secured and MOU signed	
	9.2 Develop MOU with companies for recycling and maintenance					MOU review		10,000.00
	9.3 Evaluate the partnership for further improvement and recommendation							
								7,570,600.00

Chapter 4 Brief Summary of the Project Ideas for Transportation Sector

There are several concrete project ideas which can be extracted from the TAP to support phased actions towards the fulfilment of the overall goals for diffusion of EVs with respective solar charging stations. Several project ideas are outlined in Table 4.

Table 4: Project ideas

Project Ideas	Overall TAP Target
Project Idea #1: Develop and implement a pilot project to electrify the fleet of Government and SOEs buses including feasibility studies related to charging stations and policies for vehicle replacement and procurement of new vehicles for the government fleet and training for drivers, mechanics and first responders.	Deployment of 77 Government ministries and SOEs Electric buses with respective solar charging stations, training of mechanics, bus drivers and first responders, demonstration of EV technology to the public, feasibility studies and rollout of incentive regime to promote the wider diffusion of hybrids and EVs and a wide-ranging public awareness campaign by 2030.
Project Idea #2: Develop and implement a pilot project to electrify the private motorbikes including feasibility studies related to charging stations and policies for vehicle replacement and procurement of new vehicles for the private business with government support.	Deployment of 2,000 consumer goods E-Motorbikes through the private business coordinated with KCCI. This also includes small home solar charging system for motorbikes, training of a cadre of mechanics, drivers and first responders, demonstration of EV technology to the public, feasibility studies and rollout of incentive regime to promote the wider diffusion of hybrids and EVs and a wide-ranging public awareness campaign by 2030.
Project Idea #3: Develop and implement a pilot project to electrify the fleet of Government and SOEs SUV/Saloon cars including feasibility studies related to charging stations and policies for vehicle replacement and procurement of new vehicles for the government fleet and training for school bus drivers, mechanics and first responders.	Deployment of 62 each Government ministries and SOEs" Electric SUV/Saloon cars with solar charging station, training of a cadre of mechanics, bus drivers and first responders, demonstration of EV technology to the public, feasibility studies and rollout of incentive regime to promote the wider diffusion of hybrids and EVs and a wide-ranging public awareness campaign by 2030.

Chapter 5 Specific Project Ideas

The proposed project idea related to transitioning all Government and SOEs current internal combustion buses Buses to Electric Buses and should be one of the first actions of the TAP for the transport sector. Table 5 summarizes the key elements of a future project proposal for this project.

Table 5: Key project proposal elements for selected project idea

Section	Narrative
Introduction/Background	This project aims to transition government's buses to Electric Buses as prioritised by Government to achieve its commitment to the Kiribati NDC 2022. The project will include solar charging stations for each bus and develop supporting policies related to internal combustion engine vehicles replacement, procurement of electric vehicles, and training for bus drivers, mechanics, and first responders.
Objectives	The primary objectives of the project are: • Reduce GHG emissions by replacing conventional internal combustion engine (ICE) buses with Electric Buses. • Develop Electric Buses policies for government vehicle procurement and replacement. • Train Government and SOEs bus drivers, mechanics, and first responders to operate, maintain, and handle electric buses.
Outputs	• Electrification of a portion of the government fleet • Installation of Electric Buses charging stations in strategic locations. • Creation of a training program for drivers, mecha Policy recommendations for the long-term procurement and replacement of government vehicles. • Feasibility study report on grid capacity and charging infrastructure. • Reduction in annual GHG emissions by 5% from the transport sector within the first five years of implementation.
Relationship to the Country's sustainable development priorities	Aligned to the Kiribati NDC 2022
Project Deliverables	• The procurement and deployment of a specific number of electric buses meeting defined technical specifications • Installation of necessary charging stations at depots and potentially other locations, including any required grid upgrades. • Development of supporting policies and comprehensive plan for successful operation of the electric bus fleet. • Training of drivers and maintenance personnel on the specific requirements of electric buses. • Establishing systems for monitoring key performance indicators (KPIs) of the electric bus

	fleet and solar charging systems such as range, charging time, and operational efficiency.
Project activities	• Policy recommendations for the long-term procurement and replacement of government vehicles. • Feasibility study report on grid capacity and charging infrastructure. • Reduction in annual GHG emissions by 2030 from the transport sector within the first five years of implementation.
Timelines	Next 5 years
Budget/Resource requirements	A scoping study followed by economic feasibility study will outline the details of the budget requirements. The feasibility study alone may cost around USD 100,000 and the total cost of the project could be around USD 21M
Measurement/Evaluation	• Unpredictable Weather conditions • Difficulty in breaking competitive market as developing country in regards to the field of advanced equipment/technology
Responsibilities and Coordination	The CCDRMD is the focal point for coordinating the TNA project activities with key stakeholders. The MISE and the Energy Department will work on the policies and amendments to the existing legislation for supporting the Electric Buses. The PVU will be responsible for procuring, supplying and providing maintenance programs to the E-Buses while the KGES will be responsible procuring, installing and providing maintenance support to solar charging stations for the Electric Buses. The MICT with the KLTA will provide regulations and monitoring of E-Buses. The KTI will be responsible for improving the capacity building on Electric Buses to staff and students who will be able to work in the Electric Buses industry. The MFED will provide guidance on accessing the funds to recipient entities and managing the project fund disbursements and acquittal.

Chapter 6 Conclusion

In summary, the transition to electric vehicle in government ministries and schools on Tarawa represents a strategic move towards sustainable urban mobility and a cleaner environment. With clearly defined objectives, a comprehensive infrastructure plan, targeted training programs, and secured funding, the proposed plan provides a robust guide for implementation.

Immediate stakeholder engagement and resource commitment are critical. Decision-makers must act now to implement the necessary actions that will drive the transition to an environmentally sustainable and economically viable electric bus fleet.

The diffusion of electric motorbikes represents a transformative opportunity for Kiribati to modernize its transportation system widely used by private customs, reduce environmental impacts, and foster economic growth. This action plan has outlined a comprehensive approach that addresses key challenges—from infrastructure development and financial incentives to consumer education and supportive regulatory measures.

Success in this initiative will not only contribute to local environmental improvements but also position Kiribati as a leader in sustainable urban mobility within the Pacific region.

Continued collaboration among government agencies, private sector partners, and community stakeholders will be essential to achieving these goals. Ultimately, the proactive promotion of electric motorbikes will pave the way for a cleaner, more sustainable future for Tarawa and its residents.

Annex I: List of References

Clean Energy Rides. (n.d.). Adoption of EVs in developing countries: Trends and challenges. Retrieved from https://cleanenergyrides.com/adoption-of-evs-in-developing-countries/

Dirks, N., Schiffer, M., & Walther, G. (2021). On the integration of battery electric buses into urban bus networks. arXiv. https://arxiv.org/abs/2103.12189

Energy Planning Unit (EPU), 2020, Gibert Island Group- Energy Statistics Yearbook. Ministry of Infrastructure and Sustainable Energy, Kiribati.

EV EXPOSE. (n.d.). Electric vehicles in developing countries: Addressing challenges and accelerating adoption. Retrieved from https://evexpose.com/electric-vehicles-in-developing-countries-addressing-challenges-and-accelerating-adoption/

Greening the Grid. (n.d.). Policies to incentivize EV adoption and deployment—Electric Vehicle and Sustainable Transport Toolkit. Retrieved from https://www.greeningthegrid.org/electric-vehicle-and-sustainable-transport-toolkit/technical-themes-resources/policies-incentivize-ev-adoption-deployment

Halla S, (2024) Technology Action Plan: St. Kitts and Nevis TNA Project: https://tech-action.unepccc.org/

Holland, S. P., Mansur, E. T., Muller, N. Z., & Yates, A. J. (2020). The environmental benefits from transportation electrification: Urban buses (NBER Working Paper No. 27285). National Bureau of Economic Research. https://www.nber.org/papers/w27285

International Energy Agency. (2023). Global EV Outlook 2023 Catching up with climate ambitions: https://www.iea.org/reports/global-ev-outlook-2023

International Energy Agency. (2024). Global EV Outlook 2024 Moving towards increased affordability: https://www.iea.org/reports/global-ev-outlook-2024.

U.S. Department of Transportation. (2023). Benefits and implementation challenges of bus electrification. Retrieved from https://www.transportation.gov/rural/electric-vehicles/ev-toolkit/benefits-and

Annex II: List of stakeholders involved and their contacts

Name	Organization	Email
Ata Taoaba	MICT	ata.taoaba@mict.gov.ki
Ueaniti Kiritimati	MISE	energy.economist@mise.gov.ki
Arata Tabuaka	KGES	atabtab00@gmail.com
Paul Tekanene	PVU	detaxman@gmail.com
Miite Barry	KLTA	roseannneeretuabeiatau@gmail.com
Kaaroti Henry	ECD	k.henry@melad.gov.ki