

# STI SPECTRUM

JUNE - AUGUST NEWSLETTER EDITION

## Editor's Message

Dear Reader,  
I am delighted to welcome you to the inaugural edition of our quarterly Science, Technology, and Innovation (STI) newsletter. I would like to commend each and every one of you for your unwavering dedication to advancing STI as a cornerstone of our national transformation agenda.

At the heart of this year's national growth agenda lies a strategic vision to elevate Uganda's competitiveness on the global stage by positioning Science, Technology, and Innovation (STI) as key drivers of economic growth. Our aim is to create a dynamic ecosystem where STI becomes central to economic transformation and provides new opportunities for young people.

These efforts are supported by the recently released report on the Progress on Implementation of NRM Manifesto Commitments, 2021-2026, which highlights the significant strides the government has made in promoting Science, Technology, Engineering, and Innovation (STEI) as vital drivers of socio-economic development.

The report emphasizes our collective vision of a science-led modernization, with the ambitious goal of achieving a GDP of USD 550 billion by 2040 through a knowledge-based economy.

As an entity dedicated to supporting the country's transformation through STI, we are focused on building essential infrastructure and fostering innovation pathways that empower scientists and innovators to succeed..



## Some of our key achievements include:

- **Research and Development:** Significant investments have been in equipment advancing vaccine development, diagnostics, and therapeutics.
- **Technology Business Incubators (TBIs):** Facilities like the Namanve Center and UIRI are nurturing innovation-driven enterprises.
- **Kiira Vehicle Plant:** On track for operationalization by October 2024, set to boost the automotive industry.
- **Talent Development:** Enhanced emoluments for scientists and ongoing efforts to nurture skilled professionals.
- **STI One Stop Centre & Investor Readiness Programme:** Creating a supportive ecosystem for innovators.
- **Policy and Regulatory Revisions:** Streamlined processes fostering a conducive environment for STEI development.
- **Training and Mentorship:** Investments in programs to build a workforce equipped for the burgeoning STI ecosystem.

These initiatives reflect the government's commitment to creating a vibrant STEI sector. While challenges persist, the progress made thus far has laid a strong foundation for further advancements, positioning Uganda as the leading technologically advanced nation in the region and driving a qualitative leap in our economy.

Thank you for your continued support and contributions. Together, let's make Uganda the best through science and innovation.

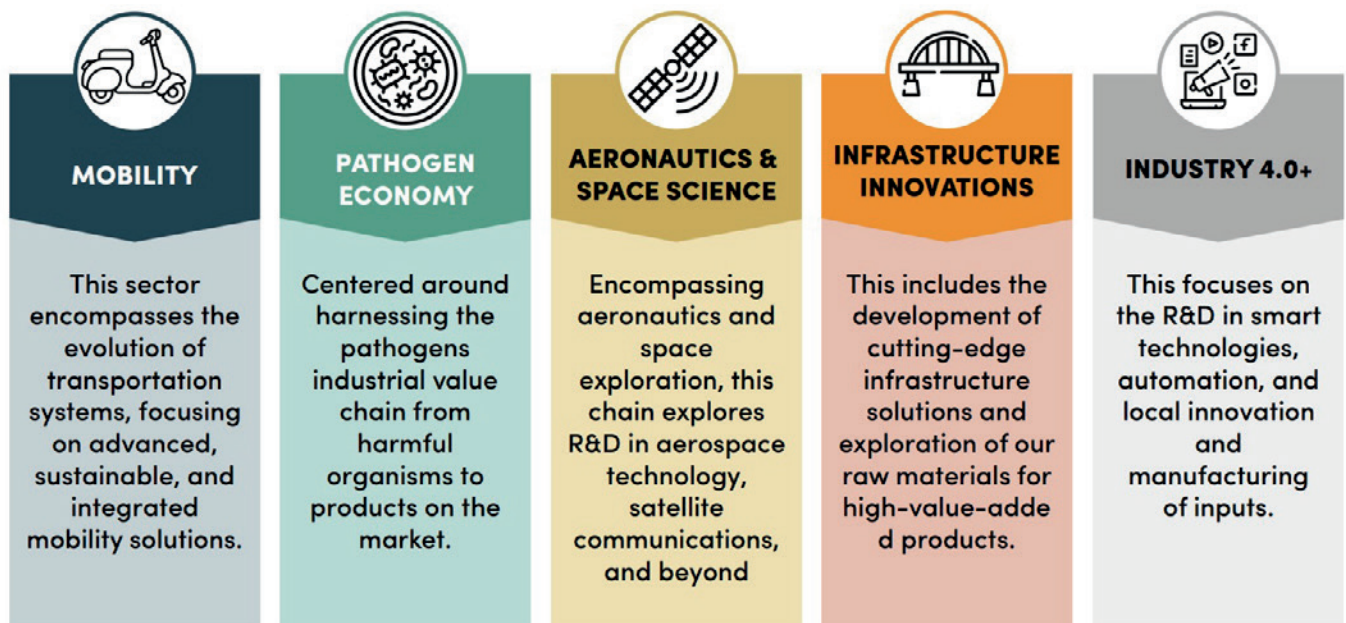


# HOW STI IS TRANSITIONING UGANDA INTO THE NEW ECONOMY

The New Economy is what distinguishes developed from underdeveloped countries. Since our inception, we have been developing strategic interventions focused on knowledge-driven industries, driving economies of practice such as the Pathogen Economy, e-mobility, and industrial value chains, all aimed at transitioning Uganda into the New Economy.

dynamic and resilient one. Innovations in agro-processing, particularly in coffee development, biotechnology, and green e-mobility, all aimed at boosting productivity and creating opportunities for value addition and export substitution growth. We believe these interventions will enhance the country's efficiency and competitiveness across industries, positioning Uganda to tap into global markets.

This transition is centered on enabling the country to shift from a resource-based economy to a more





# INDUSTRY INSIGHTS

## Industry 4.0

Continued rise of AI - In the past two years, the global innovation ecosystem has experienced an extraordinary growth in AI capabilities. Just 14 months after the release of GPT-4, OpenAI's introduction of GPT4o, a multimodal model capable of processing text, images, and audio inputs, marked a significant advancement in AI capabilities, achieving near human-level performance on various standardized tests. This offers our innovators a chance to leapfrog into the future of technology. However, to fully harness these opportunities, there needs to be a concerted effort between the public and private sectors to build capacity, ensure equitable access to technology for all, and address the associated challenges like the digital divide, global competitiveness and knowledge gap.

## Navigating the Pathogen Economy

The emergence of the Pathogen Economy (PE) marks a pivotal moment in Uganda's healthcare landscape. The country's reliance on imported vaccines is shifting as the Pathogen Economy leads the charge in developing locally produced vaccines, advancing Uganda's quest for self-reliance.

Beyond vaccines, the PE is driving innovation in rapid diagnostic tools, with prototypes for COVID-19 and various plant and human diseases already in development. Notable examples include diagnostic kits for human conditions like sleeping sickness, pre-eclampsia, and COVID-19, as well as kits for plant diseases such as Banana Xanthomonas Wilt, Cassava Mosaic Disease, and Sweet Potato Viruses.

These initiatives have resulted in new products and localized production of essential inputs, positioning Uganda on the path to self-sufficiency in diagnostics. Ambitious plans are underway for a diagnostics manufacturing plant, signaling a significant shift in Uganda's capability to produce high-quality diagnostics for a wide range of diseases.



# NATIONAL STRATEGIC INITIATIVE

## Bukedi Strategic Plan Development



In August, the President launched the Bukedi Sub-Region Strategic Plan (2024-2040), a visionary roadmap aimed at elevating household incomes and driving sustainable economic empowerment in Bukedi, Eastern Uganda.

With a population of over 2.3 million people across seven districts of: Budaka, Butaleja, Butebo, Busia, Kibuku, Pallisa, and Tororo, the region faces significant socio-economic challenges, including pervasive poverty, land fragmentation, and malnutrition. Despite several attempts to address these issues, widespread peasantry and poor living standards persist, with over 800,000 households struggling to meet basic needs such as food, nutrition, energy, and healthcare. In response to these growing challenges, In 2021, President Yoweri Kaguta Museveni initiated a strategic intervention, resulting in the formation of a think tank supported by the Science, Technology, and Innovation Secretariat (STI-OP) and the Productivity Acceleration Bureau to craft a targeted solution for the region.

The Bukedi Sub-Region Strategic Plan will centers around six key economic pillars designed to transform the region's economic landscape:

- (1) Science-Based Planning, leveraging tools like value chain analysis and enterprise mix planning for effective resource allocation;
- (2) Promotion of Perennial Cash Crops, focused on sustainable income through crops like coffee and cocoa;
- (3) Sustainable Production Methods, emphasizing environmental conservation and irrigation;
- (4) Value Chain Development, including the “district a factory” model to enhance local value addition;
- (5) Human Capital Development, prioritizing capacity building at all levels; and
- (6) New Economy Value Chains, fostering collaboration with the central government to develop emerging sectors like mineral value addition.

This comprehensive plan is a bold step toward transforming Bukedi's socio-economic landscape by leveraging its natural resources and human capital to achieve long-term prosperity.



# Viewpoint

## Fast-tracking Priority Industrial Value Chain Development

By Cosmas Mwikirize - Superintendent, Industrial Value Chains Development, STI

Growing up in Sheema in the late 1990s, I often saw ripe matooke rotting in gardens while farmers struggled in poverty. Despite abundant produce, farmers earned a mere UGX500 (~0.5 USD at the time) for a bunch, which would later sell for four times that amount in Kampala. This stark contrast highlighted a deep economic divide where middlemen thrived while farmers languished.

As a child, I couldn't comprehend how farmers, who seemed central to the economy, earned so little

compared to those who simply transported the produce. Moreover, the paradox of plenty in one region and scarcity in another made me question the efficiency of our agricultural systems. Why wasn't there a way to preserve matooke or distribute it more equitably? These questions eventually led me to understand the concept of Industrial Value Chains—the sequence of activities involved in producing and delivering a final product, from sourcing raw materials to manufacturing and distribution.

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## Understanding Industrial Value Chains

Industrial Value Chains are built on three pillars: Industrial production, Value creation, and Interconnected processes (chains). The goal of any enterprise should be to maximize value, not just at one level, but across the entire chain. The key to economic transformation lies in mass production of high-value products through interconnected processes.

Historically, much of the Global South, including Uganda, has been relegated to primary production and consumption—roles that account for less than 10% of the total value in most Industrial Value Chains. This leaves the critical middle tier—value addition and manufacturing—underdeveloped. Without value addition, even large-scale production of raw materials like matooke, coffee, or cotton rarely benefits all players in the chain.

## The Matooke Industrial Value Chain

Taking the example of matooke, the challenge is to develop an Industrial Value Chain that begins with the farmer and ensures profitability at every stage. This requires a detailed Value Chain Analysis to identify all steps involved, inputs required, participants at each stage, and bottlenecks that must be addressed to unlock value. Such analysis helps reduce production costs, improve efficiency, and maximize profits while ensuring competitive advantages in terms of cost, quality, and time.



## Strategy One: is to start with raw material production or beneficiation, capturing more than 90% of the value.

The Presidential Initiative on Banana Industrial Development (PIBID) follows this approach by manufacturing high-value gluten-free banana flour and derivatives from matooke. These products, which are, at least, six times more valuable than the raw material, are suitable for export and less sensitive to seasonal variations in raw material production. With this strategy, farmers no longer have to worry about low prices or rotting produce. Matooke could even become as economically significant for Uganda as wheat is for Europe, potentially replacing a substantial portion of Uganda's USD120 million wheat import bill.

## Strategy Two: High-Value Manufacturing.

An alternative strategy involves using raw materials or intermediate products sourced from elsewhere to manufacture high-value products. This is the approach taken by Kiira Motors Corporation (KMC), which focuses on research, product development, and quality management to produce Africa's first locally manufactured electric buses. While KMC currently captures about 30% of the value in the automotive sector, the target is to increase this to 65% by 2030. Imagine the impact if Uganda could substitute even half of its USD703 million in vehicle imports with locally manufactured alternatives.

Strategic decisions also include local beneficiation of materials like lithium and coltan for electric vehicle batteries and iron ore for high-grade automotive steel.

These efforts ensure that Uganda captures more value from its natural resources, rather than simply exporting them in raw form.

### The Global Context

Western countries such as Brazil have long mastered the art of value chain optimization, with industries like automotive, electronics, and pharmaceuticals relying on a steady flow of raw materials from the Global South. Africa must learn from this model and focus on local value addition. If countries far away can build entire economies on raw materials sourced from Africa, how much more could Africa achieve by processing and adding value to its own resources?

# The Role of the STI Secretariat

**A**t the Science, Technology, and Innovation (STI) Secretariat, Industrial Value Chains are at the core of our mission. We have been tasked by the Government to accelerate the development of Uganda's priority industrial value chains, aiming to produce high-value, knowledge-based products that drive import substitution, export growth, and national productivity.

This mission can only succeed if everyone understands the notion of the key tenets of Industrial Value Chains to

inform effective, efficient, and timely interventions and support for the relevant ecosystems. This may necessitate reconfiguration of existing value chains to extend them so that we can harness more value for our nation. We must drive Industrial Value Chains that create new products with higher value, high growth rates and market potential, making them essential to future competitiveness and prosperity. Indeed, Industrial Value Chains are the remedy to our nation's socio-economic transformation.



# GAME CHANGERS' CORNER



## a) Hon. Prof. Sandy Stevens Tickodri-Togboa

Meet Tickodri-Togboa, an Engineering Scientist, Mathematician, and a Professor of Electrical and Computer Engineering at Makerere University. He has extensive expertise in Automotive Development, Industrial Processes, Information Systems Engineering, Science and Technology Innovation

Leadership, Corporate Governance, and Higher Education Management. He led the creation of the Kiira EV, Africa's first electric car, and played a key role in establishing the Kiira Vehicle Plant, the continent's first E-Mobility enterprise. He also spearheaded the founding of the Center for Research in Transportation Technologies at Makerere University.



## b) Ronnie Kalyango

Ronnie Kalyango is the Innovator behind Pombe Guard, a natural beverage designed to mitigate the harmful effects of alcohol.

In 2000, Ronnie's life changed dramatically when his grandmother died after years of alcohol consumption. The community

blamed it on poison, but Ronnie's investigations revealed that alcohol itself had become toxic to her system due to her inability to metabolize it properly. This discovery planted the seed for his future innovation. He realized the need for a solution that would help people consume alcohol more safely.

His personal experience with alcohol further fueled his quest to innovatively solve a hangover. Coming from a family of local herbalists, he began experimenting with various plants, searching for a remedy. Through countless trials and adjustments, he developed Pombe Guard.



### c) Prof Patrick Ogwang

Professor Patrick Ogwang is a renowned Ugandan pharmacist, pharmacologist, ethnobotanist, and medical researcher. He is the founder of Jena Herbs Limited and the creator of Covidex, a herbal extract recognized for its potential in aiding COVID-19 treatment.

Ogwang has developed several natural remedies, including:

**Artavol** for malaria prevention; **Jenacid** and **JenaPep** for peptic ulcers; and **Jenacof** and **JenaFlu** for coughs and colds. These products are now used globally across Africa, Europe, America, and Asia. He also serves as the Executive Chairman of Jena Herbs Uganda Limited, which manufactures Covidex, a herbal extract derived from three indigenous Ugandan plants with antiviral properties, including against COVID-19.

## STI - Quarterly Round-Up



## Uganda Climate Tech Summit

Together with our partners, we successfully held the first Uganda Climate Tech Summit to foster collaboration among global leaders in technology, biomimicry, and science, aiming to create a sustainable framework for climate innovation in Uganda and Africa.

The three days explored cutting-edge climate technology solutions, strategies for environmental sustainability, and pathways for economic growth through science and technology. During the event we launched a climate change unit to provide annual accountability on climate smart innovations and follow-up with



Legacy capital on the status of \$22M fund, including \$3.3M (UGX 12.5B) dedicated to tech innovations in Uganda and free AI training for 1,000 Ugandan engineers.

Together, let's shape a sustainable future driven by climate friendly technologies.



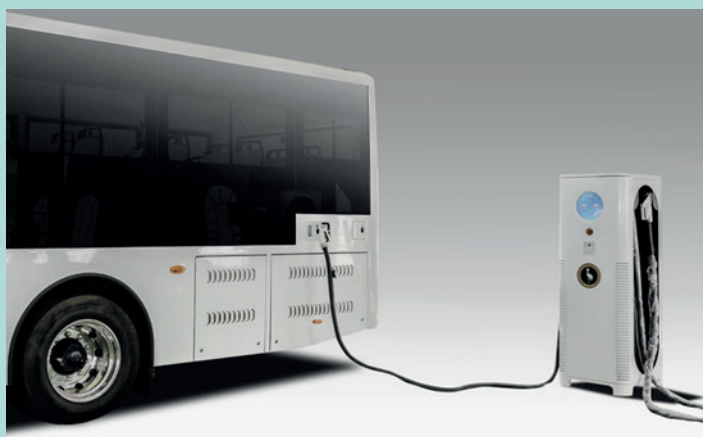


## A thumbs -up to Kiira Motors

In July, Kiira Motors launched eight 8-meter Kayoola EVS buses, produced at Luweero Industries Limited in Nakasongola. These fully electric city buses have a range of 200 kilometers on a full charge and can carry 56 passengers, adding to our impressive portfolio of locally-made EV buses.

The country's push towards becoming a leading source of e-Mobility solutions in Africa is steadily advancing, and we are proud to contribute to this agenda. This progress is made possible through our strategic partnership with the National Enterprise Corporation and its Luweero Industries Limited subsidiary.

As we work towards achieving the National E-Mobility Strategy, collaboration between the private and public sectors is crucial. Supporting the deployment and distribution of fast-charging infrastructure is essential to ensuring a seamless electric vehicle ownership experience, enabling the country to adopt environmentally sustainable mass transport solutions that deliver quality and value for money.



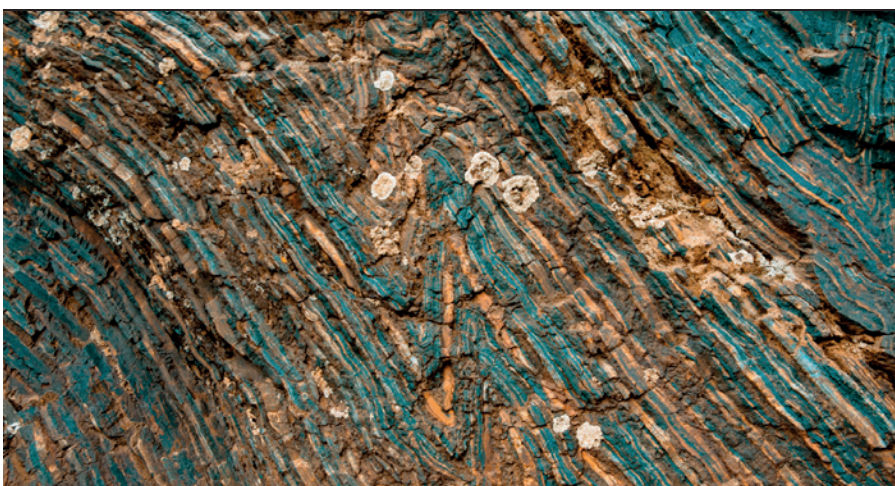
# President Museveni Meets South Korean Investors



As the country prepares for the consumption of electric vehicles and sustainability of its value chain, The President met with potential South Korean Investors. The investors under Hineni intend to

establish a plant in Uganda to complement Kiira Motors in the manufacture of automotive components among which will be electric batteries to complement Kiira Motors Corporation.

## Minerals Value Chain Analysis



In July, we were thrilled to be part of the Minerals Value Chain Analysis Workshop, held at Kabira Country Club that brought together a wide array of stakeholders to discuss the strategic development of Uganda's mineral sector. The

event, hosted by the Ministry of Energy and Mineral Development, facilitated crucial discussions with key players, including artisanal miners governed by various associations, representatives from the Directorate of Geological Survey

and Mines, as well as academic institutions such as Makerere University and Busitema University.

The Mineral Value Chain analysis focused on identifying and prioritizing minerals essential to Uganda's industrial growth and economic development. As a result, 13 priority minerals were selected, including copper, cobalt, gold, sand, iron ore, limestone, tin, titanium, tungsten, phosphate, lithium, salt, and clay. These minerals were identified based on their potential to boost Uganda's economic competitiveness, support local industrial value chains, and contribute to the sustainable extraction of natural resources.

# IN NEWS

The Minister of Science, Technology and Innovation, Dr. Monica Musenero Masanza, urged developers of numerous technologies or applications targeting the agricultural sector, to ensure that farmers can find solutions to their day to day problems and derive economic benefits such as increasing agricultural production of their crops.

This was made during the National Agricultural show in Jinja organized by Uganda Farmers Federation in partnership with the Ministry of Agriculture, Animal Industry and Fisheries. In Uganda just a handful of technologies have been able to scale to market level and boost farm productivity and financing.

## Kiira Motors - Open Day and Expo

On 16th August, Kiira Motors Corporation (KMC) hosted Uganda's inaugural e-Mobility Expo and Kiira Vehicle Plant (KVP) Open House in Jinja. Join us in celebrating this pivotal milestone in Uganda's journey towards adopting electric mobility. This transition holds tremendous promise for reducing the nation's carbon footprint, generating new economic opportunities, and fostering sustainable growth.



## Advancing E-Mobility

In the FY 2024/25, the Ugandan government made a decisive move to prioritize e-mobility as a key driver of economic development. This strategic focus includes a substantial allocation of UGX 32.5 billion to Kiira Motors Corporation, aimed at fully operationalizing the electric

vehicle (EV) plant. Alongside this financial support, the government has introduced significant tax exemptions for suppliers of electric motorcycles, vehicles manufactured or fabricated in Uganda, as well as their respective charging stations and batteries. This policy shift is designed to facilitate the growth of e-mobility and make electric cars and motorcycles more affordable for Ugandans.

To innovate is to challenge the status quo, to see possibilities where others see limits. Remember, every great idea began as a spark in the mind of someone who dared to think differently. As an innovator or scientist, your role is to turn obstacles into opportunities and ideas into action.

# Opportunities

## Electronic BUS Operator skilling program

Are you an experienced bus operator looking to expand your skills and be part of the future of transportation? Kiira Motors Corporation has launched the Electronic Bus Operator Skilling Program, a forward-thinking initiative aimed at equipping individuals with the knowledge and skills needed to operate and maintain electric buses, an integral part of the global transition towards sustainable urban mobility.

Through this program, participants will be trained in a range of key areas, including the operation of electric buses, charging infrastructure, energy management, and safety protocols. The curriculum also covers the maintenance and troubleshooting of electric buses, helping operators understand the technology that powers these vehicles, from battery management systems to regenerative braking.



**CALL FOR APPLICATIONS**

**E- BUS OPERATOR SKILLING PROGRAM.**

The Science, Technology and Innovation Secretariat Office of the President (STI-OP) in partnership with Kiira Motors Corporation is calling for qualified bus drivers to participate in a fully funded and comprehensive electric bus operator skilling program.

Number of drivers expected:

▶ **215**

**YOUR APPLICATION SHOULD INCLUDE THE FOLLOWING DOCUMENTS:**

Deadline for submission

▶ **30th Sept, 2024**

- ▶ A Duly Signed Application Letter (Cover Letter) addressed to the Chief Executive Officer, Kiira Motors Corporation.
- ▶ Valid Driving License (Minimum Class/Group: Class -DE/DH for 12 meters Buses; ; Class -D1E/ D/ DM for 10 meters Buses; and Class -D1 for 8 meters Buses).
- ▶ Certificate in Defensive Driving is an added advantage.
- ▶ Selected candidates will submit a police clearance certificate.
- ▶ A recommendation letter from a Licensed Mass Transit Operator or a Registered Mass Transit Association.

Submit your applications:

[www.kiiramotors.com/skilling/](http://www.kiiramotors.com/skilling/)

For More Information.

▶ **+256 393 517 888**



@kiiramotors



www.kiiramotors.com



**KIIRA MOTORS CORPORATION**  
VISION: VEHICLES MADE IN KENYA

# Lwera Innovation Catalyst Fund 2024

Hello Innovator,

The call for applications for this year's Lwera Innovation Catalyst Fund is now open! The theme, "Empowering Tomorrow's Technologies," is focused on fostering innovation and advancement across a wide range of industries and technological domains, including Consumer Electronics, Automotive Electro-mechanical Systems, Health Tech, Education, Chip Design, Industrial Automation, Smart Devices, Defense Technology, Agritech Solutions, and emerging fields such as IoT, Robotics, AI, and Big Data Solutions.

If you're an innovator with the drive and expertise to commercialize electronic product innovations and localize electronic products, this fund is designed to help you. It aims to transform your ideas into tangible products and support the transition from prototypes to industrially designed solutions. The fund will also facilitate thorough testing and certification of technological solutions for effective piloting.

Click link to Apply

<https://www.youtube.com/watch?v=Kg4ZHy6EDHM>

## National transition towards e-mobility

In the FY 2024/25, the Ugandan government made a decisive move to prioritize e-mobility as a key driver of economic development. This strategic focus includes a substantial allocation of UGX 32.5 billion to Kiira Motors Corporation, aimed at fully operationalizing the electric vehicle (EV) plant. Alongside this financial support, the government has introduced significant tax exemptions

for suppliers of electric motorcycles, vehicles manufactured or fabricated in Uganda, as well as their respective charging stations and batteries. This policy shift is designed to facilitate the growth of e-mobility and make electric cars and motorcycles more affordable for Ugandans.

**By Vision Reporter**

Uganda is preparing to host one of the largest e-mobility expos on the continent, coinciding with the opening of the country's largest vehicle manufacturing plant on October 8, 2024. Many players from across Africa and beyond will attend the expo and open day at the Kiira Motors Plant in Jinja on August 16, 2024.

Speaking to journalists at the plant in Jinja, Dr. **Monica Musenero**, the Minister for Science Technology and Innovation noted that the event will attract both local and international players.

According to the minister, the event aims to gather industry leaders, policymakers, innovators, and the public to showcase the plant's capabilities and products, share knowledge, and foster collaboration within the mobility ecosystem.

In addition, she said, the expo will put a spotlight on the e-mobility ecosystem and provide a platform to educate, inform, and drive influence for the e-mobility ecosystem while providing public accountability at the same time.

"It is also an opportunity for key stakeholders to connect with others and discuss potential mutually beneficial synergies," she said.

### ELECTRIC CARS: SMART WAY TO COMBAT CLIMATE CHANGE

**THIS FIRST BUS TO BE DEPLOYED ON PUBLIC ROADS FOR COMMERCIAL DUTY HAS ALREADY DONE OVER 100,000KM WITHOUT EXPERIENCING EVEN A SINGLE MINOR TECHNICAL HITCH**

According to her, Uganda is leading the e-mobility drive on the continent. "We are making electric cars and changing public transportation. This expo gives us an opportunity to exhibit our

technology and innovations. We expect investors to come. We are organising the e-mobility expo and open day under the theme *The Future is Green: The Future is Now*," she said.

The expo comes at a time when the country's e-mobility is one of the fastest-growing on the continent. From just one electric bus in the country, the Kiira Motors Corporation has now produced at least 27 buses, either deployed on the road by the different clients or in their designated warehouses, ready for sell.

According to the Government, Tanzania and South Africa have expressed interest in producing about 100 buses as they also move to integrate e-mobility.

On October 8, 2024, KMC will commence the production of 11 buses per day at its plant in Jinja, which translates into 200

According to the Government, Tanzania and South Africa have expressed interest in producing about 100 buses

a month and 2,500 a year. As the number of motorcycles and vehicles grows in Uganda, the e-mobility infrastructure also grows steadily.

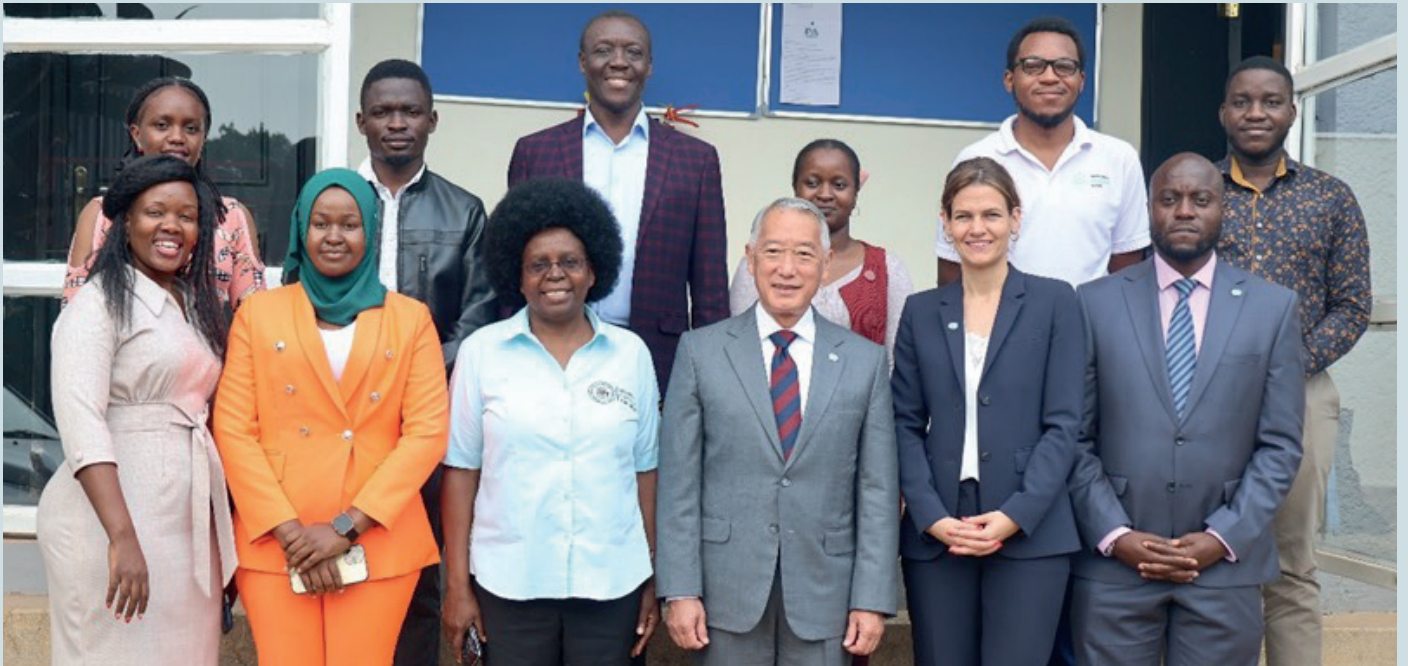
Statistics shared by the ministry indicate that Uganda is now home to at least 20 super-charging stations for vehicles, including the 16 operated by KMC.

Institutions and individuals who own electric vehicles privately own the existing passenger vehicle chargers, which include Level 2 slow chargers for use at home or on institution premises.

With over 3,000 electric motorcycles currently in use in Uganda, the ministry says there are 140 battery swapping stations located in Kampala, up to Mbarara on the western axis, Luwero on the northern route, and up to Busia in the east. For the electric vehicles, Allan Muhumuza, the head of e-mobility at the Ministry of Science and Technology, indicated that charging points are in four districts: Nakasonkola at Luweero Industries, Kampala, Wakiso, and Jinja.

# PICTORIALS

## Pathogen Economy - Stakeholder Engagement



Pathogen Economy and the Hon. Minister, host a delegation from the International Vaccine Institute that included the Director General, International Vaccine Institute to discuss collaboration frameworks



Pathogen Economy (PE) engages with a team of scientists from Uganda Virus Research Institute (UVRI) on a potential Malaria project as part of the Technical support offered to scientists across the country under the PE One Stop Centre.



The Pathogen Economy team and a team of scientists having discussions with the Infectious Disease Institute (IDI) with regards to setting up a Virtual Reality Training program for the Industry as part of its efforts to have training programs to bridge the Human Capital gap



Its a photo moment for the Pathogen Economy team




## Think;

To innovate is to challenge the status quo, to see possibilities where others see limits. Remember, every great idea began as a spark in the mind of someone who dared to think differently. As an innovator or scientist, your role is to turn obstacles into opportunities and ideas into action.



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