APRI
AFRICA POLICY RESEARCH INSTITUTE

In partnership with

mastercard foundation

REPORT | MARCH 2026

Scaling Green Innovation for Youth Employment: Insights from Kenya's E-Mobility Sector

REPORT | MARCH 2026

Scaling Green Innovation for Youth Employment: Insights from Kenya's E-Mobility Sector

APRI
AFRICA POLICY RESEARCH INSTITUTE

Acknowledgements and Citation

This study was produced by APRI – Africa Policy Research Institute – a Berlin-based independent, non-partisan African Think Tank researching key policy issues affecting the continent – in partnership with The Mastercard Foundation. The Mastercard Foundation is a registered Canadian charity and one of the largest foundations in the world. It works with visionary organisations to advance education and financial inclusion to enable young people in Africa and Indigenous youth in Canada to access dignified and fulfilling work.

APRI does not take institutional positions on public policy issues. The views expressed in publications are those of the author(s) and do not necessarily reflect the opinions of APRI or The Mastercard Foundation, their staff, or their boards. The boundaries, colours, denominations, and other information shown on any map in this work do not imply any judgment on the part of APRI and The Mastercard Foundation concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Many thanks to the authors for writing this report. We extend our sincere gratitude to the research and project management team—comprising Dr. Olumide Abimbola (Executive Director, APRI), Dr. Serwah Prempeh (Senior Fellow and Project Lead, APRI), Ada Mare (Fellow, APRI), and Ifeoma Malo (CEO and Co-Founder, Clean Technology Hub) – for their crucial leadership and contributions. We also thank the external peer reviewers for their valuable feedback on the report.

Special thanks go to researchers, government officials, and the diverse group of stakeholders and policymakers who participated, supported, and provided valuable information and data that made this report a reality.

Attribution – Please cite the work as follows:
Africa Policy Research Institute. (2026). *Scaling Green Innovation for Youth Employment: Insights from Kenya's E-Mobility Sector.* APRI – Africa Policy Research Institute, Berlin, Germany.

DOI: **https://doi.org/10.59184/rp026.03**

Contents

List of abbreviations and acronyms

AEMDA	Association for Electric Mobility and Development in Africa
AfDB	African Development Bank
AfEMA	Africa E-Mobility Alliance
APRI	Africa Policy Research Institute
AU	African Union
BaaS	Battery as a service
BETA	Bottom-Up Economic Transformation Agenda
BEV	Battery electric vehicle
CAGR	Compound annual growth rate
CEO	Chief executive officer
CKD	Completely knocked down
E2W	Electric two-wheeler
E3W	Electric three-wheeler
E2&3Ws	Electric two- and three-wheelers
E4W	Electric four-wheeler
EMAK	Electric Mobility Association of Kenya
EV	Electric vehicle
FCEV	Fuel cell electric vehicle
GDP	Gross domestic product
GHG	Greenhouse gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HEV	Hybrid electric vehicle
ICE	Internal combustion engine
ICT	Information and communication technology
ILO	International Labour Organization

IoT	Internet of things
IPACC	Indigenous Peoples of Africa Coordinating Committee
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
KCIC	Kenya Climate Innovation Centre
KEBS	Kenya Bureau of Standards
KEREA	Kenya Renewable Energy Association
KII	Key informant interview
KPLC	Kenya Power and Lighting Company
KRA	Kenya Revenue Authority
KVM	Kenya Vehicle Manufacturers
MaaS	Mobility as a service
NCCAP	National Climate Change Action Plan
NCCAP III	Third National Climate Change Action Plan
NDC	Nationally Determined Contribution
ND-GAIN	Notre Dame Global Adaptation Initiative
NEECS	Kenya National Energy Efficiency and Conservation Strategy
NEET	Not in employment, education or training
NGO	Non-governmental organisation
NTSA	National Transport and Safety Authority
OEM	Original equipment manufacturer
PHEV	Plug-in hybrid electric vehicle
PLWD	Persons living with disabilities
QDA	Qualitative data analysis
R&D	Research and development
RIA	Regulatory impact assessment
SDG	Sustainable Development Goal
SKD	Semi-knocked down
STEM	Science, technology, engineering and mathematics
TVET	Technical and vocational education and training
ULAB	Used lead acid battery
UN	United Nations

UNCTAD	UN Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
US	United States
VAT	Value added tax
VC	Venture capital
VDS	Kenya Vision 2030 Delivery Secretariat

Lists of figures, tables and boxes

Figures

Tables

Boxes

Executive summary

Context of the study

The Intergovernmental Panel on Climate Change (IPCC) places Africa among the continents that are most vulnerable to climate change and climate variability (Trisos et al., 2022). As countries transition to green energy in response to these challenges, they are also creating an opportunity to solve long-standing socioeconomic problems, including high levels of youth unemployment. A third of working-age youth (15–35 years) are unemployed and discouraged (International Labour Organization (ILO), 2021), and young people account for up to 60% of Africa's unemployed (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2022). At current rates, only 100 million jobs of the 450 million that are needed in the next 25 years will be created in Africa (UNESCO, 2022).

For green technologies to maximise youth employment creation in Africa, government policies, regulations and strategies, as well as interventions by development partners, enterprise support organisations and financial institutions must understand the needs of young people in green industries. There is, however, a knowledge gap regarding the current realities of green jobs in Africa – including their scale, quality and accessibility to young people – and what would constitute an ideal scenario. Namely, a green economy that provides decent, inclusive and sustainable employment opportunities for African youth.

In Kenya, electric mobility (e-mobility) refers to the use of electricity to power transport systems as an alternative to fossil fuels, covering electric two- and three-wheelers (E2&3Ws), cars, buses, charging infrastructure and related digital solutions. The sector began to take shape in the late 2010s, with most of the nearly 40 companies operating today founded after 2017. Key players include local startups alongside international development partners, government agencies and industry associations like the Electric Mobility Association of Kenya (EMAK).

The sector already provides jobs in vehicle assembly, sales, maintenance, charging infrastructure installation and battery swapping. With youth-led enterprises and a young workforce driving much of this innovation, e-mobility is fast becoming a significant source of both skilled and unskilled employment opportunities for Kenyan youth.

Taking Kenya's e-mobility technology startup sector as a case, this study aimed to understand the key actors, policy context, barriers and enablers in the nexus between green technology and youth employment, and how Indigenous and traditional knowledge could catalyse technological innovation for startups. The report examines the existing national strategies and policy frameworks guiding the e-mobility sector and determines how they have shaped opportunities for youth employment.

The report also examines the specific roles that tech startups have played in the space, as well as the factors that have either inhibited or promoted their active contribution to innovation and development. Cognisant of gender dynamics, the study looked into the experiences of women innovators to identify the barriers that have limited their participation and potential. Another crucial focus was the uptake of locally developed technologies and Indigenous knowledge systems, which are often underutilised despite their relevance.

The e-mobility industry was selected because of Kenya's leadership in the industry's technology among sub-Saharan countries. It is projected that by 2033, Kenya will account for a third of the jobs created by electric two-wheelers (E2Ws), the highest number in Africa (Breloff et al., 2024).

Approach and methodology

The study employed multiple research methods. A review of literature and policy documents was conducted to establish the existing knowledge and understand the policy landscape. A set of data from 14 e-mobility companies was constructed to provide a basis for quantitative analysis. The key stakeholders in the Kenyan e-mobility industry were then mapped.

To engage the stakeholders, a workshop brought together government officials and representatives of private institutions involved in e-mobility. The workshop participants validated the desk research findings and identified the needs of youth in the e-mobility sector in focus areas of policy, skills and finance. To collect primary data, the researchers also conducted semi-structured interviews with 34 key informants (representatives of e-mobility companies, policymakers, researchers and experts).

The combination of literature review, dataset building, mapping and stakeholder engagement generated valuable insights into the dynamics of youth employment in the sector.

Key findings

Job opportunities in the e-mobility sector

- Recent estimates indicate that there are over 5,000 jobs in Kenya's e-mobility sector (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), forthcoming) and that this number will rise to 80,000 by 2028 (EMAK, 2024).
- Young people are well represented in the sector's workforce, at an estimated 81%. Of these, 75% are university graduates (GIZ, forthcoming).
- The largest percentage (39.5%) of future jobs in the sector are expected to be unskilled labour (material handlers, casual labourers and sales agents), 30% specialised labour (welders, electricians and customer service representatives), 21% general/admin labour (sales representatives and production managers) and 9% advanced labour (electrical and mechanical engineers) (Breloff et al., 2024).

- The jobs in the sector are expected to come mainly from the assembly, sales and after-sales, and maintenance segments of the value chain, as well as from charging infrastructure installation (Breloff et al., 2024). An additional 5,900 jobs are projected to be created in battery swapping for E2Ws and charging point operation for electric vehicle (EV) subsectors (Breloff et al., 2024).
- Based on our novel dataset, an estimated 46% of chief executive officers (CEOs) in Kenya's e-mobility sector are under the age of 35, with a median age of 35 years.

Status, needs and priorities for youth in the e-mobility sector

- There are 50 e-mobility companies in Kenya. Among these, E2Ws dominate, followed by four-wheelers, scooters, three-wheelers, carts and buses (GIZ, forthcoming). Most of these companies were founded after 2017 and are led and driven by a young workforce. Owing to their young age, the companies require significant support in building green skills, overcoming financial barriers, surviving till the growth stage and innovating sustainably.
- Among our interviewees, the most common benefit associated with hiring young people in the e-mobility industry is their capacity for innovation, 'fresh ideas' and technological adaptability.

Gender disparities

- An estimated 38% of jobs in the Kenyan e-mobility industry are held by women (Siemens Stiftung, 2024a), which is slightly higher than 33.8% for the wider transportation and storage sector (Kenya National Bureau of Statistics, 2024).
- However, based on our dataset, even fewer women lead e-mobility companies, accounting for just 17% of CEOs.

Skills

- Interviewees note that the youth may lack practical, hands-on experience that older employees bring and may change jobs more frequently as they explore different career paths or seek fast growth. They, therefore, require extensive training.
- Such training happens mainly on the job or through dedicated training facilitated by institutions like AfricaNEV and Advanced Mobility Africa.[1] These actors provide training for technicians on EV technical skills, general e-mobility skills (e.g., Kenya Power, Strathmore University and CENEX UK) and specialised training on battery technology and charging infrastructure (e.g., Knights Energy).

Finance

- Shell Foundation estimates that in five countries – Ethiopia, Kenya, Nigeria, Rwanda and Uganda – E2Ws (expected to comprise around 80% of the EVs on the road in these countries) require USD 3.5–8.9 billion for asset financing, vehicle import and assembly, and charging infrastructure.
- However, Kenya's e-mobility sector has attracted just USD 50 million so far, leaving a huge financing gap.
- Two-thirds of capital raised by Kenyan e-mobility companies is from grants and bootstrapping (own resources). Equity and crowdfunding represent a third of the financing (Association for Electric Mobility and Development in Africa (AEMDA), 2021).

Innovation and Indigenous knowledge

- Our interviews and research into a variety of cases demonstrate that innovation (in both product and business models) in the e-mobility space is usually driven by pressures to reduce costs for the company, improve access for users and penetrate market segments.
- Indigenous knowledge enables companies to consider local preferences, tastes, constraints and practices during product design and in business models.

Recommendations for policymakers and stakeholders

The study highlighted critical actions for policymakers and stakeholders involved in advancing the e-mobility sector in Kenya, supporting sustainable energy access, strengthening local communities and enhancing the growth of this vital industry:

- **Create explicit policy targets for youth and gender inclusion:** Policy targets should be disaggregated by gender and age – especially under the Draft National E-Mobility Policy currently being developed and its accompanying implementation plan.[2]
- **Institutionalise youth involvement in policymaking:** The Ministry of Energy and the Ministry of Roads and Transport should follow the example of the National Climate Change Action Plan (NCCAP) and set up a Youth Consultation Team for upcoming e-mobility policy discussion. In addition, industry associations, such as the Electric Mobility Association of Kenya (EMAK), should be encouraged to form youth wings or working groups that systematically contribute to policymaking.
- **Increase financial access for local operators**: Develop financing mechanisms tailored to the unique needs of e-mobility companies, particularly small-scale and youth-led enterprises. Options such as low-interest loans, grants and subsidies should prioritise early-stage businesses and local community members, enabling them to overcome capital constraints and scale their operations sustainably.
- **Invest in skills development and workforce training**: Strengthen the capacity of the workforce through targeted training programmes in vehicle design, maintenance, software solutions development and non-technical skills such as business development

and fundraising. Young people and women should be given hands-on, practical experience to meet the sector's technical demands.

- **Use traditional knowledge and practices**: Identify and leverage local knowledge and practices to inform the design and implementation of e-mobility projects. Establish units or divisions (whether in companies, industry associations or research centres) that focus on integrating Indigenous knowledge more effectively and explicitly into the sector's research and development (R&D).
- **Improve policy coherence**: Government agencies and industry representatives should improve the youth and employment content of e-mobility policies while ensuring that the ministries responsible for youth and employment policies address e-mobility sector needs. This will improve policy coherence and ensure that the sector is better geared towards achieving broader national youth employment targets.
- **Strengthen regulatory frameworks:** Kenya's regulatory frameworks for e-mobility need more concrete measures to support local manufacturing, incentivise startups and promote youth employment. While regulatory instruments like the Energy Act 2019 set a foundation for renewable energy integration, policies fall short in implementing action plans that foster domestic production or incentivise local content development. Establishing clear standards for EVs, offering tax incentives and reducing import duties on EV components will make the market more accessible for smaller companies and local innovators.

Recommendations for development partners

- **Sponsor and encourage the creation of more intensive incubation programmes:** Incubation programmes should be created to support youth as they evolve new products from ideation to commercialisation. These programmes should also provide long-term support to prepare companies for the rigours of larger funding facilities that have stringent eligibility criteria. The design of incubation programmes should consider the special needs of women entrepreneurs.
- **Create subcomponents within funding facilities that cater to the unique needs of youth and women:** Funding facilities should create subcomponents that design funding that is suitable for youth and women. These subcomponents may relax eligibility criteria for younger e-mobility companies but provide complementary technical assistance and project evaluation to ensure project quality.
- **Promote technology transfer and capacity building**: Facilitate the transfer of advanced e-mobility technologies and best practices to local operators. Invest in capacity-building programmes that equip e-mobility stakeholders with the skills and knowledge to implement and maintain cutting-edge solutions.
- **Establish innovation hubs for technology development:** Establish more innovation hubs that provide young entrepreneurs with access to funding, mentorship and infrastructure to scale their ideas. These hubs should focus on integrating Indigenous knowledge with modern technologies to create innovative, localised solutions to energy challenges.

SECTION ONE

Introduction

1.1 Overview and context

Climate change is a major challenge to Africa's prosperity. According to the Notre Dame Global Adaptation Initiative (ND-GAIN), 15 out of the 20 countries most vulnerable and least resilient to climate change are in Africa (University of Notre Dame, 2023). Consequently, the African Development Bank (AfDB) estimates that African countries, on average, lost gross domestic product (GDP) per capita growth of 5–15% from 1986 to 2015 as a result of climate change (AfDB, 2022). The AfDB projects that this trend will worsen over the next few decades.

The challenge is compounded by pre-existing development challenges such as poverty, growth without jobs and youth unemployment. Africa's youth population (aged 15 to 35) is expected to grow from 453 million in 2018 to over 1 billion by 2063 (African Union (AU), 2019). Yet in 2023, 53 million (21.9%) young people in sub-Saharan Africa were not in employment, education or training (NEET), which exceeded the global figure of 20.4% (International Labour Organization (ILO), 2024). Up to 60% of these were young women. In fact, between 2005 and 2022, the share of NEET youth declined globally but increased in sub-Saharan Africa (Karkee & O'Higgins, 2023).

It is in recognition of these combined challenges that several practitioners have envisioned green technologies as key drivers of climate adaptation, economic growth and employment (Africa Policy Research Institute (APRI), 2023). Young people have a major role to play in both leading the development of these technologies through innovation and accessing the green jobs created to satisfy the green economy's workforce requirements.

With this in mind, the Africa Climate Change Strategy aims to strengthen resilience and meet the AU's Agenda 2063 goals through a harmonised approach that prioritises adaptation and explores mitigation opportunities like renewable energy.[3] Five key objectives underpin the strategy: building institutional capacities, unifying climate efforts, amplifying Africa's voice globally, reducing vulnerabilities and increasing climate financing access. This strategy aligns with the United Nations' (UN) Sustainable Development Goal (SDG) 13 to urgently combat climate change through coherent, continent-wide action.

Green technology, also known as clean technology or environmental technology, and referred to hereafter as 'green tech', concerns the application of scientific knowledge and innovation to create products, processes and services that are environmentally friendly and resource efficient (Rana et al., 2021). Green tech has the potential to generate new jobs and income opportunities for young people in sectors such as renewable energy, waste management, agriculture and transportation. It can also stimulate the creation and expansion of enterprises that produce and market these innovations.

However, a green tech 'readiness index' shows that sub-Saharan Africa is the least ready to use, adopt or adapt to frontier technologies and is at risk of missing current technological opportunities (UN Trade and Development (UNCTAD), 2023). The index ranks 166 countries and is based on five building blocks: information and communication technology (ICT), deployment skills, R&D, industry and access to finance. African countries, therefore, need supportive legal, policy and infrastructural frameworks that foster green tech development and adoption. If these countries are to achieve their SDGs, these measures should aim to mitigate and adapt to the impacts of

global warming, foster inclusive and green economic growth, and create decent green jobs for the growing youth population (APRI, 2023).

Kenya, a lower-middle-income country, has the largest economy in East Africa by GDP and the third wealthiest in the region based on GDP per capita (World Bank, 2024). Although young people aged 15–34 made up 63% of the labour force in 2019 (Kenya National Bureau of Statistics, 2019), a significant portion – 53% of youth aged 18–25 – were NEET at that time (Kenya National Bureau of Statistics, 2024). In addition, 51% of these young individuals faced multidimensional poverty. The youth unemployment rate nearly doubled between 2004 and 2023 (O'Neil, 2024).

The transportation sector in Kenya is dominated by internal combustion engine (ICE) vehicles. This industry contributes 8.3% to the nation's GDP but is largely limited to retail and distribution, with only three ICE vehicle assembly plants focused on pick-ups and heavy commercial vehicles (PwC, n.d.). Despite its economic significance, the sector relies heavily on petroleum products, making it the largest consumer of fossil fuels in the country. In 2015, it accounted for about 67% of Kenya's energy-related carbon dioxide emissions and 11.3% of total greenhouse gas (GHG) emissions (Changing Transport, 2021).

The transport sector has thus become a priority area in the country's Nationally Determined Contributions (NDCs) and the National Climate Change Action Plan (NCCAP) (Mitigation Action Facility, n.d.).[4] While the country currently has a relatively low vehicle ownership rate – about 28 vehicles per 1,000 people – this reflects both limited motorisation and significant future growth potential. Rather than locking into carbon-intensive transport pathways as ownership expands, Kenya has an opportunity to leapfrog over traditional automotive development by prioritising greener technologies such as electric mobility and low-emission public transport systems (Mitigation Action Facility, n.d.).

This combination of the transport sector's significant economic contribution, its substantial share of energy-related emissions and the opportunity to enhance domestic automotive manufacturing capabilities has driven Kenya to promote the growth of its electric mobility (e-mobility) subsector. Expanding e-mobility is seen as a strategic step towards achieving NDC targets, which include developing low-carbon, efficient transportation systems (Changing Transport, 2021).

Based on a review of the literature and policy documents, an analysis of a novel dataset of 18 e-mobility companies and 30 in-depth interviews and surveys, this report demonstrates the potential for e-mobility to create green jobs in Kenya that youth and women can benefit from.

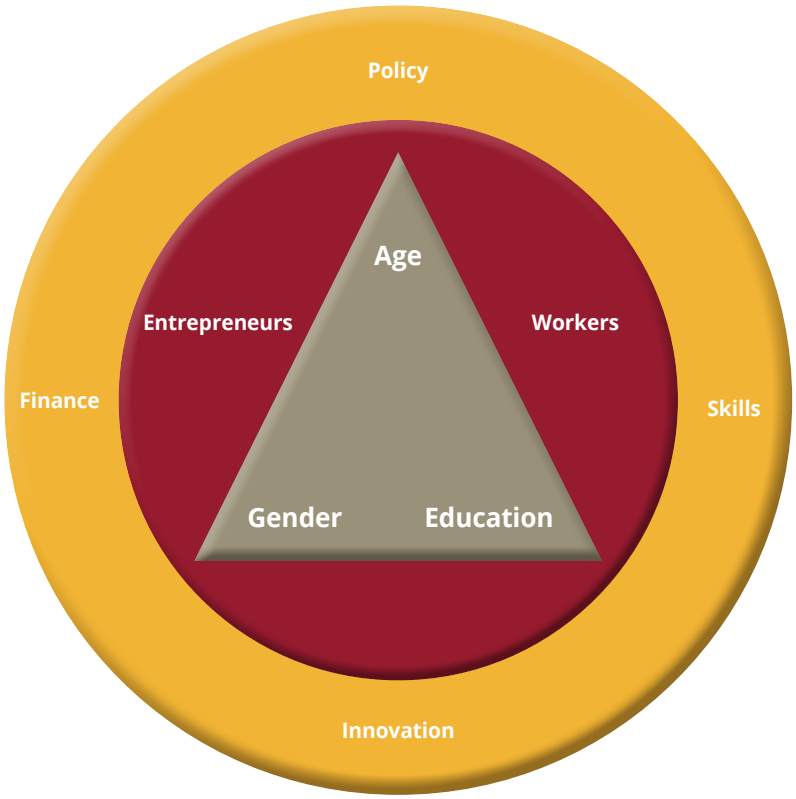
1.2 Report approach

1.2.1 Purpose and scope

The main objective of the research was to understand the key actors, policy context, barriers and enablers in the nexus between the e-mobility sector and youth employment in Kenya, capitalising on Indigenous and traditional knowledge to enhance technological innovation for startups.

The report focuses on the role of policy and the tech startup sector in driving e-mobility sector job creation among youth, with a cross-cutting focus on gender (see Figure 1).

Figure 1
Focus areas of the report



Source: authors' construct (2025).

The specific objectives of the research are to:

1. Investigate the current national strategies and policy framework for the e-mobility sector and youth employment opportunities in Kenya.
2. Investigate how the tech startup scene can foster the scaling of green tech and youth employment in the sector.

3. Understand the role of youth in this space and identify what inhibits or drives their contribution to innovation.
4. Spotlight the role of women in the development of tech transfer and job creation in the e-mobility sector and identify what constrains their contribution.
5. Understand the elements, tools and policy initiatives required to increase the uptake of locally developed technologies and Indigenous knowledge systems.
6. Spotlight the role of youth in driving technology transfer and identify what limits their contribution.

1.2.2 Research questions

This report answers the following research questions:

1. What are the current policy tools and regulatory frameworks in e-mobility management and youth employment in Kenya, and who are the stakeholders?
2. Do current policy tools and rules promote green jobs for youth in the e-mobility sector?
3. Is Kenya's e-mobility space responsive to young people's local innovation and employment needs and priorities?
4. What realities and challenges do entrepreneurs supporting climate action solutions face in the e-mobility startup space?
5. What opportunities exist for scaling up local e-mobility among African youth?
6. What practical realities and challenges do women face in the development of tech transfer and job creation in green tech? What constrains their contribution?

1.2.3 Methodology

The study took a mixed methods approach to answering the research questions. It entails a literature review, document analysis, semi-structured interviews, qualitative surveys and the quantitative analysis of a novel dataset. (See Annex 1 for a detailed report on the methodology.)

1.3 Report structure

Section 2 of the report examines the literature on climate change in Kenya, youth employment and the solar e-mobility sector. It draws on the literature to provide estimates of the number of jobs for youth and women that the sector is capable of creating.

Section 3 identifies the key policies across e-mobility, employment and youth. It assesses the degree of e-mobility youth employment content in the policies and the extent of coherence among the various policies.

Section 4 focuses on the financing, skills and innovation needs and dynamics of the e-mobility sector in Kenya. It uncovers the key trends in these areas, the core challenges and the enablers of success.

The report ends with a conclusion and recommendations for action that policymakers, development partners and other actors should take to more intensively and extensively mainstream youth inclusion for green jobs in the Kenyan e-mobility sector.

SECTION TWO

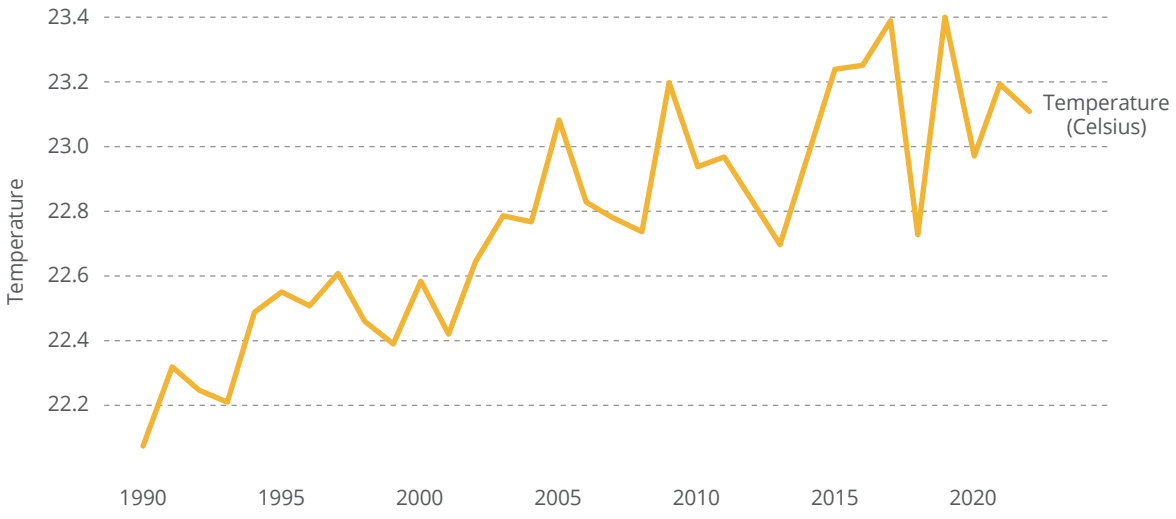
Country context

This section provides an overview of the impact of climate change in Kenya, which makes global decarbonisation initiatives necessary, including in the transportation sector. It outlines youth employment challenges in Kenya and subsequently examines the e-mobility ecosystem, its key stakeholders and employment trends in the sector.

2.1 Climate change impact in Kenya

Since 1990, Kenya's GHG emissions have increased by a compound annual growth rate (CAGR) of 2.8%, accounting for only 0.81% of global emissions (Boyle, 2024). According to the ND-GAIN Country Index, in 2022, Kenya was the 46th country most vulnerable to climate change in the world, and the 146th country most ready for climate change in the world (University of Notre Dame, 2023). The average surface temperature in Kenya has risen annually over the past three decades (Figure 2).

Figure 2
Annual average surface temperature in Kenya, 1990–2022



Source: authors' construct. Based on Global Data Lab (2025).

As a result of climate change, Kenya frequently experiences extreme weather, such as drought, with deadly impacts on livestock, crops and humans. It is estimated that in 2023, 131,000 persons were internally displaced due to climate-related disasters in Kenya (Global Migration Data Analysis Centre, 2024). The Stockholm Environment Institute projects that the future economic costs of the impacts of climate change on market and non-market sectors might be close to 3% of GDP per year by 2030 and potentially much higher than this (more than 5% of GDP per year) by 2050 (African Climate Foundation & International Food Policy Research Institute, 2023). Under high-emissions scenarios, Kenya could see an additional 75,100 people at risk of riverine flooding by 2030 (World Health Organization & United Nations Framework Convention on Climate Change, 2015).

2.2 Youth employment

As mentioned in the previous section, despite Kenya being a lower-middle-income country, it has the largest economy in East Africa, measured in GDP, and the third wealthiest in the region, according to GDP per capita (World Bank, 2024). Agriculture is its largest economic sector, accounting for 54% of GDP, followed by the services sector at 39% and industry at 7% (Cowling, 2023).

However, whereas young people aged 15–34 made up 63% of the country's labour force (Kenya National Bureau of Statistics, 2019), over a half (53%) of youth aged 18–25 were NEET in 2019 (Kenya National Bureau of Statistics, 2024). In fact, with close to 500,000 to 800,000 young people entering the job market annually (Onsomu et al., 2022) and many not being able to find employment (Franz, 2014), the youth unemployment rate nearly doubled between 2004 and 2023 (O'Neil, 2024). Furthermore, the unemployment rate for women is nearly double that for men (World Bank, 2025).

The youth population (18–34 years) is projected to reach 19 million by 2035 (Muhati, 2023). If the unemployment rate continues to rise, as it has for the past decade (O'Neil, 2024) – a trend reflected in the decline in youth approval of the government's efforts to create jobs from 2014 to 2024 (Kamau et al., 2025) – then Kenya's youth unemployment problem will only worsen. In addition, most of the jobs created are not fulfilling, based on remuneration or job security (Onsomu et al., 2022). For example, over 91% of jobs created in 2019 were in the informal sector (Cowling, 2024). As a result, 51% of employed workers in Kenya are multidimensionally poor (Kenya National Bureau of Statistics, 2024).

2.3 Overview of e-mobility technologies

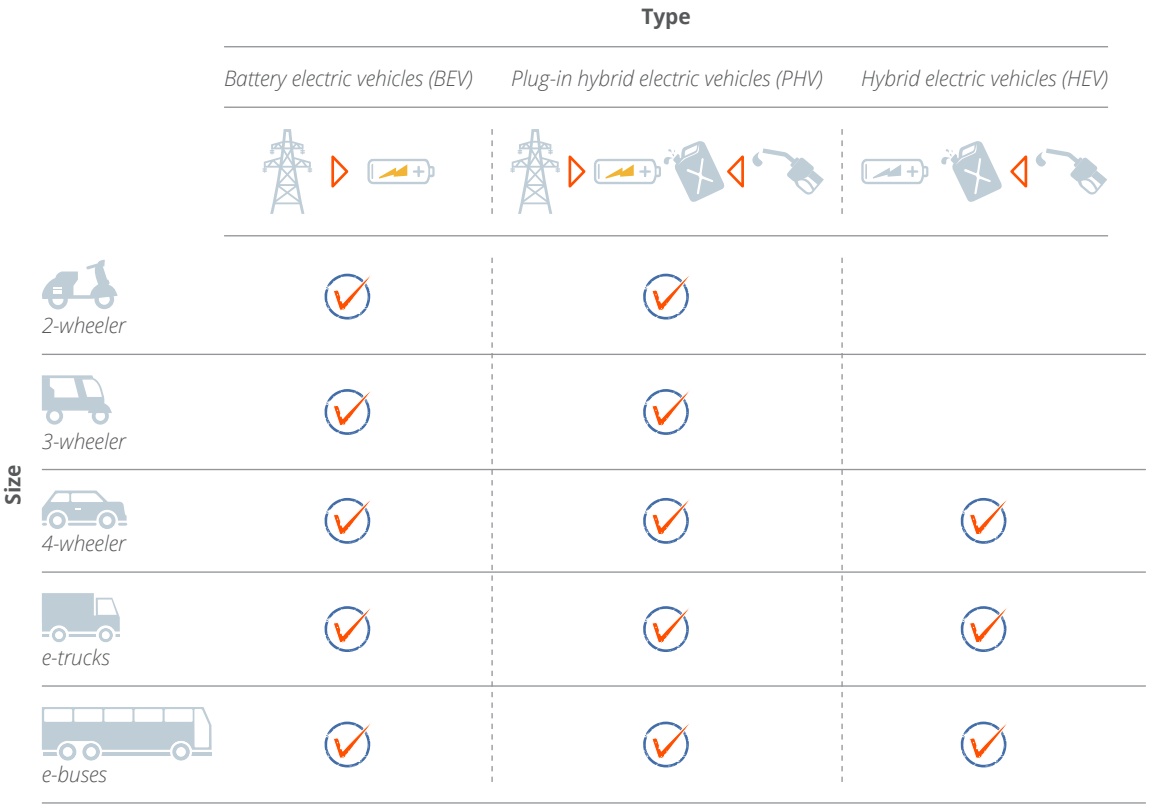
Electric mobility (e-mobility) refers to 'the use of electricity to power the transport infrastructure as an alternative to fossil fuels' (Energy and Petroleum Regulatory Authority, 2024). The e-mobility sector centres on three broad complementary technologies: electric vehicles (EVs), charging infrastructure and digital solutions. EVs vary in type, size and capacity, from e-bikes, e-scooters and e-motorcycles to e-cars, e-buses and e-trains. There are three common types of EVs:

- Battery electric vehicles (BEVs):
  - BEVs are powered entirely by electricity, most often using a battery that is charged from an external socket through a plug on the vehicle.
- Hybrid electric vehicles (HEVs):
  - HEVs integrate both ICE and battery power. The battery is charged with the petrol engine, which in turn is used to drive the vehicle.
  - Plug-in hybrid electric vehicles (PHEVs) also use both an ICE and a battery, but the latter is charged from an external socket rather than with the engine.

- Fuel cell electric vehicles (FCEVs)
  - The electricity used to power FCEVs is produced from chemical energy, as is the case with hydrogen FCEVs.

These EV types are available in most sizes, save for HEVs, which are not commonly used in two- or three-wheelers (Figure 3).

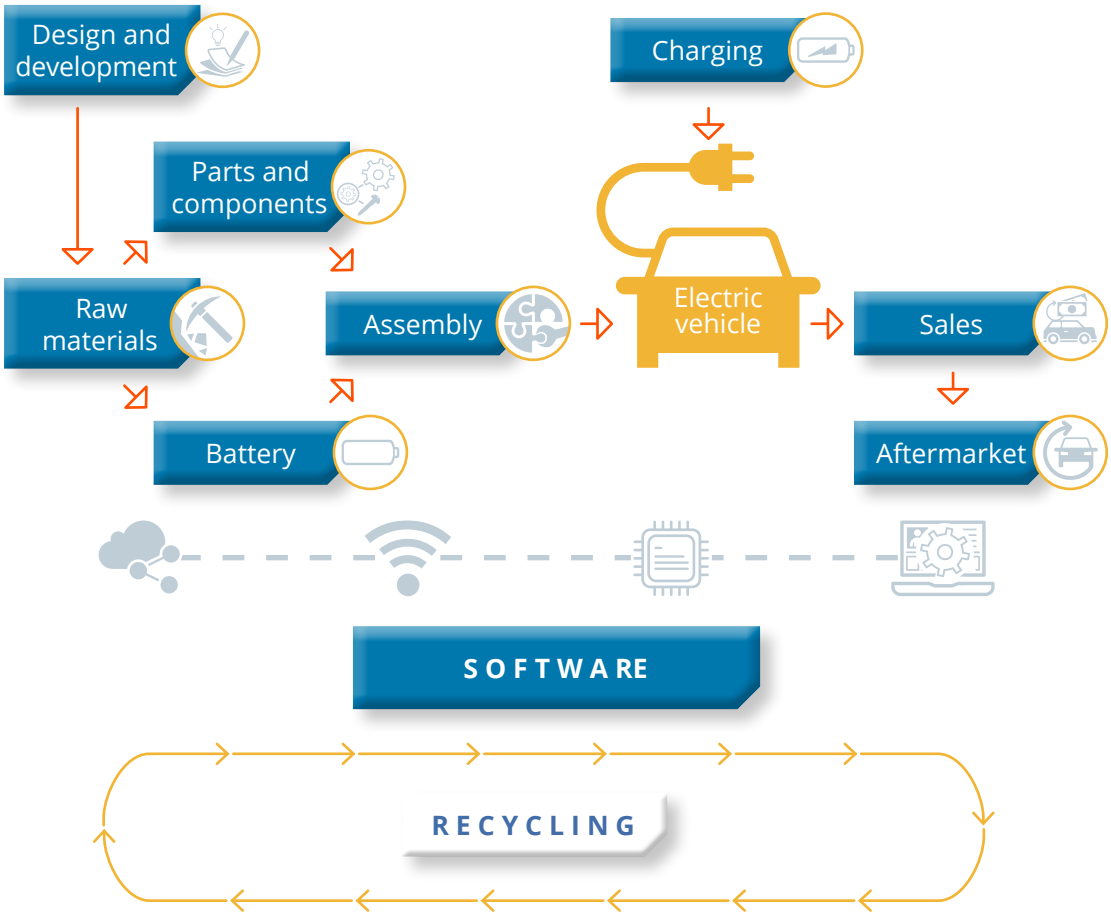
Figure 3
Classification of EVs



Source: Association for Electric Mobility and Development in Africa (AEMDA) (2021).

With the production of e-trains and e-buses being more complex due to their greater size, battery capacity and functionalities, growth in local manufacturing for several African countries has mainly been for two-wheelers and e-cars. This is partly the result of the diverse opportunities along the EV value chain (Figure 4). Jobs may be created in areas such as the design and development of vehicle schematics; the supply of raw materials for vehicle frames and other components; the assembly and installation of charging infrastructure; sales; maintenance and other after-sales services; and digital solutions for producers and users (such as charging station locator software applications).

Figure 4
EV value chain

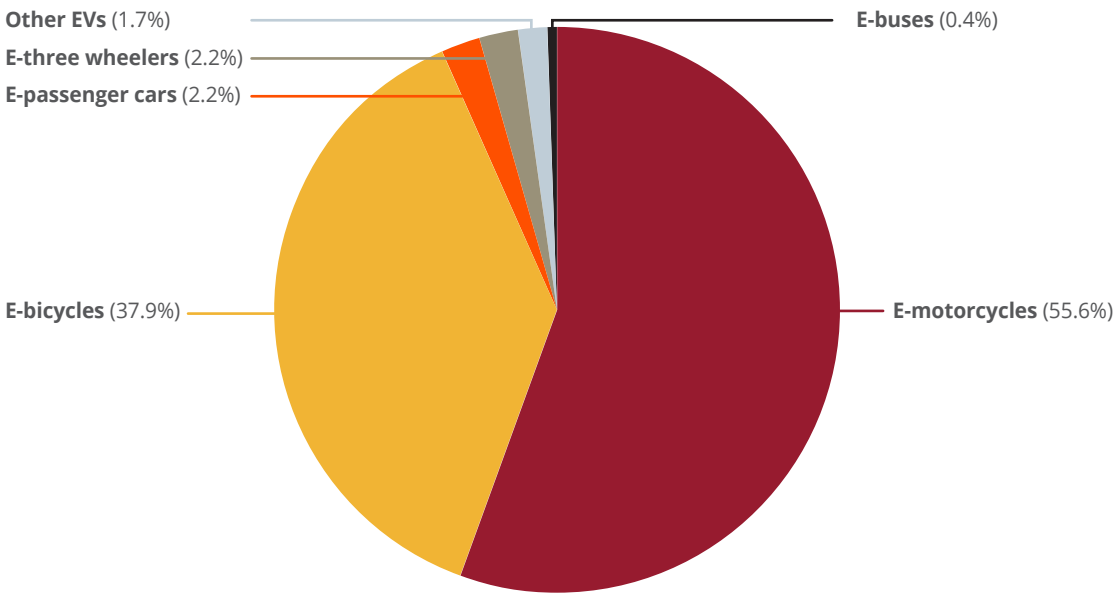


Source: Páez and Gorodetsky (2023).

2.4 Kenya's e-mobility ecosystem

The Kenyan e-mobility sector has grown from only 65 new EV registrations in 2018 to 4,047 registrations in 2023 to 9,144 registrations in 2025 (Electric Mobility Association of Kenya (EMAK), 2024, 2025). Most of the startups in the sector focus on two- and three-wheelers (AEMDA, 2021). This is reflected in the fact that 95% of all registered EVs in 2024 were e-bicycles and e-motorcycles, despite motorcycles and bicycles making up 43% of total vehicle registrations in 2024 (EMAK, 2025).

Figure 5
Types of EV on Kenyan roads



Source: EMAK (2025).

About 50 companies are operating in Kenya's e-mobility space (EMAK, 2025). As of August 2025, EMAK, founded in 2024, had 45 members. Table 1 lists 37 of the key private sector companies in the space.

Table 1
Key private sector companies in the e-mobility industry in Kenya

Company	e-Bicycle	e-Motorcycle	E3W (tuk-tuk)	E4W (car and bus)	Charging	Financing	Research/ training
Advance Mobility							●
Ampersand E-Mobility Ltd		●			●		
ARC Ride Kenya Limited	●	●	●		●		
BasiGo Kenya				●	●		
BEV Ltd				●	●		●
Car & General (Trading) Limited		●	●		●	●	
ChajaWork AFRICA Limited					●		
Drive Electric/Knights Energy				●	●		

Company	e-Bicycle	e-Motorcycle	E3W (tuk-tuk)	E4W (car and bus)	Charging	Financing	Research/ training
eBee Mobility Kenya Limited	●				●		●
Ecobodaa Company		●				●	
Equator Mobility	●			●	●		
EVChaja Ltd					●	●	
Evon Green Energy Limited					●		
eWAKA Mobility	●	●			●		
Exodus Mobility						●	
FIKA Mobility		●					
Frontier Links				●			●
Gecss Investment Ltd		●					
Go-Electric Limited		●	●	●	●		
Hyundai				●	●		
Kiri EV Limited		●	●				
Mazi Mobility		●			●		
M-KOPA Kenya Ltd					●	●	●
MOGO Financing Kenya						●	
Motion Energy Group Pty Ltd						●	
Power Governors Ltd				●			
Powerhive Kenya		●			●		
Roam Electric Ltd		●		●	●		
Rockland Energy					●		
Spiro		●			●		
STIMA Mobility Ltd		●			●		●
Sun King						●	
TES Transitions Ltd						●	●
Transboda Ltd		●					
Watu Credit Ltd						●	
Wuxi Texh Ltd				●			
Yna Kenya		●	●		●	●	

Source: EMAK (2024).

Mobility as a service (MaaS) is a leading subsector (42% of active companies) in Kenya's e-mobility ecosystem, resulting from its integration of transport services like ride-sharing, carpooling, peer-to-peer car-sharing, bike rentals and public transport (Siemens Stiftung, 2024a).

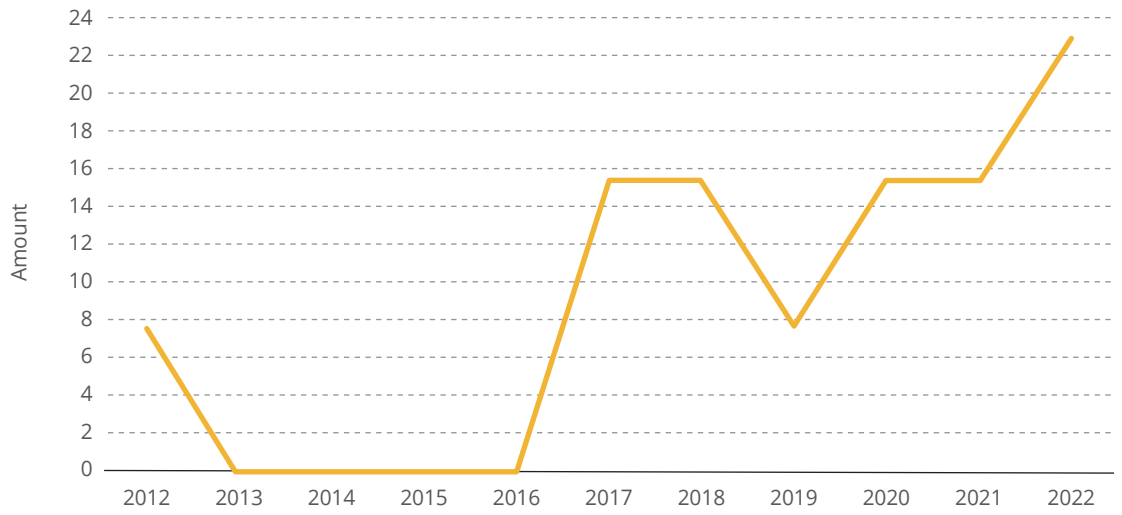
Sales and installation of charging infrastructure is also a very active subsector (40% of active companies) (Siemens Stiftung, 2024a). Indeed, among ancillary services, battery swapping and charging stations are the leading services in the Kenyan e-mobility ecosystem (AEMDA, 2021). These services provide opportunities for youth employment in technical roles and support the adoption of EVs across the country. Interviewees of this study observed that the expansion of charging infrastructure would significantly increase the uptake of EVs, driving demand for services such as battery maintenance and software development for EV systems.

Other types of company in the ecosystem include those providing software/platform solutions (35% of companies) and aftermarket technical support, servicing, repairs and replacement (35% of companies) (Siemens Stiftung, 2024a).

2.4.1 Origins of the Kenyan e-mobility sector

Many of Kenya's EV companies are still in their early stages. A 2021 survey of 14 e-mobility companies (from 18 identified that year) found that 86% had been in operation for less than three years, indicating that most startups are relatively new (AEMDA, 2021). The dataset shows that 90% of the 20 recorded e-mobility companies had been established after 2017, reflecting a rapid influx of new players in the sector (Figure 6).

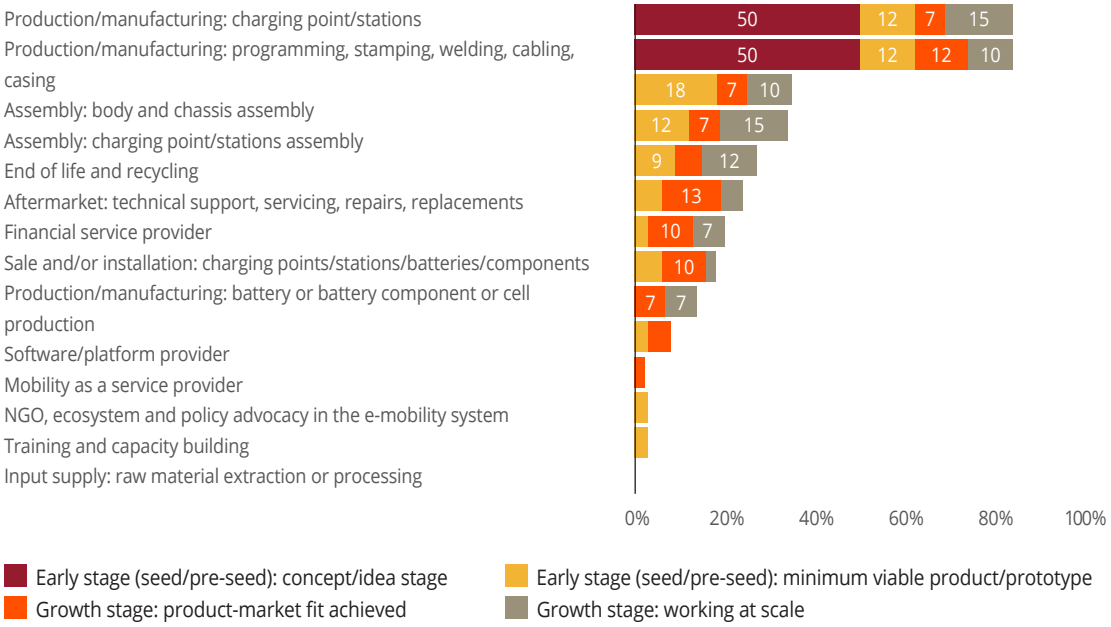
Figure 6
Number of e-mobility companies in Kenya founded annually



Source: authors' construct. Based on a novel dataset (2025).

Another survey confirmed that 69% of companies were founded between 2020 and 2023 (Siemens Stiftung, 2024a). Half of the early-stage (seed/pre-seed) companies in the Kenyan e-mobility sector engage in the production and manufacturing of charging points and stations, as well as programming, stamping, welding, cabling and casing (Siemens Stiftung, 2024a) (Figure 7).

Figure 7
Maturity level of e-mobility companies by sector



Source: Siemens Stiftung (2024a).

2.4.2 Main actors

As of 2025, policy actors in the e-mobility landscape in Kenya include governmental agencies, private sector players, development partners, research institutions and non-governmental agencies (Figure 8).

- **Government of Kenya:** The Kenyan government plays a crucial role in setting policies, regulations and targets related to e-mobility. Some of the key governmental agencies responsible for e-mobility policy in Kenya include the Ministry of Energy and Petroleum, the National Transport and Safety Authority (NTSA) and the Nairobi Metropolitan Services. The government has set targets for electric and hybrid vehicle imports and provided fiscal incentives, demonstrating its commitment to promoting sustainable transportation (Ministry of Energy, 2020).
- **Private sector:** The private sector, including e-mobility companies and industry players, has been actively involved in implementing e-mobility projects in Kenya. These include vehicle manufacturers and importers such as Mitsubishi Motors Kenya, Metro Electric (assembled EVs), the Kenya Electricity Generating Company (KenGen), Kopoko (EV charging solutions) and the Electric Mobility Association of Kenya (EMAK). Financial institutions, tech hubs and training institutions are also critical players in the ecosystem.

Figure 8
Stakeholder map of the Kenyan e-mobility ecosystem, 2025

Source: authors' construct (2025).

Governmental agencies such as the Ministry of Energy and Petroleum and the NTSA play key roles in setting the policy direction. The private sector, especially startups focusing on electric two- and three-wheelers (E2&3Ws), is the driver of innovation. Respondents from these startups noted that development partners like Germany's Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and non-governmental organisations (NGOs) and training institutions such as Advanced Mobility Africa, AfricaNEV, Knights Energy, Strathmore University and CENEX UK have been instrumental in financing and providing training. However, this support is insufficient to scale the sector to meet employment and sustainability goals.

2.4.3 Employment trends

The transport sector, which is part of the services sector, currently accounts for 8.3% of Kenya's total GDP (GIZ, 2021). Most of the actors in transport operations, including owners, operators and traffic code enforcers, are men. Women constitute only 13.6% of informal transport operators and just 5% of workers (Tanzarn, 2017). The majority (62.3%) of these women workers are employed as conductors and office and route managers (Mwangi, 2014).

Breloff et al. (2024) project that 240,000 jobs could be created in the Kenyan green tech sector, which includes the e-mobility sector, by 2030. They also predict that by 2033, Kenya will create 33% (14,200) of Africa's E2W jobs, the highest on the continent. However, 39.5% of these jobs are expected to be unskilled labour (material handlers, casual labourers and sales agents), 30% specialised labour (welders, electricians and customer service representatives), 21% general/admin labour (sales representatives and production managers) and 9% advanced labour (electrical and mechanical engineers).

The jobs are expected to come mainly from the assembly, sales and after sales, and maintenance segments of the value chain (Breloff et al., 2024). An additional 5,900 jobs are projected to be created in the E2W battery swapping and charging point operation EV subsectors. Most of these jobs will be in installation since most components of the charging infrastructure are imported.

EMAK (2024) provides a broader estimate, suggesting 80,000 jobs by 2028 under current policies and up to 325,000 with strong government support. Unlike that of Breloff et al. (2024), this projection covers the full e-mobility ecosystem.[5] However, the projections by neither Breloff et al. nor EMAK disaggregate the data by gender or age.

Siemens Stiftung (2024a) estimates that 46% of employees in the e-mobility sector are under 25, while data from the respondents indicates that up to 70% of jobs in the sector are held by youth aged 18 to 35. The most recent and comprehensive estimate suggests that young people make up 81% of Kenya's e-mobility workforce (GIZ, forthcoming).

In addition, Siemens Stiftung (2024a) estimates that women make up 38% of the e-mobility sector workforce in Kenya. This is greater than the percentage of women in the transportation and storage sector in 2023, which stood at 33.8% (Kenya National Bureau of Statistics, 2024). This suggests that the e-mobility sector could create 64,800 jobs for the youth and 30,400 jobs for women by 2028.[6]

Over the next five years, more EV companies will move into local production, improve local content and scale up as innovative business models to allow more consumers to acquire EVs. Government support is also set to increase, and more finances are pouring into the sector. As a result, the number of full-time jobs in the sector is expected to increase from an estimated 5,000 jobs in 2025 to over 250,000 jobs by 2040 under a high-support scenario (EMAK, 2025). In 2024, there was already strong evidence of annual employment growth in the sector, with 72% of companies reporting an increase in employees from 2022 to 2023 and 93% of companies anticipating further employment growth in 2024 (Siemens Stiftung, 2024a).

Indeed, after a survey in 2021 found that 64% of Kenyan e-mobility companies had less than five full-time employees and just 21% had over 15 employees, with an implied average of about 10 employees across companies (AEMDA, 2021), another survey carried out three years later by Siemens Stiftung (2024a) found the average number of employees to be 32, with a median of 10.

Moreover, some challenges to employment in the e-mobility ecosystem are being tackled. For example, a skills gap was identified by a 2021 study that noted the scarcity of secondary or tertiary academic courses specifically focused on e-mobility in the country (AEMDA, 2021). This

is being addressed by organisations, such as AfricaNEV, that are training the youth to acquire and upgrade the skills most appropriate for the sector.

Regarding the age of chief executive officers (CEOs), our dataset indicates that 46% of the top leaders in the sector are estimated to be under 35. Most of them are men, with women accounting for only 17%. This is higher than the estimated 13.6% of *matatu* (public bus) transport operators in Nairobi's informal transport sector who are women (Mwangi, 2014).

SECTION THREE

National policy and regulatory framework

Kenya's e-mobility policy landscape is in a developmental phase characterised by ambitious goals but limited implementation. There are two major policies for the sector: the National Energy Efficiency and Conservation Strategy (2020) and the Draft National E-Mobility Policy (2024). These provide Kenya with the foundational framework to achieve its NDCs, which emphasise the adoption of low-carbon and efficient transportation. However, the policies remain high-level and lack specific instruments for supporting domestic manufacturing, fostering youth employment or ensuring local content development. Stakeholder interviews conducted for this report highlighted that while the government's commitment to e-mobility is apparent, the absence of clear action plans is limiting the sector's growth.

For the projections outlined above to be realised, relevant policies must be put in place. Progress is being made. Kenya's policy tools and regulatory frameworks for green tech management and youth employment reflect a commitment to sustainable development, driven by the goal of reducing emissions by 32% by 2030 in alignment with the Paris Agreement on climate change.[7] Meanwhile, the government is working on a national e-mobility policy, which will include a strategy, legislative reforms, regulatory guidelines and a regulatory impact assessment (RIA). Existing policies, such as the Integrated National Transport Policy (2009–2024) and the Kenya National Energy Efficiency and Conservation Strategy (2020), aim to foster energy efficiency and support the growth of e-mobility solutions.

However, there remains a need for policies targeting green job creation for youth and integrated frameworks that align youth employment initiatives with green tech sectors like e-mobility. Linking youth employment with e-mobility is critical because Kenya's large youth population faces persistent unemployment. The opportunity is clear: as it grows, the EV sector is demanding ever more technical and vocational expertise in areas such as electrical engineering, automotive electronics, ICT and sustainable supply chain management. By designing e-mobility policies that incorporate training and reskilling programmes, Kenya can simultaneously address unemployment and ensure a skilled workforce capable of supporting the country's clean transport transition.

3.1 Policy framework for e-mobility

There are significant challenges to policy coherence, particularly in linking youth employment policies directly to green tech. While documents such as the Kenya National Development Youth Policy (2019) and initiatives such as the Bottom-Up Economic Transformation Agenda (BETA) (2023) emphasise creating sustainable and decent jobs, they do not adequately integrate specific green job pathways, including those in the e-mobility sector. Policies like the Kenya National Energy Efficiency and Conservation Strategy (NEECS) (2020) also lack a clear focus on green jobs associated with e-mobility. These gaps indicate the need for a more coordinated approach that synchronises youth employment initiatives with green tech policies to maximise the socioeconomic benefits of the green transition.

In March 2024, the Ministry of Roads and Transport (2024a) published the Draft National E-Mobility Policy. The document acknowledges the problems of inadequate inclusion of women, youth and persons living with disabilities (PLWD) in the e-mobility ecosystem and limited funding

schemes to access low-interest loans for investment. The measures to address youth inclusion in the sector include:

- Developing targeted programmes that incentivise women, youth and PLWD to engage in economic activities enabled by e-mobility.
- Developing programmes to employ women, youth and PLWD in different e-mobility activities.
- Developing programmes to create public awareness of e-mobility's benefits, cost savings and environmental advantages.
- Providing players in the e-mobility value chain with fiscal and non-fiscal incentives to employ women, youth and PLWD.
- Establishing low-interest loan programmes to provide financial assistance to businesses and organisations investing in EVs.

The draft does not state the specific policy instruments that would be deployed to promote youth employment in the sector or what areas such instruments would target (such as skills and innovation). However, the Kenyan government has issued several fiscal policy instruments in the promotion of e-mobility (Table 2).

Table 2
Fiscal policies currently implemented in Kenya for e-mobility

Policy	Description
Finance Act 2019	Reducing excise duties from 20% to 10% for all EVs, this was the first major incentive for e-mobility in Kenya.
Finance Act 2023	The Act amended: • The VAT Act 2013 by adding several segments such as electric motorcycles, bicycles and buses to the list of zero-rated goods. • The Excise Duty Act 2015 by exempting electric motorcycles from the USD 100 excise duty per unit. • The corporate tax rate, reducing it from 30% to 15% for the initial five years of operation for companies setting up new assembly plants using completely knocked down (CKD) parts. Companies can extend the benefit for an additional five years by increasing their local value addition to 50%.
The Tax Procedures (Unassembled Motorcycles) (Amendment) Regulations 2023	The Act: • Eliminated the need for assemblers to have bonded warehouses as a prerequisite for attaining accreditation, a crucial step for accessing the duty remission scheme for CKD motorcycles. • Now includes electric motorcycles in the category of CKD imports, encompassing both the electric motor and the lithium-ion battery (the latter was previously not covered).

Kenya Bureau of Standards (KEBS) 2018	KEBS released 24 specific safety standards for EVs. Adapted from existing International Organization for Standardization (ISO) standards, these encompass 14 for EVs, four for mopeds and three for HEVs. These standards are pivotal in establishing a quality benchmark for EVs.
National Building Code 2024	The National Building Code mandates the allocation of parking spaces for EV charging in commercial buildings.

Source: Africa E-Mobility Alliance (AfEMA) (2023).

The policy instruments, especially those applied under the Finance Act 2023, are quite progressive. Surveys conducted with Kenyan e-mobility companies found that 51% of companies witnessed steady growth and 30% rapid growth in 2023–2024, attributable to supportive government incentives, infrastructure development and increasing market demand (Siemens Stiftung, 2024a). Furthermore, 88% expressed confidence that the sector would grow in 2025, driven by the government's plan for 5% of all new vehicles registered to be electric by 2025, as targeted by the NEECS 2020–2025 (Siemens Stiftung, 2024a).

Nonetheless, the government has not sufficiently explored youth-targeted policies, such as training programmes or stipends for apprenticeships in the e-mobility sector. There is also no dedicated, actionable provision for youth access to finance or incentives in the Draft National E-Mobility Policy. Moreover, e-mobility companies in Kenya still report policy and regulatory barriers, including limited access to financing, unclear regulations, high import duties, the absence of tax breaks and inadequate charging infrastructure (Siemens Stiftung, 2024a).

3.2 Regulatory framework for e-mobility

The regulatory framework encompasses a collection of policies, laws, standards and institutions that oversee the progression and execution of EVs and associated services, while prioritising decent employment prospects for youth in the sector.

Key regulatory elements include the National Climate Change Action Plan (NCCAP) 2018–2022, which previously did not cover lithium-ion batteries but sees e-mobility as a priority area for low-carbon development, and the Energy Act 2019, which supports the promotion of renewable energy sources like solar and wind for EV charging. In addition, institutions such as the KEBS, the Kenya Revenue Authority (KRA) and the NTSA set standards for EVs, offer tax incentives and regulate vehicle registration and inspection. Together, these elements aim to support the creation of sustainable and decent employment opportunities for youth in the e-mobility sector.

Other key regulatory frameworks for e-mobility and youth employment in Kenya are:

- **The Energy Act 2019**, which provides for the regulation, development and promotion of renewable energy sources, including solar, wind and geothermal, which can be used to power EVs (MMAN Advocates, 2023).
- **Electric Vehicle Standards by the Kenya Bureau of Standards (KEBS)**, which is responsible for developing and enforcing standards for products and services, including EVs and their components such as batteries, chargers and converters (Partnering for Green Growth and the Global Goals 2030 (P4G), 2021).
- **The Kenya Revenue Authority (KRA)**, which administers the taxation and customs regime for EVs and their parts and offers incentives like reduced import duty and excise tax for electric and hybrid vehicles.
- **The National Transport and Safety Authority (NTSA)**, which regulates the registration, licencing and inspection of vehicles, including EVs, and ensures compliance with safety and environmental standards.
- **The Kenya Power and Lighting Company (KPLC)**, which is the main electricity distributor and retailer in the country and provides charging infrastructure and services for EVs.
- **The Kenya Renewable Energy Association (KEREA)**, which is a non-profit organisation that represents the interests of renewable energy stakeholders, including e-mobility actors, and advocates for favourable policies and regulations for the sector.

3.3 Policy framework for youth employment

Kenya's third National Climate Change Action Plan (NCCAP III), 2023–2027, cites a transition to e-mobility as one of the priority areas of focus for the country's climate action. It also pays attention to youth (see Section 3.4. below). Beyond the NCCAP III, however, existing policies lack sufficient mechanisms for promoting youth employment and creating green jobs in the e-mobility sector. The Draft National E-Mobility Policy provides a framework but lacks implementation plans for large-scale youth engagement, local content development or incentives that attract startups. Moreover, respondents in key informant interviews (KIIs) expressed concern about the lack of fiscal incentives, such as tax breaks on EV imports and equipment. These gaps limit the sector's ability to create meaningful employment and hinder the scale-up of local production, leading to reliance on imported technologies.

To enhance policy effectiveness, Kenya must address existing gaps by fostering greater alignment between e-mobility initiatives and youth employment strategies. This includes ensuring policy coherence across different sectors and levels of government, adopting a participatory approach to policy formulation and engaging stakeholders to develop evidence-based strategies. A holistic and inclusive policy framework would not only advance Kenya's emissions reduction targets but also ensure that the transition towards green tech creates equitable economic opportunities for youth.

Table 3
Summary of stated policies in Kenya

Policy	Responsible ministry/ agency	Summary	e-Mobility targets	Expected actions on e-mobility
Third National Climate Change Action Plan (NCCAP III), 2023–2027	The Ministry of Environment, Climate Change and Forestry	Outlines the country's vision, goals and actions to mitigate and adapt to climate change; identifies e-mobility as one of the priority areas for low-carbon development.	• 1,000 electric buses deployed. • 50 Government of Kenya passenger cars deployed. • EV charging infrastructure deployed. • Local manufacture and use of EVs including two- and three-wheelers enhanced.	• Standards for electric/ hybrid vehicles in Kenya developed and implemented. • e-Mobility policy and requisite frameworks developed and implemented. • Appropriate incentives provided to increase the uptake of EVs.
Draft National E-Mobility Policy, 2024	The Ministry of Roads and Transport			• 51 policy measures specified, including: • Develop targeted programmes that incentivise women, youth and PLWD to engage in economic activities enabled by e-mobility. • Develop programmes to employ women, youth and PLWD in different e-mobility activities. • Develop targeted programmes for the creation of public awareness on e-mobility's benefits, cost savings and environmental advantages. • Provide fiscal and non-fiscal incentives to players in the e-mobility value chain to employ women, youth and PLWD. • The government to collaborate with financial institutions to develop affordable e-mobility financing products that support women, youth and PLWD.

Policy	Responsible ministry/ agency	Summary	e-Mobility targets	Expected actions on e-mobility
Updated Integrated National Transport Policy, 2024	The Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works	Covers key transport sector challenges and policy recommendations related to transport infrastructure planning, development and management; the legal, institutional and regulatory framework for the sector; safety and security; financing; gender mainstreaming; utilisation of ICT; and climate change, environmental and social considerations.	None	Promote the adoption of e-mobility for transport services including supporting investments in modern vehicle and aircraft technologies to reduce GHG emissions and noise.
Kenya National Energy Efficiency and Conservation Strategy (NEECS), 2020	The Ministry of Energy	Provides a road map in five identified priority sectors (households, buildings, industry and agriculture, transport, and power utilities) to realise the goal of sustainably transforming Kenya to an industrialised middle-income nation by 2030, as envisioned in the Kenya Vision 2030.	5% of cars imported annually to be electric.	• Incentives through lower import duty for electric cars, bicycles and *tuk-tuks*, and lower vehicle road taxes. • Revised Building Code incorporating charging stations in public buildings and new estates. • Awareness-raising on energy efficiency in vehicles and e-mobility.

Policy	Responsible ministry/ agency	Summary	e-Mobility targets	Expected actions on e-mobility
Kenya National Development Youth Policy, 2019	The Ministry of ICT, Innovation and Youth Affairs	Priority areas include addressing youth unemployment, underemployment and inactivity; building youth capacity and integrating young people into the country's technological transformation; promoting mechanisms that support youth engagement in the development, protection and conservation of natural resources and the environment while engaging in eco-ntrepreneurship and green jobs; and building youth capacity in green processes, technology and waste management.	None	Measures are not specific to e-mobility but include: • Develop and implement initiatives that utilise both formal and non-formal education, training and skills development channels, and mutually reinforce and enhance youth educational progress and attainment. This includes: – Investing in apprenticeship skills development, technology and innovations. – Embracing results-based contracting to strengthen links between youth and employers. – Supporting business subcontracting to youth. – Developing and institutionalising financial market access systems for youth.
Kenya Vision 2030	Kenya Vision 2030 Delivery Secretariat (VDS) under the State Department for Planning, in the National Treasury	Kenya's long-term development blueprint aims at creating 'a globally competitive and prosperous country with a high quality of life by 2030,' and to transform Kenya into 'a newly-industrialising middle-income country providing a high quality of life to all its citizens in a clean and secure environment' (SDG Kenya Forum, 2007, p. viii).	None	None

Policy	Responsible ministry/ agency	Summary	e-Mobility targets	Expected actions on e-mobility
Bottom-Up Economic Transformation Agenda (BETA), 2023	State Department for Planning, in the National Treasury	Among other priorities, BETA plans to promote the development of e-mobility to adhere to global GHG emissions targets and reduce air pollution. This involves the development and implementation of e-mobility policy; the establishment of e-mobility charging infrastructure; and the promotion of electric motorcycle manufacturing.	None	Establish e-mobility policy.

Source: authors' construct (2025).

Despite the high potential for job creation, the e-mobility sector faces numerous challenges. One major barrier is the high cost of EV imports, which drives up operational costs and limits the ability of startups to expand. In addition, a lack of formal training programmes focused on e-mobility limits the pool of qualified workers. This study's respondents from e-mobility companies noted that while their operations are growing, they continue to struggle with scaling up due to limited financial support and the absence of a strong local supply chain.

Kenya's policies on e-mobility reflect ambition, but policy implementation concerning green jobs is still nascent. The government's target of achieving 5% EV penetration by 2025 – which reached 8% by 2024 (EMAK, 2025) – is a positive indicator for future growth, but stakeholders say employment creation remains limited. Youth-targeted policies, such as training programmes or stipends for apprenticeships in the sector, have not been sufficiently explored.

3.4 Policy coherence between e-mobility and youth employment

The Kenyan government has implemented several policies and initiatives to promote e-mobility. However, gaps still exist. For example, the NEECS (2020) did not categorically state options for green jobs, especially for e-mobility. The EV standards by the KEBS created guidelines based only on the current ISO standards to oversee the development of EVs in Kenya. While the KEBS is not mandated to address employment outcomes directly, the adoption of EV standards without complementary skills and industrial policy coordination risks limiting youth participation in the emerging EV value chain. For youth employment, the Kenya National Development Youth Policy

(2019) outlines the government's strategy to promote the creation of sustainable decent jobs and income-generating opportunities for all youth in Kenya but fails to link this to green tech such as e-mobility.

Table 4
Summary of the content of policies in Kenya

Policy	Responsible ministry/agency	Green content	e-Mobility content	Youth content	Employment content
Third National Climate Change Action Plan (NCCAP III), 2023–2027	Ministry of Environment, Climate Change and Forestry	✓	✓	✓	✗
Draft National E-Mobility Policy, 2024	Ministry of Roads and Transport	✓	✓	✓	✓
Updated Integrated National Transport Policy, 2024	Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works	✗	✗	✗	✓
Kenya National Energy Efficiency and Conservation Strategy (NEECS), 2020	Ministry of Energy	✗	✓	✗	✗
Kenya National Development Youth Policy, 2019	Ministry of Youth Affairs, the Arts and Sports	✓	✗	✓	✓
Kenya Vision 2030	VDS under the State Department for Planning, in the National Treasury	✗	✗	✓	✓
The Big 4 Agenda	Presidency, specifically through the Presidential Delivery Unit	✗	✗	✓	✓
Bottom-Up Economic Transformation Agenda (BETA), 2023	State Department for Planning, in the National Treasury	✓	✗	✓	✓

Source: authors' construct (2025).

The NCCAP III is a good example of the integration of the three components: green content, e-mobility content and youth content.[8] One of the two goals of the plan is to:

> *strengthen the participation in climate change action by the private sector, civil society, women, youth, children and vulnerable groups within society, including older members of society, persons living with disabilities, members of minority and marginalised communities, and Indigenous peoples.* (Ministry of Environment, Climate Change and Forestry, 2023, p. 3)

To ensure intergenerational equity, the development of the NCCAP III included not only an NCCAP Steering Committee but also a 12-member Youth and Children Consultation Coordination Team, with equal representation of women (Ministry of Environment, Climate Change and Forestry, 2023). The consultation process engaged with Kenyan youth across the 47 counties. This was done in two ways. First, in conjunction with Germany's GIZ agency and the United Nations Children's Fund (UNICEF), a series of regional capacity-building and consultation workshops were held (Ministry of Environment, Climate Change and Forestry, 2023). Second, through UNICEF, over 14,000 children and youth were engaged on Yunitok, a free SMS social monitoring tool for community participation that empowers young people to engage with and speak out on issues that matter to them.[9]

The consultations came up with 10 enabling actions to facilitate the participation of children and youth in implementing the NCCAP III 2023–2027, including the establishment of youth climate change innovation hubs, youth capacity building on climate change technologies and innovation, empowering youth in climate change advocacy and financing, and youth capacity building on the development of bankable climate change project proposals (Ministry of Environment, Climate Change and Forestry, 2023).

In contrast, the Draft National E-Mobility Policy developed by the Ministry of Roads and Transport does not pay similar attention to youth. This is due to two factors. The first is that the policy is a much smaller document (12 pages compared to the NCCAP III's 121 pages). Second, out of the 27 people involved in the development of the draft, only one (the deputy director of climate change mitigation at the Ministry of Environment, Climate Change and Forestry) was also a member of the NCCAP Steering Committee (Ministry of Environment, Climate Change and Forestry, 2023; Ministry of Roads and Transport, 2024a).

There appears to be a moderate level of coherence between the e-mobility policies and the national youth employment policies. This coherence holds the potential to establish synergies and complementarities regarding skills development, job creation and income generation for youth in the sector. Nevertheless, gaps and challenges need to be addressed. These include the availability and accessibility of training and employment opportunities, the quality and sustainability of jobs, and the inclusiveness and participation of youth in policymaking and implementation.

There is a need for greater alignment, synchronisation and cooperation among the diverse entities engaged in e-mobility and youth employment policies. In addition, it is crucial to adopt a more comprehensive and participatory approach towards policy formulation and implementation, supported by empirical evidence. This will ensure that the transition towards e-mobility remains sustainable, fair and advantageous to all.

3.5 Policy environment and Indigenous knowledge

Evidence from policy documents and interviews indicates that policymakers find it difficult to put the concept of Indigenous knowledge into practice in the e-mobility sector. Among the policies examined, the NCCAP III is the only one that mentions the concept. It states that under the implementation of the second version of the NCCAP (NCCAP II), 40 counties coordinated with local communities on Indigenous knowledge on climate change (Ministry of Environment, Climate Change and Forestry, 2023). The document interprets Indigenous knowledge as the co-production of climate information with communities and the application of local knowledge and practices in the development of appropriate adaptation responses.

In contrast, the other policy documents mention the need for knowledge production through research and development (R&D). The Updated Integrated National Transport Policy 2024, for example, highlights the challenge of a lack of research, which stifles policy formulation and innovation in the transport sector. Similarly, research findings often do not inform policy formulation since there is no focal point to coordinate, consolidate and disseminate the findings (Ministry of Roads and Transport, 2024b). The solution proposed is to establish a Transport Research Centre mandated to undertake research in collaboration with universities and act as the custodian of transport research, where all transport sector–related issues, trends, resilience infrastructure and dynamics are covered (Ministry of Roads and Transport, 2024b). In addition, the government is to provide appropriate incentives to the private sector to invest in transport R&D. A similar focus on 'research' as a general concept is observed in the Draft National E-Mobility Policy.

In fact, the technocratic bias in defining 'knowledge' among Kenya's government actors is perceptible in the types of stakeholder that policy documents include when discussing the term. On one hand, the NEECS 2020 seeks to 'promote homegrown solutions or partnerships for knowledge and technology transfer' (Ministry of Energy, 2020, p. 48). On the other hand, in the NEECS Implementation Plan 2022, the measures to be taken to promote e-mobility awareness include creating 'an electric vehicle community of practice to share knowledge on emerging opportunities in the industry' (Ministry of Energy, 2022, p. 34). The stakeholders included in this group are 'businesspeople, experts, researchers and state bureaucrats'. No specific mention is made of Indigenous or localised knowledge, and persons with informal sector knowledge are not usually referred to under the knowledge management sections of these policy documents. Some reasons for this lack of attention given to Indigenous knowledge at the policy level are offered in Section 4.7.2.

Bureaucrats who took part in the interviews for this report do have an understanding of what Indigenous knowledge means. One defined Indigenous knowledge in the e-mobility sector as 'traditional practices, insights and understanding related to sustainable transportation that are rooted in local cultures and contexts'. Another described Indigenous knowledge as 'community-based transportation solutions,' which are adapted to communities' local environments and cultures and have, therefore, become 'traditional'. Examples given were electric boats or solar-powered vehicles designed for rural or remote areas. The respondents cited insights in sustainable resource use/management, environmental stewardship and community collaboration or traditional governance and consultation practices, as well as the use of Indigenous craftsmanship and materials and the incorporation of cultural and spiritual perspectives on mobility.

This suggests that among Kenyan policymakers, Indigenous knowledge is conceptualised along two axes: procedural knowledge and product knowledge. Procedural knowledge entails knowledge about the procedures for applying knowledge, including community collaboration and consultation, project governance and the process by which local knowledge about sustainable resource use and transportation priorities and preferences are taken into account when innovating. Product knowledge refers to the more technical aspects of designing products and making use of Indigenous materials and craftsmanship.

SECTION FOUR

Tech startups, local innovation and youth employment: enablers and barriers

This section examines several factors that affect e-mobility companies in Kenya, including challenges with policies and regulations, financing, skills and innovation. These factors greatly affect whether or not a youth-led startup emerges, survives, grows and scales.

4.1 Overview of the e-mobility sector

Here we examine core aspects of the e-mobility sector that directly affect companies and their employment of youth. These factors include policy and regulatory impacts, financing conditions, company growth and expansion factors, skills requirements, technical assistance and the dynamics of innovation.

4.2 Policy and regulatory challenges and impact

There are two major policy challenges in the Kenyan e-mobility sector. First, there is presently no approved policy for the e-mobility sector. The Draft National Electric Mobility Policy was made public in March 2024 but has not been approved to date. Second, fiscal incentives for the e-mobility sector are inconsistent. The Finance Act 2019 reduced excise duty on 100% battery electric vehicles (BEVs) from 20% to 10%, compared to the 20–35% duty imposed on fossil-fuel-powered vehicles (Lore & Baragu, 2023). This represented the first major incentive for e-mobility in Kenya (AfEMA, 2023).

However, in 2024, the government introduced the Finance Bill, which proposed to reduce some of the tax benefits enjoyed by the e-mobility sector. Some of the provisions included the introduction of an eco-levy aimed at making manufacturers or importers pay for the negative environmental impact of their goods – including solar PV cells and batteries (Song'e, 2024). A 16% value added tax (VAT) on lithium-ion batteries and the reintroduction of excise duties (with a minimum specific tax per unit on some electric motorcycles) were also included.

The Finance Bill was withdrawn following youth protests in June 2024. In its stead, the Tax Laws (Amendment) Bill and the Business Laws (Amendment) Bill were introduced, with little effect (Doris, 2024). It is not clear what the government will do to incentivise investment in the e-mobility sector.

4.3 Financing

Like most tech ecosystems, e-mobility requires large volumes of financing. This section identifies the specific financing needs of the ecosystem, the sources of financing available, the types of financing accessible by companies, how these companies search for financing and the enablers of, and challenges to, successful financing.

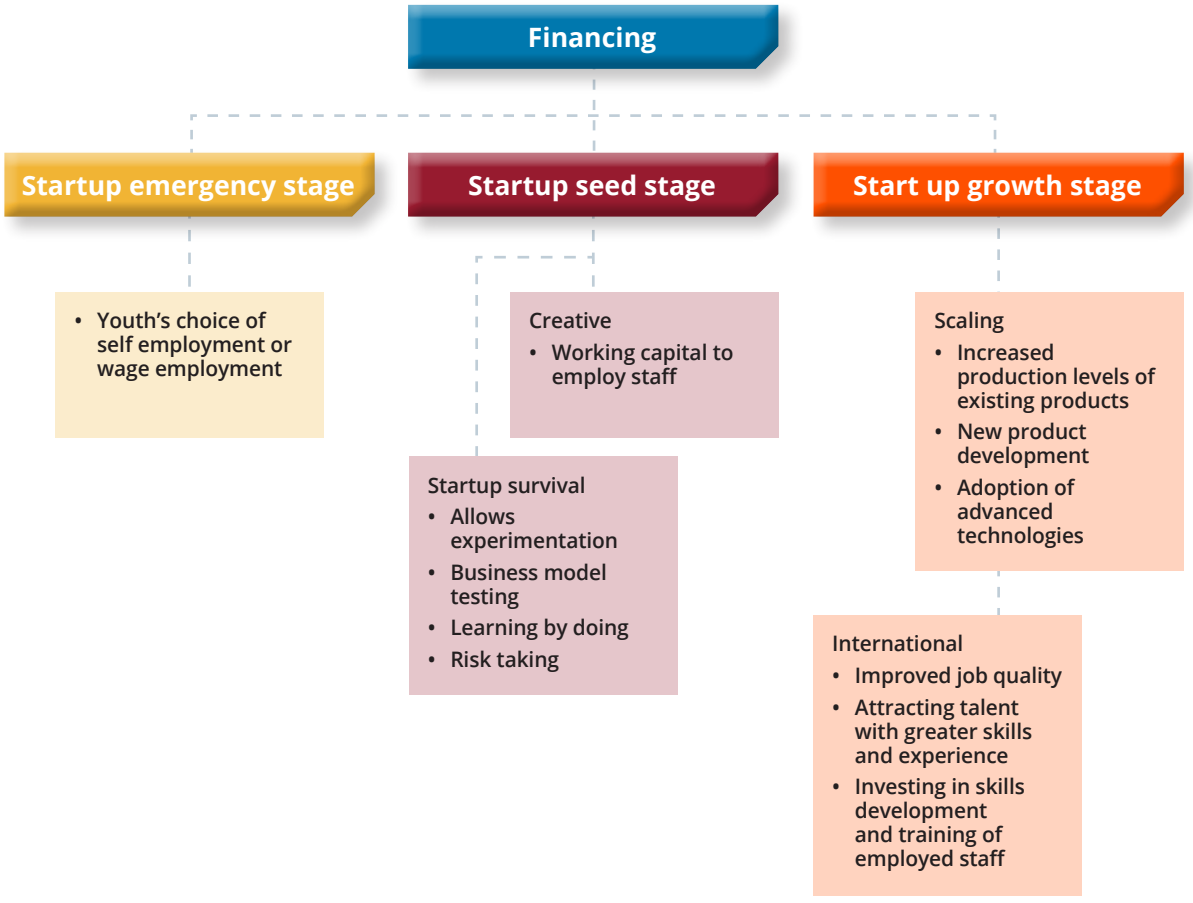
4.3.1 Financial needs

In the absence of a robust and comprehensive policy and macroeconomic environment, financing is particularly important for young industries to survive and grow (Figure 9). As our interviews reveal, finance is critical at three stages of startup development. First, the decision to enter the sector as an entrepreneur is influenced by the availability of cheap finance. This allows more youth to pursue sustainable self-employment.

Second, financing is critical for the seed stage, when revenue is required for employing workers, experimentation, testing out business models and product alterations, and learning by doing, until the enterprise achieves sustained commercial success. Since EV assemblers and importers are still early-stage and small-scale, they face cashflow constraints due to their inability to negotiate favourable payment terms from suppliers (Shell Foundation, 2022). This results in assemblers having to pay up to six months in advance for imported E2W CKD kits (Shell Foundation, 2022).

Third, when startups reach their growth stage, finance is crucial to enabling scale-up. It is needed for increased production, new product development and the adoption of advanced technologies. Consequently, new departments, such as R&D and data analytics, are created.

Figure 9
The role of financing in stimulating youth employment in the e-mobility sector



Source: authors' construct (2025).

These developments increase labour requirements and push growing startups to employ more youth. As startups put more EVs on the road, more charging infrastructure is required, creating opportunities for young entrepreneurs focused on charging station installation and services. This is the most capital-intensive part of the value chain (Shell Foundation, 2022). As these charging stations multiply, opportunities are created for young entrepreneurs to develop charging station software services and charging station locator software. Additional subsectors continue to emerge as new complementary products are demanded, increasing the number of green jobs created.

The quality of jobs is also enhanced by access to finance. For example, a lack of financing forces startups to maintain a very lean workforce, which requires workers to take on multiple roles to minimise labour costs. This may lead to overburdened staff, burnout, low job satisfaction and high staff turnover. With increased financing, more staff may be employed to take on some of these roles. In addition, increased financing allows startups to hire talent with required skills and experience and to invest in skills development and upskilling.

In 2022, the Shell Foundation estimated that in five countries (Ethiopia, Kenya, Nigeria, Rwanda and Uganda), E2Ws (expected to comprise around 80% of the EVs on the road) required USD 3.5–8.9 billion for asset financing, vehicle import and assembly, and charging infrastructure. However, Kenya's e-mobility sector has attracted just USD 50 million so far (Msingo, 2024). Financing is most needed in battery manufacturing and body/chassis assembly, followed by the production of charging points, stamping and welding (Siemens Stiftung, 2024a). By mid-2025, the sector had seen further inflows of capital. For instance, following an initial investment of 2.3 billion Kenyan Shillings (USD 17.7 million), Kenya Vehicle Manufacturers (KVM) secured a strategic partnership with BasiGo for the assembly of King Long electric buses in Thika (Malala, 2025), creating Kenya's first dedicated electric bus assembly line.

In 2024, 58% of companies (mostly early-stage) sought to raise up to USD 1 million each, with 26% seeking USD 1–5 million (Siemens Stiftung, 2024a). Growth-stage companies prefer larger brackets between USD 250,000 and USD 5 million. The funds are targeted towards sales and marketing (72%), R&D (70%), production and manufacturing (63%) and services (56%).

4.3.2 Sources of funding

Financial constraints remain a significant barrier to scaling in the e-mobility sector. To overcome this, more substantial financial resources need to be mobilised, including investments from the private sector, donors and development partners. A survey of 43 e-mobility companies in Kenya found that grants from the government and other sources were the most preferred sources of financing, followed by equity from venture capital (VC)/private equity/impact investors, and company cashflow (Siemens Stiftung, 2024a). Therefore, offering subsidies for EV startups, providing grants for R&D and offering low-interest loans could reduce the financing gap. In addition, creating public–private financing mechanisms to support charging infrastructure development and vehicle assembly could accelerate sector growth and create employment.

Power Africa (2023) contends that financing e-mobility is easier than, for example, financing solar home systems. This is for two reasons. First, the income-generating potential of EVs is more obvious, as the vehicles can be flexibly used for agriculture, logistics, formal employment and ride-hailing services. Second, unlike the off-grid solar sector where there are weak secondary markets (i.e., markets for used off-grid solar equipment), obvious secondary markets exist for vehicles. These factors create greater market clarity that can make lenders like banks willing to finance e-mobility, especially because they can use the vehicles to secure the loans (Power Africa, 2023).

4.3.3 Types of financing adopted

In 2021, equity and crowdfunding accounted for a third of the funding obtained by Kenyan e-mobility companies (AEMDA, 2021). The rest of the financing came from grants (34%) or other types of funding (33%), mostly founders' own finances. Of the capital raised by these young companies, 67% was from grants and bootstrapping, a reflection of the early stage of the ecosystem.

Given the high levels of risk for startups, risk-tolerant and patient capital is required at the seed and growth stages to allow for innovation. While the respondents of this study did not identify precisely what types of financing source matched this need, the business and finance literature is unanimous in identifying personal savings, grants, VC (Klingler-Vidra, 2016), angel investment (Harrison et al., 2016) and impact investment (Yaşar, 2021) as major sources of low-cost, patient and/or risk-tolerant finance for startups.

In 2024, it was estimated that 31% of VC funding raised for tech startups was in the form of debt, while 69% was in the form of equity financing (Partech Partners, 2024). The largest beneficiary of VC debt financing in Africa was cleantech, at 40% of the funding. A total of USD 382 million in VC debt financing and USD 221 million VC equity financing was raised in 2024. While there is no breakdown of financing sources by age of startup (or share of employees who are youth), the existing data is instructive. In 2024, across African tech sectors, mobility accounted for only 3% (13) of private equity deals and 3% (USD 76 million) of private equity investments (Partech Partners, 2024). Nonetheless, the percentage of private equity investments grew from 1% in 2020 to 9% in 2024. Only 7% of equity funding went to women-founded startups in 2024, and only 18% of equity deals were closed by such startups. The latter figure for Kenya was 34%, which is lower than the figure for Ghana (41%) but greater than that for Nigeria (19%).

After AgriTech, mobility has the highest rate of women-led deals in Africa, at 31% (and 37% of equity funding), compared with cleantech at 11% (and 7% of equity funding) (Partech Partners, 2024). With 17% of Kenyan e-mobility startups estimated to be women-led, Kenya's e-mobility sector is more dominated by men than the broader African e-mobility sector.

4.3.4 How e-mobility companies in Kenya look for funding

e-Mobility startups in Kenya rely on multiple funding avenues to finance their operations and growth. Owing to the capital-intensive nature of EV production, battery swapping stations and charging infrastructure, companies seek various financial sources including VC, government grants, bank loans and impact investment funds.

- VC and private equity: Many Kenyan startups, such as BasiGo and Roam Electric, secure investment from VC firms that focus on clean energy and sustainable mobility. These funds provide not only capital but also strategic guidance.
- Government grants and incentives: The Kenyan government, through agencies like the Kenya Climate Innovation Centre (KCIC), provides grants and incentives to startups promoting green tech.
- Bank loans and credit facilities: Commercial banks offer loans, although high interest rates make them less attractive for early-stage startups.
- Crowdfunding and angel investors: Some startups leverage crowdfunding platforms and angel investors to secure seed funding.

Despite these multiple avenues, startups often struggle with access to risk-tolerant financing and long-term capital for scaling their operations.

4.3.5 Enablers of successful funding

Several factors increase the likelihood of e-mobility startups successfully securing funding:

- Strong business model and scalability: Investors prioritise businesses with clear revenue streams, scalability potential and sustainable long-term strategies.
- Government policy and incentives: Favourable policies, such as tax reductions on EV imports and funding for renewable energy projects, boost investor confidence.
- Strategic partnerships: Collaborations with energy companies, transport operators and international organisations enhance funding prospects.
- Technology and innovation: Startups investing in innovative battery swapping technology, charging solutions and smart mobility systems attract more funding.
- Demonstrated market demand: Companies with a proven customer base and clear market traction find it easier to secure investment.

4.3.6 Challenges related to funding

Despite the opportunities, several challenges hinder funding access for Kenyan e-mobility startups:

- High initial capital requirements: Establishing EV production facilities, charging stations and battery management systems requires significant investment.

- Limited risk-tolerant investors: Most investors seek quick returns while e-mobility requires long-term financial commitment.
- Regulatory uncertainty: Inconsistent government policies and a lack of clear long-term incentives deter investors.
- High interest rates: Commercial banks impose high interest rates, making loans inaccessible for many startups.
- Limited awareness among investors: Many potential financiers have a limited understanding of the profitability and viability of e-mobility solutions.

4.4 Growth and expansion

Kenyan e-mobility companies have significant growth potential due to increasing urbanisation and demand for sustainable transport solutions. However, both external and internal factors influence their expansion trajectories.

4.4.1 External domestic factors affecting company growth

- Government policies: Favourable policies, such as tax incentives on EV imports and subsidies for renewable energy, enhance industry growth.
- Infrastructure development: The availability of charging stations and road infrastructure significantly influences adoption rates.
- Economic conditions: Inflation and fluctuating exchange rates affect operational costs, impacting company sustainability.
- Consumer awareness and adoption: Growing environmental consciousness and fuel cost concerns drive the demand for e-mobility solutions.

4.4.2 Internal factors affecting company growth

- Business strategy: Companies with well-defined expansion strategies, including partnerships and franchising, scale faster.
- Technology and innovation: Investment in advanced battery technology and charging infrastructure enhances growth prospects.
- Human resource capacity: Skilled labour, particularly in EV manufacturing and maintenance, is crucial to expansion.
- Financial management: Efficient capital allocation and cost control determine a company's ability to scale operations.

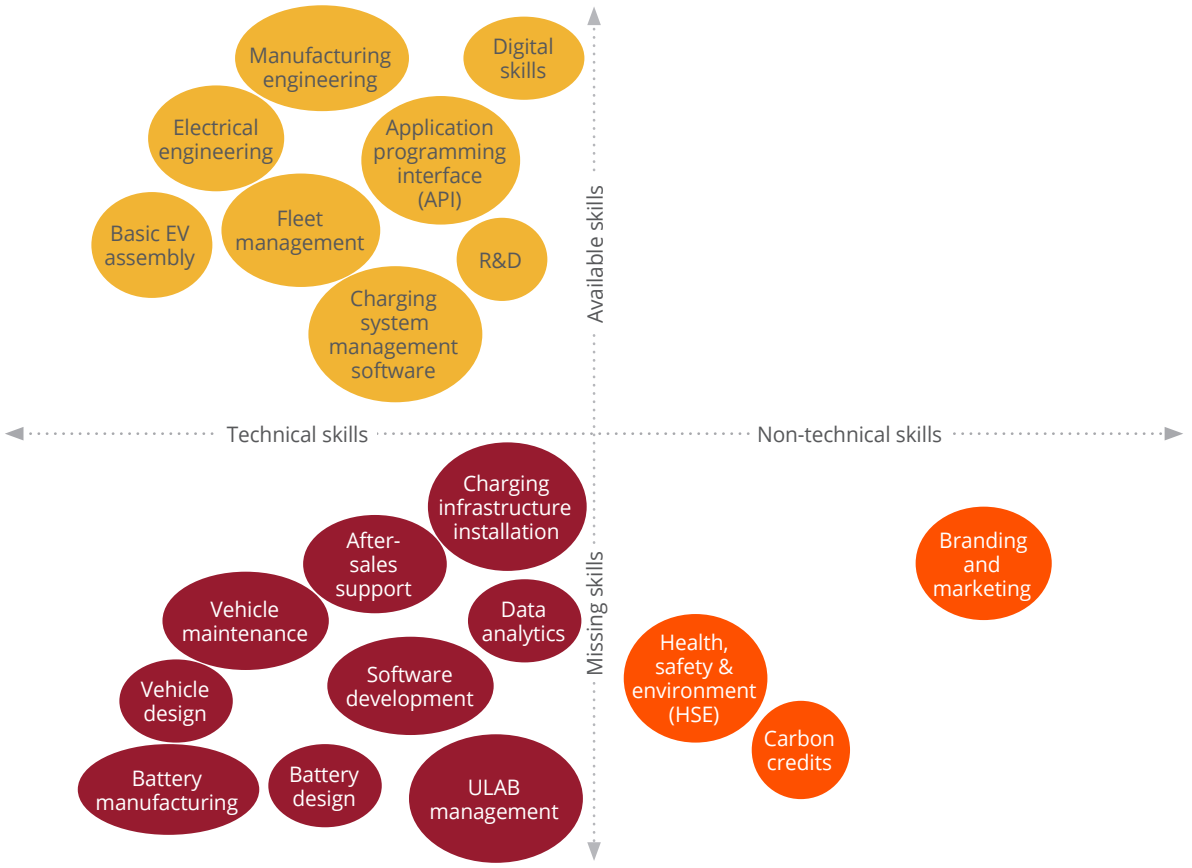
4.5 Sources of and requirements for skills

In the Kenyan e-mobility sector, the most sought-after training areas are technical skills, carbon financing and project management, followed by human-/customer-centric product design, and marketing and sales (Siemens Stiftung, 2024a).

However, from the interviews we conducted for this report, it was established that these were not the only skills in demand. Interviewees emphasised skill types and skill-building methods. Regarding types, skills were identified according to whether they were available or missing in the sector and the extent to which they were technical or non-technical.

The skills highlighted most frequently were technical. This could be because of the technological intensity of the sector in both hardware and software, but it may also reflect a perception that there is a greater level of transferability of soft and non-technical skills from other sectors. Several of the technical skills identified as missing were sector-specific, such as battery design, battery manufacturing and used lead acid battery (ULAB) management.

Figure 10
Youth skills needs in the Kenyan e-mobility sector



Source: authors' construct (2025).

Despite these substantial skills gaps, stakeholders cited inadequate capacity building to adopt and sustain e-mobility in Kenya. However, the government officials interviewed maintained that various capacity development and financial support programmes exist to promote growth in the e-mobility and green tech sectors. However, these initiatives are not specifically targeted towards youth, despite young people comprising a large portion of the labour force.

Too few institutions offer the specialised degrees and diplomas needed to equip the workforce with the relevant expertise. The stakeholders called for a needs assessment to identify the specific skills and innovations required across the e-mobility value chain, from design and manufacturing to maintenance and service. This assessment would inform the creation of targeted educational programmes tailored to the sector's unique needs.

Furthermore, the education curriculum should be revised and aligned with the technological advancements and sustainability objectives driving the industry. Education policies should be more flexible and adaptable, enabling swift incorporation of new concepts and technologies. e-Mobility stakeholders, including companies, should be involved in policy development to ensure that educational programmes are aligned with industry needs and facilitate a smooth transition from school to employment.

Respondents said it was important to provide training that combined technical skills with digital competencies and soft skills. Incorporating courses on data systems, project management and cybersecurity could enhance the employability of young professionals in the sector. Training should be extended to rural areas to give young people in all parts of the country the skills required for e-mobility and green tech jobs.

In addition, there is a need to establish strong partnerships between industries and educational institutions. Such collaborations are crucial to accelerating innovation and creating employment opportunities. By working closely with educational institutions, e-mobility companies can help shape the training and development of a workforce that is equipped with the necessary skills and knowledge to advance the sector. These partnerships also provide students with practical experience and exposure to industry challenges, enhancing their employability and contributing to the sector's overall growth. Similarly, there is a need to integrate e-mobility into technical and vocational education and training (TVET) systems, covering areas like EV maintenance, battery technology and renewable energy integration. Such integration would enable youth to gain skills that align with emerging job opportunities in the sector.

Organisations like Advanced Mobility Africa and Knights Energy are providing youth with skills suited for the industry. Initiatives by EMAK, the GIZ, Siemens Stiftung and others are also focusing on research, coaching and networking to build capacity (Siemens Stiftung, 2024a). Schneider Electric is leading industry–academia collaboration, driving the installation of EV charging infrastructure at six TVET institutions in Kenya and leading infrastructure deployment and training readiness for the TVET sector (Schneider Electric, 2025).

Another key obstacle is the lack of formal training programmes in many organisations. Challenges in this context include the cost of running training and development programmes, upskilling the existing workforce, managing knowledge transfer, attracting skilled staff and

hiring and retaining them (Siemens Stiftung, 2024a). While some companies offer limited on-the-job training or specific courses, more structured vocational programmes are needed to address skills gaps. Government officials stated that some ministries and agencies offered training and employment opportunities for youth, particularly in engineering, data analysis, highway management and urban planning. Nevertheless, these efforts do not comprehensively cover the specialised skills required for the e-mobility sector.

Overall, there is a need for a coordinated approach to skills development and training support, with a focus on creating youth-specific programmes that address the technical and practical demands of the e-mobility sector. Strengthening partnerships between the government, educational institutions and private companies can help to bridge the skills gap, enhance youth employment and accelerate the growth of Kenya's e-mobility industry.

4.6 Technical support and assistance

4.6.1 Government and institutional support

- The Kenyan government, through agencies like the Ministry of Energy and the KCIC, provides technical advisory services and research funding for e-mobility startups.
- Partnerships with universities and research institutions facilitate R&A in battery efficiency, charging technology and EV software systems.

4.6.2 Private sector and international partnerships

- International players, such as the United Nations Industrial Development Organization (UNIDO) and global EV manufacturers, offer technical training programmes and supply chain assistance.
- Private companies collaborate with local startups to provide engineering expertise, maintenance training and technological upgrades.

4.6.3 Training and capacity building

- Vocational training centres and technical institutions develop specialised courses in EV maintenance and assembly. The GIZ's Promotion of Electric Mobility in Kenya project is supporting the development of a dual-TVET modular e-mobility curriculum for craft certificate and diploma levels under the Ministry of Education (GIZ, forthcoming).
- On-the-job training programmes in e-mobility startups help bridge the skills gap by offering hands-on experience to technicians and engineers.

4.6.4 Challenges in technical support

- Limited local expertise in advanced EV technologies remains a major constraint.
- The high cost of specialised technical training discourages many startups from investing in workforce capacity building.
- Inadequate integration between academic training and industry needs results in a mismatch of skills in the labour market. Under the Promotion of Electric Mobility in Kenya project, the GIZ commissioned a training needs assessment, which has surveyed industry players to identify skills mismatches.

Enhancing technical support and assistance through collaborative programmes, international knowledge transfer and local capacity-building initiatives will be instrumental in ensuring a robust and sustainable e-mobility industry in Kenya.

4.7 Innovation trends

In this section, we identify the sources of innovation in Kenya's e-mobility sector. We also examine the specific role that Indigenous knowledge plays and highlight the potential to scale innovation.

4.7.1 Sources of innovation

According to the literature on innovations in the Kenyan e-mobility sector (Shell Foundation, 2022), the main sources of pressure for innovation in the sector are financial constraints for EV users and cost pressures for e-mobility companies. Examples of innovations in the former case are battery servicing and swap models that aim to reduce the amount of money that EV users pay upfront. An example of this is the battery as a service (BaaS) model, whereby a user can buy an E2W but rent the battery.

Innovations driven by cost pressures for e-mobility companies include upgrading along the assembly value chain, from producing semi-knocked down (SKD) units to completely knocked down (CKD) units, and improving the local content share of components (such as investing in lithium-ion battery pack assembly, rather than importing batteries with battery packs). Another source of innovation lies in addressing the needs of market expansion, where companies innovate to penetrate new market segments. An example is the design of E2W cargo vehicles for farmers to transport produce.

e-Mobility companies derive innovative ideas from multiple sources including R&D to develop battery technologies and improve vehicle efficiency, and global trends and technology transfer as startups leverage advancements from leading EV markets, such as China and Europe, and adapt them to local contexts. Key areas of interest for innovation expressed by Kenyan e-mobility companies include battery technology, charging infrastructure, artificial intelligence and data management, EV adoption and mobility, recycling, and alternative energy (Siemens Stiftung, 2024a).

4.7.2 Awareness and use of Indigenous knowledge

Actors in the e-mobility space tend to struggle with conceptualising Indigenous knowledge. This is likely the result of two factors. **First**, the concept of Indigenous knowledge has conventionally been applied in primary and some secondary sectors where the Indigenous use of natural resources preceded the introduction of modern technologies and practices. This includes agriculture, mining and even pharmaceuticals (e.g., traditional remedies and Indigenous knowledge of plants and herbs that have been overlooked by modern medicine).

Indeed, one major meta-analysis comparing Indigenous knowledge research between Kenya and South Africa demonstrated not only the relative paucity of research in this area in Kenya but also categorised the research into:

- Agriculture (e.g., crops, plants, the ecosystem, extension, pastures, fisheries)
- Culture (e.g., religious and related issues, ceremonies, customs, folklore)
- Education (e.g., child or adult education, history, pre- and post-colonial aspects, philosophy, psychology)
- Environment (e.g., links to biodiversity, bioprospecting, forestry)
- Law (e.g., issues of intellectual property rights, innovation, patents, governance, policies, legislation)
- Health and medicine (e.g., alternative medicine, healing, herbal medicine, medicinal plants and all factors that affect human and animal health) (Njiraine et al., 2010).

The most common subject domains for Indigenous knowledge research in Kenya were found to be culture oriented (41.2%), health-and-medicine-related records (21.2%), environment (12.0%) and agriculture (11.5%).

Even the recommendations made by the Indigenous Peoples of Africa Coordinating Committee (IPACC) to integrate African Indigenous and traditional knowledge in national adaptation plans, programmes of action, platforms and policies focus on examples closely related to primary economic sectors. These include plant and animal behaviour, local wild food and medicinal knowledge, grazing systems and livestock management, traditional calendars associated with climatic and seasonal patterns, and hydrological information (Crawhall, 2016). Yet in the areas where the concept of Indigenous knowledge is most visible, scholarly assessments show a lack of frameworks and policies to protect it (Nakitare et al., 2024).

For secondary industries, such as e-mobility, which involve the application of technologies that were previously not present locally, industry actors face greater difficulty in conceptualising Indigenous knowledge. In addition, the ease of identifying, codifying and employing Indigenous knowledge varies across industries. In the renewable energy sector, there is greater scope for the integration of Indigenous knowledge into innovation. One of the few studies on the application of Indigenous knowledge in the renewable energy sector gives the example of Eskom in South Africa, which undertook research into biomass energy and incorporated Indigenous techniques, such as rotational wood harvesting, aligning with contemporary sustainable forestry practices (Mawere & Mukonza, 2024).

Examples of the application of Indigenous knowledge in the renewable energy sector tend to involve technologies where the feedstock is a terrestrial natural resource (such as biomass and rivers for biomass renewable energy and hydroelectricity, respectively). This is where traditional aerial knowledge and other forms of knowledge may be relevant to aspects of renewable energy systems (such as solar orientation and thermal management) (Mawere & Mukonza, 2024) and/or where communal coordination is key to the business model (such as community-owned solar mini-grids) (Castillo & McLean, 2012). This may be contrasted with cases where the product is produced outside of the communities where it is used and where sales are made to individual users.

The codification of an approach to Indigenous knowledge is lacking in the e-mobility sector and other secondary sectors partly because, due to the conventional application of and attention paid to Indigenous knowledge in agricultural, cultural and historical subject domains (Njiraine et al., 2010), scholars and practitioners in the humanities and 'softer' social sciences tend to be the ones who explore these topics. Meanwhile, modern technology is dominated by scholars and practitioners with science, technology, engineering and mathematics (STEM) and 'harder' social science backgrounds (such as economics, policy analysis and business) where Indigenous knowledge is not commonly part of the educational traditions and practitioner discourse.[10]

The **second** factor accounting for the limited application of the concept of Indigenous knowledge in secondary industries is when the technology deployed is predominantly imported from abroad. Of the many e-mobility companies that have emerged in Kenya, two-thirds assemble EVs locally (AEMDA, 2021). However, most import SKD or CKD vehicle units, with low percentages of components sourced locally. The implication is that 'all or almost all inputs for electric vehicles are imported' (Siemens Stiftung, 2024a, p. 29). For example, Opibus (now Roam Electric), a major e-mobility company, has stated that it sources 35% of its components locally, although it is aiming for 65% (Shell Foundation, 2022).

The combined scholarly and industry literature suggests that Indigenous knowledge is more likely to be applied in situations where:

- The product has some local content share, which gives room to integrate some level of Indigenous knowledge in the sourcing of inputs, product design and the production process.
- The modern technology is not too distant from precursors (in this case, ICE vehicle mechanics and technicians with accumulated, localised knowledge can apply such knowledge to EV.
- Local constraints and tastes necessitate adaptive innovations in product design and/or business models.

Examples observed from industry literature include adding space for two to three batteries to increase driving range, given the fragmentary charging infrastructure (Shell Foundation, 2022). Additional examples include improvements in the power of EVs to enable them to carry passengers or heavier loads, as well as designing EVs to match the look and feel of familiar ICE two-wheeler brands (Shell Foundation, 2022).

4.7.3 How Indigenous knowledge can be used for innovation

Siemens Stiftung's (2024a) survey of Kenyan e-mobility companies identifies key approaches that these companies adopt to remain innovative. These include customer centricity, collaboration with startups and research institutions, internal innovation through R&D, and talent management to stay ahead.

- Collaboration with local innovators: Partnerships with Indigenous technology developers can facilitate the integration of traditional transport knowledge.
- Government incentives: Policymakers can support innovation through funding and training programmes focused on Indigenous knowledge applications.
- Market education: Raising awareness about the commercial viability of integrating Indigenous practices can encourage startups to explore this potential.

4.7.4 Potential for scaling local innovation

Innovation is a costly process, requiring time and resources to ideate, test new processes and products, collect data and feedback, monitor, iterate, and learn. It also requires capital. Scaling local innovation would require that EV companies institutionalise and build internal capacity for innovation, that more EV companies engage in such institutionalisation, that companies have access to innovation financing, and that lessons from innovations and demonstration projects are rapidly disseminated among industry stakeholders. In the case of government actors, this action includes policy and regulatory revisions that remove bottlenecks to scaling proven innovations. Industry associations may use their convening power to foster peer learning and knowledge sharing, and companies may facilitate rapid dissemination by forging partnerships.

The ecosystem would benefit from funding that is earmarked for testing and scaling innovations. Several organisations have begun to do this. Siemens Stiftung (2024b), in partnership with GIZ Kenya, is currently supporting three innovative R&D projects led by five Kenyan enterprises. The teams will focus on enhancing the social and economic impact of e-mobility. They will tackle challenges like battery end-of-life management, access to e-mobility for farming communities and the affordability and sustainability of e-bikes and batteries.

Box 1
Innovations in the Kenyan e-mobility sector

In 2024, Siemens Stiftung began supporting three 15-month innovative R&D projects led by five Kenyan enterprises (Siemens Stiftung, 2024b).

- **eWAKA Mobility Limited's** project, 'Boosting Farmer Profits with Eco-Friendly Transport: Efficient Electric Cargo Bicycles for Direct Market Access', explores how electric cargo bicycles can improve smallholder farmers' access to markets and increase farm incomes in Kiambu County. The study examined how the bicycles are used in practice, the economic effects on participating farmers and the transport constraints they are intended to address.
- **Enviroserve Kenya's** project, 'Retesting and Reuse of Lithium-Ion Batteries and Research into Battery Shredding', focuses on the testing of lithium-ion battery cells for possible second-life applications, alongside research into battery shredding processes. The work assesses suitable reuse scenarios, evaluates how performance and quality are affected, and analyses material recovery and refurbishment outcomes with a view to extend battery life and improve recycling practices.
- **Ecobodaa, Kiri EV and Transboda's** project, 'Accelerating Electric-Two and Electric-Three Wheelers Adoption in Africa through Achieving Battery Interoperability and a Robust Energy Payment Platform', addresses battery standardisation and interoperability for E2&3Ws, while also developing an energy payment platform. The project seeks to reduce technical and transactional barriers to adoption and support the wider uptake of electric motorcycles and tricycles across African markets.

SECTION FIVE

Conclusion and recommendations

The growth of the e-mobility sector in Kenya presents an opportunity to address the country's economic, energy and environmental challenges. With a rapidly expanding market focused on E2&3Ws, e-mobility is strategically positioned to reduce the transportation sector's heavy reliance on fossil fuels and help achieve Kenya's GHS emission reduction targets. The sector's alignment with the nation's climate commitments, such as the NDCs and the NCCAPs, underscores its critical role in sustainable development. However, despite its potential, the e-mobility sector faces significant barriers including high costs, limited local manufacturing and insufficient policy coherence to support youth employment and innovation.

Most e-mobility startups are still in their early stages, with small workforces and financial constraints limiting their growth. Current policies, while ambitious, lack targeted measures to integrate youth employment into the green transition or to provide incentives for local content development. Moreover, the absence of specialised training programmes and structured support systems has hindered the sector's ability to cultivate a skilled workforce, particularly among young people. Addressing these gaps is essential to maximising the socioeconomic benefits of e-mobility and fostering a more inclusive transition to a low-carbon economy.

Kenya must focus on aligning its e-mobility policies with broader goals for sustainable development and youth empowerment. This entails enhancing policy coherence, strengthening regulatory frameworks and mobilising financial resources to support local manufacturing and innovation. Furthermore, multi-stakeholder partnerships that engage the private sector, educational institutions and NGOs can play a pivotal role in addressing the skills gap and promoting youth-led initiatives. By adopting these strategies, Kenya can accelerate the growth of its e-mobility sector, create more green jobs and establish itself as a leader in sustainable transportation in Africa.

5.1 Policy recommendations

Given the opportunities, challenges, strengths and weaknesses identified in relation to youth employment in the e-mobility sector, the following key recommendations cover the research's focus areas of policy, skills, finance and innovation.

5.1.1 Recommendations for policymakers

- **Create explicit policy targets for youth and gender inclusion for the e-mobility sector:** To ensure that women and youth are adequately included, certain policy targets should be disaggregated by gender and age, especially under the National Electric Mobility Policy and its accompanying implementation plan.
- **Institutionalise youth involvement in policymaking:** The Ministries of Energy and Roads and Transport should emulate the formulators of the NCCAP and set up a youth consultation team when developing policies for the sector. In addition, industry associations such as EMAK should be encouraged to have youth wings or working groups that systematically contribute to policymaking.

- **Improve policy coherence**: Government agencies and industry representatives should work to improve the youth and employment content of e-mobility policies, while also urging the ministries responsible for youth and employment policies to address the e-mobility sector's needs. This would improve policy coherence and ensure that the e-mobility sector is better geared towards achieving broader national youth employment targets.
- **Incorporate traditional knowledge and practices**: Leverage local knowledge and practices to inform the design and implementation of e-mobility projects. Establish Indigenous knowledge teams, units or divisions within R&D platforms that focus on integrating Indigenous knowledge more effectively and explicitly into the sector's R&D.
- **Strengthen regulatory frameworks:** Kenya's regulatory frameworks for e-mobility need more concrete measures to support local manufacturing, incentivise startups and promote youth employment. While regulatory instruments like the Energy Act 2019 set a foundation for renewable energy integration, policies fall short in implementing action plans that foster domestic production or incentivise local content development. Establishing clear standards for EVs, offering tax incentives and reducing import duties on components will make the market more accessible for smaller companies and local innovators.

5.1.2 Recommendations for development partners

To support the growth of Kenya's e-mobility sector, the following actions are recommended for development partners:

- **Sponsor and encourage the creation of more intensive incubation programmes:** Incubation programmes should be supported to enable more young people to move from the ideation stage to the product commercialisation stage. When designing these programmes, the special needs of women entrepreneurs should be taken into consideration. In addition, acceleration programmes should be designed to make more local e-mobility companies investment-ready. Such programmes should provide long-term support that proactively prepares companies for the rigours of larger funding facilities that have stringent eligibility criteria.
- **Create subcomponents within funding facilities that cater to the unique needs of youth and women:** Funding facilities should create subcomponents that design funding that is suited to the unique needs of youth and women. Such subcomponents may relax eligibility criteria for younger e-mobility companies but provide complementary technical assistance and project evaluation to ensure project quality.
- **Promote technology transfer and capacity building**: Facilitate the transfer of advanced e-mobility technologies and best practices to local operators. Invest in capacity-building programmes that equip e-mobility stakeholders with the skills and knowledge to implement and maintain cutting-edge solutions.
- **Establish innovation hubs for technology development:** Innovation hubs that provide young entrepreneurs with access to funding, mentorship and infrastructure to scale their ideas should be established. These hubs could focus on integrating Indigenous knowledge with modern technologies to create innovative, localised solutions for energy challenges.

References

Africa E-Mobility Alliance (AfEMA). (2023). *EV importation and industrialisation Kenya.* Nairobi: AfEMA. **https://africaema.org/research/ev-importation-and-industrialisation-kenya/**

African Climate Foundation (ACF) & International Food Policy Research Institute (IFPRI). (2023). *From climate risk to resilience: Unpacking the economic impacts of climate change in Kenya*. Cape Town and Washington, DC: ACF and IFPRI. **https://africanclimatefoundation.org/wp-content/uploads/2023/11/800832-ACF-Kenya-country-note-04.pdf**

African Development Bank (AfDB). (2022). *African economic outlook 2022*. Abidjan: AfDB. **https://www.afdb.org/en/documents/african-economic-outlook-2022**

African Union (AU). (2019). *State of African youth report*. **https://au.int/sites/default/files/documents/39663-doc-state_of_the_african_youth_report.pdf**

Association for Electric Mobility and Development in Africa (AEMDA). (2021). *Barriers to electric mobility in Kenya: Market survey report 2021*. Nairobi: AEMDA. **https://www.studocu.com/row/document/university-of-nairobi/research-methods/aemda-barriers-to-electric-mobility-in-kenya-2021/78812754**

Bjornali, E. S., & Ellingsen, A. (2014). Factors affecting the development of clean-tech start-ups: A literature review. *Energy Procedia*, 58, 43–50. **https://doi.org/10.1016/j.egypro.2014.10.407**

Boyle, B. (2024, July 16). *Greenhouse gas emissions in Kenya*. Emission Index

Breloff, P., Munjal, K., & Hill, K. (2024). *Forecasting green jobs in Africa*. Nairobi and Boston: Shortlist, FSD Africa & Boston Consulting Group. **https://fsdafrica.org/publication/forecasting-green-jobs-in-africa/**

Castillo, A. R., & McLean, K. G. (2012, November 2). *Energy innovation and traditional knowledge.* Our World. **https://ourworld.unu.edu/en/energy-innovation-and-traditional-knowledge**

Changing Transport. (2021). *Transport sector in Kenya's Nationally Determined Contribution*. Bonn and Eschborn: Changing Transport. **https://changing-transport.org/publications/transport-in-kenyas-nationally-determined-contribution/**

Cowling, N. (2023). *Distribution of employment in Kenya from 2011 to 2020, by economic sector.* Statista. **https://www.statista.com/statistics/1186971/employment-by-economic-sector-in-kenya/**

Cowling, N. (2024). *Formal and informal new jobs created in Kenya from 2015 to 2019.* Statista. **https://www.statista.com/statistics/1134125/formal-and-informal-new-jobs-created-in-kenya/**

Crawhall, N. (2016). *An introduction to integrating African Indigenous & traditional knowledge in national adaptation plans, programmes of action, platforms and policies*. Cape Town: Indigenous Peoples of Africa Coordinating Committee (IPACC). **https://unfccc.int/sites/default/files/resource/IPACC_Integrating_African_Indigenous_Traditional_Knowledge_into_NAPs.pdf**

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). (2021). *Transport sector in Kenya's Nationally Determined Contribution*. **https://changing-transport.org/wp-content/uploads/2021_GIZ_Factsheet_Transport-in-Kenyas-NDC.pdf**

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). (forthcoming). *Kenya e-mobility sector training needs assessment*.

Doris, N. (2024, November 13). *Kenya launches new attempt to reconfigure financial legislation.* African Law & Business. **https://www.africanlawbusiness.com/news/21892-kenya-launches-new-attempt-to-reconfigure-financial-legislation/**

Electric Mobility Association of Kenya (EMAK). (2024). *Electrifying Kenya's transportation sector*. Nairobi: EMAK.

EMAK. (2025). *Electrifying Kenya's transportation sector: Fiscal benefits and policy measures to promote electric mobility*. Nairobi: EMAK. **https://www.scribd.com/document/899815312/Emak-2025-White-Paper-FINAL**

Franz, J. (2014). *Youth employment initiatives in Kenya.* Washington, DC: World Bank Group. **https://vision2030.go.ke/wp-content/uploads/2018/05/WB_Youth-Employment-Initiatives-Report-13515.pdf**

Global Data Lab. (2025). *Geospatial data (v0.2): Yearly average surface temperature (°C).* **https://globaldatalab.org/geos/table/surfacetempyear/**

Global Migration Data Analysis Centre. (2024). *Total number of internally displaced persons (IDPs) due to disasters, as of Dec 2023.* Migration Data Portal. **https://www.migrationdataportal.org/international-data?t=2023&i=idp_stock_disaster**

Harrison, R.T., Botelho, T., & Mason, C.M. (2016). Patient capital in entrepreneurial finance: a reassessment of the role of business angel investors. *Socio-Economic Review, 14*(4): 669–689. **https://doi.org/10.1093/ser/mww024**

International Labour Organization (ILO) (2021). *Towards a transformative macroeconomic policy framework for employment generation in Africa*. Geneva: ILO. **https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40africa/%40ro-abidjan/documents/publication/wcms_830222.pdf**

ILO. (2024). *Global employment trends for youth 2024: Sub-Saharan Africa*. Geneva: ILO. **https://www.ilo.org/sites/default/files/2024-08/Sub-Saharan%20Africa%20GET%20Youth%202024_0.pdf**

Iwuanyanwu, P. N. (2022). Affordances of African Indigenous knowledge and practices. *Indilinga African Journal of Indigenous Knowledge Systems, 21*(2). **https://journals.co.za/doi/full/10.10520/ejc-linga_v21_2_a7**

Kamau, P., Karimi, E., & Murithi, E. (2025). *Most Kenyan youth see government as failing on their top priorities.* Afrobarometer, dispatch no. 988. **https://www.afrobarometer.org/wp-content/uploads/2025/05/AD988-Most-Kenyan-youth-see-government-as-failing-on-their-top-priorities-Afrobarometer-23may25.pdf**

Karkee, V., & O'Higgins, N. (2023, August). *African youth face pressing challenges in the transition from school to work*. ILOSTAT. **https://ilostat.ilo.org/african-youth-face-pressing-challenges-in-the-transition-from-school-to-work/**

Kenya National Bureau of Statistics. (2019). *Quarterly labour force report: Quarter 1, 2019*. Nairobi: Kenya National Bureau of Statistics. **https://s3-eu-west-1.amazonaws.com/s3.sourceafrica.net/documents/119845/KNBS.pdf**

Kenya National Bureau of Statistics. (2024). *Economic survey 2024*. Nairobi: Kenya National Bureau of Statistics. **https://www.knbs.or.ke/wp-content/uploads/2024/05/2024-Economic-Survey.pdf**

Klinger-Vidra, R. (2016). When venture capital is patient capital: seed funding as a source of patient capital for high-growth companies. *Socio-Economic Review, 14*(4): 691–708. **https://doi.org/10.1093/ser/mww022**

Lore, W., & Baragu, G. (2023, July 5). *Accelerating e-mobility to remedy greenhouse gas emissions in Kenya.* The Kenya Institute for Public Policy Research and Analysis. **https://kippra.or.ke/accelerating-e-mobility-to-remedy-greenhouse-gas-emissions-in-kenya/2/**

Malala, E. (2025, September 15). *BasiGo to assemble King Long e-buses at Thika's KVM.* Capital Business. **https://www.capitalfm.co.ke/business/2025/09/basigo-to-assemble-king-long-e-buses-at-thikas-kvm/**

Mawere, J., & Mukonza, R. M. (2024). Empowering marginalised communities: Leveraging Indigenous knowledge for sustainable energy development in South Africa. *Sustainable Development, 33*(2), 2440–2448. **https://doi.org/10.1002/sd.3243**

Ministry of Energy. (2020). *Kenya National Energy Efficiency and Conservation Strategy 2020.* Nairobi: Ministry of Energy. **https://repository.kippra.or.ke/handle/123456789/3074?show=full#:~:text=Kenya%20National%20Energy%20Efficiency%20and%20Conservation%20Strategy%202020,-dc.date.accessioned&text=Energy%20Efficiency%20and%20Conservation%20is,of%20life%20of%20its%20citizens**

Ministry of Energy. (2022). *Kenya National Energy Efficiency and Conservation Strategy Implementation Plan 2022.* Nairobi: Ministry of Energy. **https://energy.go.ke/sites/default/files/KAWI/Publication/KNEECS%20Implementation%20Plan29.11.21.pdf**

Ministry of Environment, Climate Change and Forestry. (2023). *National Climate Change Action Plan (NCCAP) III 2023-2027*. Nairobi: Ministry of Environment, Climate Change and Forestry. **https://emsi.co.ke/wp-content/uploads/2024/08/Kenya-NCCAP-2023-2027-1.pdf**

Ministry of Roads and Transport. (2024a). *Draft National E-Mobility Policy, Kenya.* Nairobi: Ministry of Roads and Transport. **https://transport.go.ke/sites/default/files/Draft%20National%20e-Mobility%20Policy_For%20Circulation%2027.03.2024.pdf**

Ministry of Roads and Transport. (2024b). *Updated Integrated National Transport Policy*. Nairobi: Ministry of Roads and Transport. **https://transport.go.ke/sites/default/files/INTP%20REVIEWED%20MARCH%202024%20SESA.pdf**

Mitigation Action Facility. (n.d.). *Kenya – small vehicles e-mobility*. **https://mitigation-action.org/projects/kenya-small-vehicles-e-mobility/**

MMAN Advocates (2023). *Electric-mobility in Kenya: An overview of regulatory and legal considerations*. **https://mman.co.ke/content/electric-mobility-kenya-overview-regulatory-and-legal-considerations**

Msingo, J. (2024, July). *E-mobility – Kenya's key opportunity.* Autonews. **https://aakenyaautonews.co.ke/e-mobility-kenyas-key-opportunity/**

Muhati, J. (2023). *Statement by the principal secretary, State Department for Economic Planning during the launch of the State of World and Kenya Population Report of 2023.* Nairobi: National Treasury and Planning. **https://www.planning.go.ke/wp-content/uploads/2023/10/SPEECH-FOR-THE-SWOP-LAUNCH-BY-PS-SDEP-1.pdf**

Mwangi, S. M. (2014). *Gender relations in public road transport in Africa.* MSc Dissertation. University of Nairobi.

Nakitare, J., Otike, F., & Mureithi, L. (2024). Harnessing the economic value of Indigenous knowledge in Kenya: A qualitative review of the legal framework. *Global Knowledge, Memory and Communication*, *74*(9–10), 2854–2871. **https://doi.org/10.1108/GKMC-09-2023-0324**

Ndlovu, E. C., & Gumbo, M. T. (2025). Decolonising technology education: Integrating Indigenous knowledge for sustainable development in electrical and mechanical systems and control. *African Journal of Research in Mathematics, Science and Technology Education*, *28*(3). **https://journals.co.za/doi/full/10.1080/18117295.2024.2381984**

Njiraine, D., Ocholla, D. N., & Onyancha, O. B. (2010). Indigenous knowledge research in Kenya and South Africa: An informetric study. *Indilinga: African Journal of Indigenous Knowledge Systems*, *9*(2), 194–210. **https://journals.co.za/doi/10.10520/EJC61594?utm_source=TrendMD&utm_medium=cpc&utm_campaign=South_African_Journal_of_Higher_Education_TrendMD_1**

O'Neil, A. (2025, April). *Kenya: Youth unemployment rate from 1991 to 2024.* Statista. **https://www.statista.com/statistics/812147/youth-unemployment-rate-in-kenya/**

Onsomu, E., Munga, B., Nyabaro, V., & Munene, B. (2022). *Employment creation potential for youth in the Kenyan economy.* Working paper GSYE-009*.* Nairobi: African Economic Research Consortium. **https://includeplatform.net/wp-content/uploads/2022/04/Employment-Creation-Potential-for-Youth-in-the-Kenyan-Economy-1.pdf**

Páez, D., & Gorodetsky, D. (2023, March 7). *Perspective: Making the e-mobility transition a global one*. William Davidson Institute. **https://wdi.umich.edu/news/perspective-making-the-e-mobility-transition-a-global-one/**

Partech Partners. (2024). *2024 Africa tech venture capital.* **https://partech-admin.prod.unomena.io/media/documents/2024_Partech-Africa-Tech-VC-Report.pdf**

Partnering for Green Growth and the Global Goals 2030 (P4G). (2021). *Roundtable accelerates e-mobility solutions in Kenya.* **https://p4gpartnerships.org/news-events/roundtable-accelerates-e-mobility-solutions-kenya**

PwC. (n.d.). *Automotive*. **https://www.pwc.com/ke/en/industries/automotive.html**

Rana, M. W., Sufang, Z., Jamil, K., Jaffri, N. R., & Hamid, I. (2021). *Eco-innovation and its impact on environmental performance in the context of green technology*. 2021 International Conference on Engineering and Emerging Technologies (ICEET), 1–5. **https://doi.org/10.1109/ICEET53442.2021.9659774**

Republic of Kenya. (2025). *Kenya's Second Nationally Determined Contribution (2031–2035)*. Nairobi: Ministry of Environment Climate Change and Forestry.

Schneider Electric. (2025, August 28). *Schneider Electric Foundation partners with Ministry of Education to power green TVETs in Kenya*. Creamer Media's Engineering News. **https://www.engineeringnews.co.za/article/schneider-electric-foundation-partners-with-ministry-of-education-to-power-green-tvets-in-kenya-2025-08-28**

SDG Kenya Forum. (2007). Kenya Vision 2030. Nairobi: SDG Kenya Forum. **https://sdgkenyaforum.org/content/uploads/documents/Kenyas_Vision_2030_b59190e3.pdf**.

Shell Foundation. (2022, January). *Financing the transition to electric vehicles in sub-Saharan Africa*. London: Shell Foundation. **https://shellfoundation.org/wp-content/uploads/2022/02/EV-Report-McKinsey.pdf**

Siemens Stiftung. (2024a, November 14). *Unlocking the growth potential of Kenya's e-mobility sector.* **https://www.siemens-stiftung.org/en/media/news/new-report-unlocking-kenyas-e-mobility-potential/**

Siemens Stiftung. (2024b, April 29). *Revolutionizing e-mobility in Kenya: Three innovative projects spearhead sustainable solutions.* **https://www.siemens-stiftung.org/en/media/news/revolutionizing-e-mobility-in-kenya-three-innovative-projects-spearhead-sustainable-solutions/**

Song'e, G. (2024, May 27). *Proposed taxes in new Finance Bill will stagnate growth of e-mobility*. Business Daily. **https://www.businessdailyafrica.com/bd/opinion-analysis/columnists/proposed-taxes-in-new-finance-bill-will-stagnate-e-mobility-4637664**

Tanzarn, N. (2017, November). *Scaling up gender mainstreaming in rural transport: Policies, practices, impacts and monitoring processes*. Oxford: ReCAP Project Management Unit, Cardno Emerging Market (UK) Ltd. **https://www.research4cap.org/wp-content/uploads/ral/Tanzarn-IFRTD-2017-ScalingUpGMAnalysisPoliciesPractiesImpactsMonitoringProcesses-KenyaCS-AfCAP-RAF2044J-171213.pdf**

Trisos, C. H., Adelekan, I. O., Totin, E., Ayanlade, A., Efitre, J., Gemeda, A., Kalaba, K., Lennard, C., Masao, C., Mgaya, Y., Ngaruiya, G., Olago, D., Simpson, N. P., & Zakieldeen, S. (2022). Africa. In H.-O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, & B. Rama (Eds.), *Climate change 2022: Impacts, adaptation and vulnerability. IPCC Sixth Assessment Report*, 1285–1455. Cambridge University Press. **https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-9/**

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2022, July 12). *Winning the battle for youth employment*.

United Nations Trade and Development (UNCTAD). (2023). *Technology and Innovation Report 2023.* Geneva: UNCTAD

University of Notre Dame. (2023). *ND-GAIN Country Index: Country rankings*. Notre Dame Global Adaptation Initiative (ND-GAIN). **https://gain.nd.edu/our-work/country-index/rankings/**

Wekesa, M. (2021, October 1). *Youths encouraged to utilize Yunitok.* Kenya News Agency

World Health Organization (WHO) & United Nations Framework Convention on Climate Change (UNFCCC). (2015). *Climate and health country profile 2015: Kenya*. WHO. **https://iris.who.int/handle/10665/246133**

World Bank. (2024). *GDP per capita (current US$) – Kenya, Tanzania, Uganda, Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Rwanda, Seychelles, Somalia, Fed. Rep*. **https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=KE-TZ-UG-BI-KM-DJ-ER-ET-RW-SC-SO**

World Bank. (2025). *Unemployment, female (% of female labor force) (national estimate) – Kenya.* **https://data.worldbank.org/indicator/SL.UEM.TOTL.FE.NE.ZS?locations=KE**

Yaşar, Burze (2021). Impact investing: A review of the current state and opportunities for development. *Istanbul Business Research, 50*(1), 177–196. **https://doi.org/10.26650/ibr.2021.51.0117**

Yunitok. (n.d.). *Yunitok.* **https://yunitok.in/**

Annexes

Annex 1: methodology

The study took a mixed methods approach to answering the research questions and applying the research methodology: semi-structured interviews, qualitative surveys and the quantitative analysis of a novel dataset.

- **Desk review***:* A review of the extant literature was conducted to understand how green jobs are generated in green tech sectors, with a focus on e-mobility in Kenya. The desk review covered academic papers, books and grey literature, including industry and company reports, press releases and news reports.
- **Document analysis***:* An in-depth analysis of policy documents relevant to the e-mobility sector, employment and youth was undertaken. This was to identify both the extent to which policymakers encourage the creation of green jobs for youth and women, and the related types of policy instrument.
- **Semi-structured interviews***:* Interviews were conducted with 34 participants, including managers and senior officials of private companies engaged in the deployment of e-mobility technologies; government officials from relevant departments and training institutions; researchers, consultants and industry associations; youth in the sector; and those looking for employment in the sector.
- **Dataset building***:* A novel dataset was built containing information about 18 companies, including year of founding; the CEO's gender, academic background and age; and the number of employees. The information was gathered from the public domain across company websites, venture networking platforms, news reports, press releases and publicly available company reports.

The interview questions sought to draw out information about the needs of young entrepreneurs, innovators and workers; the extent to which young people are involved in policymaking; and the extent to which policies cater to the stated needs of or involve youth. Responsiveness was assessed in relation to the skills, finance, motivation and other key variables identified in the entrepreneurship literature as factors influencing the success of clean technology startups (Bjornali & Ellingsen, 2014).

Annex 2: respondents

2.1 Respondents' details and sociodemographics

The sociodemographic characteristics of the respondents are categorised into three main groups: companies and startups, independent actors, and government actors (Table A1). These groups offer a diverse representation of sex, age, roles and professional backgrounds, reflecting a broad range of experiences and contributions in sectors like sustainable energy, e-mobility and public administration.

Table A1
Demographic breakdown of interviewees

Respondent type	Percentage of youth (18–35)	Percentage of non-youth (> 35)	Percentage of males	Percentage of females
Companies	83.3	16.7	66.7	33.3
Government actors	62.5	37.5	62.5	37.5
Independent actors	90	10	50	50
Total	**81.8**	**18.2**	**66.7**	**33.3**

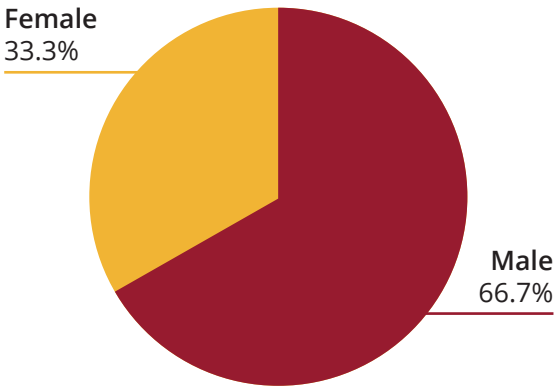
Source: authors' construct (2025).

2.2 Companies and startups

Respondents from companies and startups consist of both male and female professionals, with the majority falling within the 25–40 age range. Many hold senior roles such as CEOs, founders and team leads, indicating a leadership-driven demographic in this sector. For instance, one respondent is a male CEO aged 35–40 who leads a company focused on developing EV charging infrastructure, employing a workforce where six out of seven employees are youth. Another example is a female team lead aged 25–30 who oversees administration and communications at a company dedicated to promoting sustainable energy and mobility solutions.

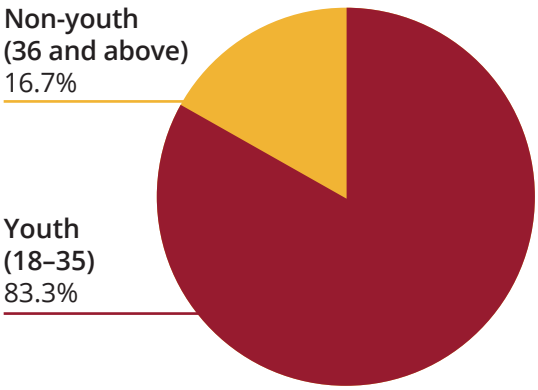
The emphasis on youth employment is prominent in this group, with many companies employing young professionals under 35 as a significant portion of their staff. These young employees are often engaged in key technical roles and project management, contributing to the companies' innovations and operational efforts. The respondents' profiles demonstrate a strong commitment to not only advancing sustainable energy solutions but also empowering the next generation through career opportunities and skills development.

Figure A1
Sex of respondents



Source: authors' construct (2025).

Figure A2
Age of respondents



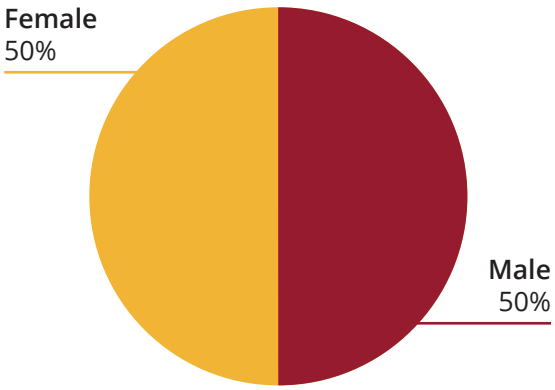
Source: authors' construct (2025).

2.3 Independent actors

The independent actors category features a diverse mix of young professionals under 35, with a blend of male and female respondents. These individuals are predominantly employed in roles that emphasise emerging technologies and sustainable practices including e-mobility, the internet of things (IoT) and green energy solutions. For example, one respondent is a young female research assistant with a background in economic and statistical research, while another is a male operations manager at a non-profit organisation focused on women's empowerment, boasting seven years' experience in monitoring and evaluation.

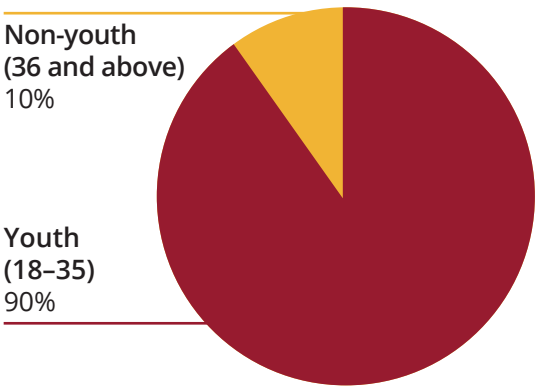
This group's expertise spans project management, technical consulting, policy development and research, with many of the respondents actively involved in initiatives that support sustainability and green technology. Their roles often require a combination of hands-on technical skills and strategic oversight, reflecting a workforce that is adaptive and innovative in tackling modern challenges. These independent actors also contribute to shaping the policy landscape and advancing the implementation of sustainable practices across different sectors.

Figure A3
Sex of independent actors



Source: authors' construct (2025).

Figure A4
Age of independent actors



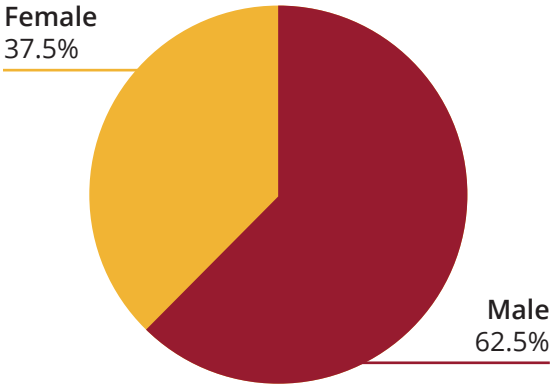
Source: authors' construct (2025).

2.4 Government actors

Among the government actors, respondents include both males and females, ranging from younger professionals to those with extensive experience in their respective fields. This group comprises individuals working in various government departments, such as the Ministry of Agriculture and Livestock Development, the Ministry of Defence, and the Ministry of Lands and Physical Planning. Roles held by the respondents include an agriculture extension officer focused on enhancing agricultural technology initiatives, a data analyst with six years of experience in security operations and a marketing officer at the Ministry of Lands who has been in her position since 2021.

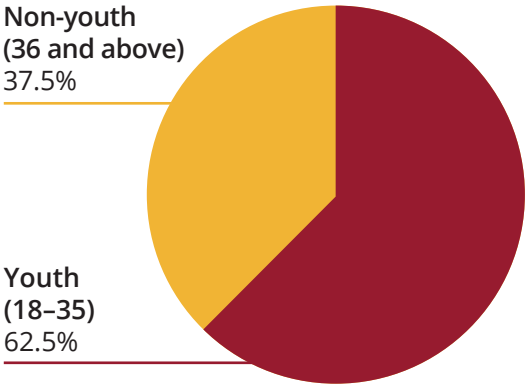
Their professional backgrounds are varied, including administration, technical expertise, research and public service. Notably, several respondents are involved in supporting youth initiatives and sustainable technology programmes, aligning their work with the broader objectives of fostering community development and sustainable growth. This group's involvement in public service demonstrates a commitment to integrating sustainable practices into government operations and policy, while also addressing the specific needs of younger populations and underserved communities.

Figure A5
Sex of government actors



Source: authors' construct (2025).

Figure A6
Age of government actors



Source: authors' construct (2025).

By and large, the respondents' sociodemographic profiles reflect a broad representation of individuals dedicated to driving sustainable change across various sectors. The diversity in age, sex, roles and expertise underscores a multifaceted approach to advancing green tech, youth empowerment and sustainable development, highlighting the dynamic interplay between leadership, innovation and public service in these fields.

Annex 3: primary data analysis

The primary data was analysed in three ways: qualitative analysis, stakeholder mapping and analysis, and quantitative analysis.

- **Qualitative analysis:** Qualitative data analysis (QDA) was done using QDA software to conduct a thematic analysis of the qualitative data obtained through key informant interviews (KIIs). This enabled the identification of major and secondary themes brought out by respondents.
- **Stakeholder mapping and analysis:** Stakeholders were mapped through a combination of desk research and KIIs. A stakeholder analysis was conducted using a power–interest grid, which depicts where each stakeholder stands in relation to the level of power they hold within the ecosystem and the degree of interest they have in e-mobility sector youth engagement.
- **Quantitative analysis:** Quantitative data obtained from secondary sources and the dataset was analysed using descriptive statistics and correlation analysis. Insights gained from this were triangulated with information obtained through desk research, document review, interviews and surveys.

Endnotes

1 AfricaNEV was founded in 2019 as a non-profit organisation aiming to accelerate e-mobility adoption on the continent by creating awareness, policy advocacy and linkages in the value chain. The Advanced Mobility Centre was founded in 2022 as a training centre for drivers and road users on e-mobility and other advanced transport technology skills.

2 The draft policy was released in March 2024 by the Ministry of Roads and Transport. It aims to accelerate the transition to EVs to reduce fossil fuel reliance and meet climate targets.

3 Adopted in 2015, Agenda 2063 is the AU's 50-year strategic framework for inclusive and sustainable development. It envisions 'The Africa We Want' by the year 2063.

4 NDCs are climate action plans submitted by countries under the Paris Agreement, outlining targets for reducing GHG emissions and adapting to climate impacts. Kenya's second NDC (2031–2035) commits to reducing GHG emissions by 32% by 2030 relative to the business-as-usual scenario. In the transport sector, this includes the 'promotion of low carbon, climate resilient and efficient transportation systems that are gender-responsive and accessible to all, through electrification, modal shifts, urban mass rapid transport systems and overall greening of the transport sector' (Republic of Kenya, 2025, p. 13).

5 The projection does not include medium- and heavy-duty commercial vehicles.

6 These figures are based on EMAK's (2024) projection of 80,000 jobs, GIZ's (forthcoming) estimate of youth share and Siemens Stiftung's (2024a) estimate of women's share of the e-mobility workforce.

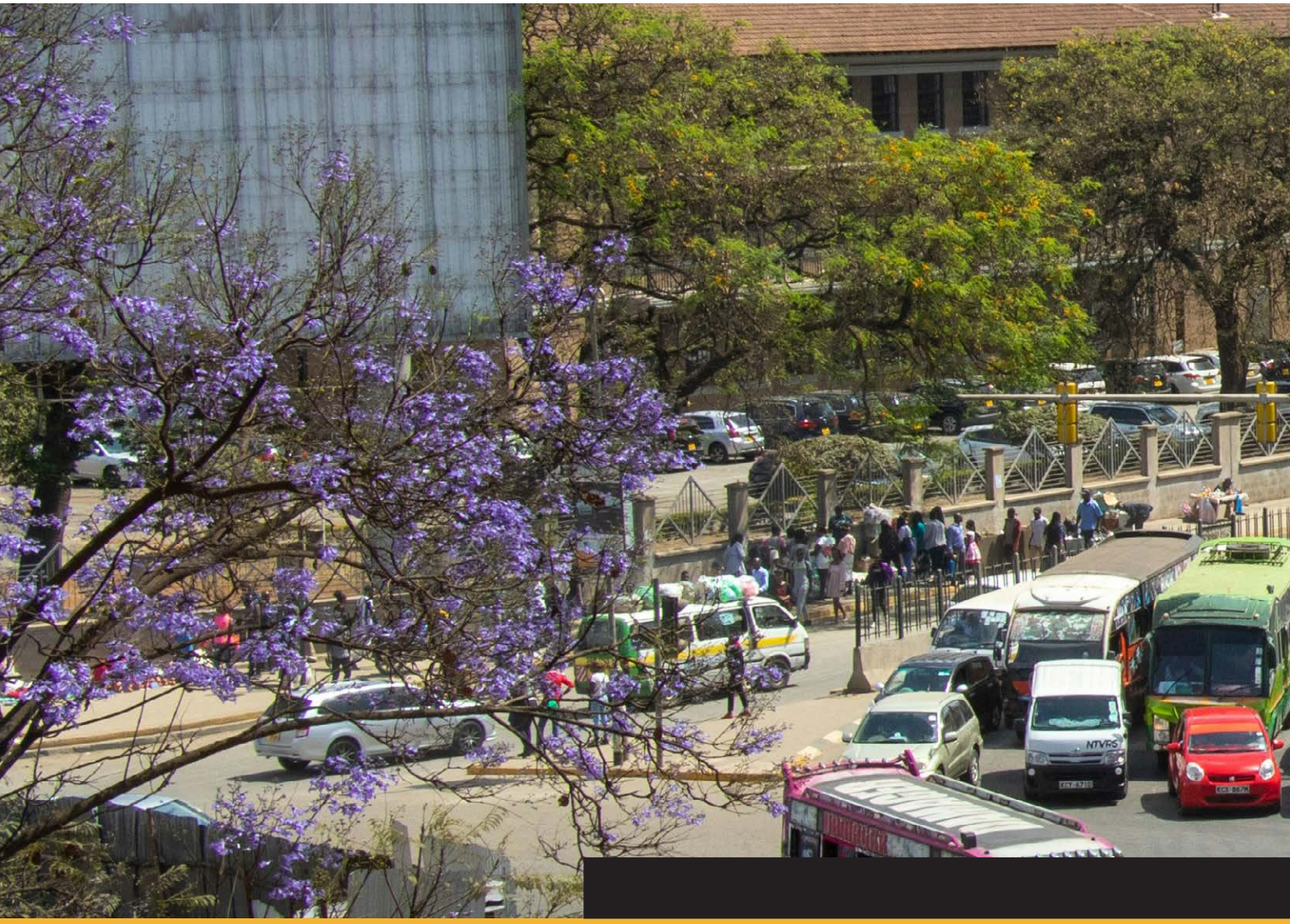
7 The Paris Agreement on climate change, adopted in 2015 under the United Nations Framework Convention on Climate Change (UNFCCC), is a legally binding international treaty through which countries commit to limiting global warming to well below 2°C (preferably 1.5°C) above pre-industrial levels by reducing GHG emissions and strengthening climate resilience. Kenya's NDC outlines a 32% emissions reduction target by 2030, conditional on international support. Key measures include scaling up renewable energy (especially geothermal, wind and solar), promoting energy efficiency, supporting climate-smart agriculture and expanding green jobs programmes to engage youth in sustainable industries.

8 With regard to employment, the NCCAP III focuses on youth innovation, entrepreneurship, education and advocacy as job creation enablers rather than explicit provisions to expand youth employment.

9 Yunitok was developed by the Kenya Scouts Association to encourage youth to be part of the development process in their communities (Wekesa, 2021). Yunitok has over 313,000 users in Kenya (Yunitok, n.d.).

10 In the African context, this disconnect is compounded by the structure of STEM education itself, which is often modelled on Euro-American curricula that prioritise universal scientific principles and imported technological standards (Ndlovu & Gumbo, 2025). As a result, little attention is paid to Indigenous systems of knowledge, whether in engineering, energy or design training. For example, engineering programmes typically emphasise global best practices in mechanics, electronics and energy efficiency but rarely acknowledge local materials use, community-based problem solving or traditional transport innovations that could inform sustainable solutions (Iwuanyanwu, 2022).

In partnership with



About APRI

APRI – Africa Policy Research Institute is an independent and nonpartisan African think tank. It researches key policy issues affecting African countries and the African continent. APRI provides insights into the German and European Union policy-making processes on Africa. In addition, APRI provides policy options to African policymakers and civil society actors.

About the Mastercard Foundation

The Mastercard Foundation is a registered Canadian charity and one of the largest foundations in the world. It works with visionary organisations to advance education and financial inclusion to enable young people in Africa and Indigenous youth in Canada to access dignified and fulfilling work. Established in 2006 through the generosity of Mastercard when it became a public company, the Foundation is an independent organisation separate from the company, with offices in Toronto, Kigali, Accra, Nairobi, Kampala, Lagos, Dakar, and Addis Ababa. Its policies, operations, and program decisions are determined by the Foundation's Board of Directors and leadership.

Imprint | APRI – Africa Policy Research Institute gGmbH, Prinzenstrasse 85D, 10969 Berlin, Germany

Executive Director | Dr. Olumide Abimbola

Contact | Dr. Serwah Prempeh, Senior Fellow and Project Lead – APRI, Email: **sprempeh@afripoli.org**

Cover image – Michael Njoroge | Unsplash
Designed, typeset and artwork redrawn by COMPRESS.dsl | 801103 | www.compressdsl.com