ACEK FL Chronicles

Engineering Knowledge, Leadership, Innovation & Impact



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Chairman's Remark



It is my pleasure to welcome you to another edition of the ACEK-FL newsletter.

As the engineering profession continues to evolve, so too must the way we prepare ourselves for the challenges and opportunities ahead. The future of engineering will not be defined by technical knowledge alone, but by our ability to apply that knowledge responsibly, work across disciplines, embrace emerging technologies, and remain responsive to the needs of our society.

For us as Future Leaders, this is particularly important. We are entering a professional environment where infrastructure development, sustainability, digital transformation, climate resilience, project finance and changing client expectations are increasingly interconnected. The engineer of tomorrow must therefore be prepared not only to design and supervise projects, but also to understand the wider economic, social and environmental context within which those projects exist.

At ACEK-FL, we have an opportunity to create a platform where young engineers can learn from experienced professionals while also bringing fresh perspectives to the industry. Through our engagements, research, publications, mentorship and professional development activities, we seek to strengthen that connection and encourage a culture of continuous learning.

I also encourage our members to take an active role in shaping the profession. Ask questions, participate in professional discussions, seek mentorship, share your knowledge and do not be afraid to explore areas beyond your immediate discipline. Some of the most valuable opportunities in engineering emerge at the intersection of different fields.

As we look ahead, let us remain committed to professionalism, integrity and excellence. The infrastructure and systems we design today will shape the lives of generations to come. Our responsibility, therefore, goes beyond completing projects; it is about creating solutions that are safe, sustainable, inclusive and capable of delivering lasting value.

I appreciate the continued commitment of the ACEK-FL leadership, our members, partners and all those who contribute to the growth of the Future Leaders platform. I look forward to seeing us continue to learn, collaborate and contribute meaningfully to the engineering profession and to Kenya's development.

Elvis Alwala

Chairperson, ACEK-FL

Editor's Note



What does it really mean to be a Future Leader?

Perhaps the answer is found in what we choose to do with the opportunities, responsibilities and challenges before us.

It is not simply about being young in the engineering profession, waiting for the opportunity to take over from those who came before us. It is about being willing to ask different questions, take responsibility for the profession we are inheriting, and actively shape the one we want to leave behind.

This issue of the ACEK-FL Chronicles captures what that responsibility can look like.

The 3rd ACEK Future Leaders Summit offered a glimpse of that responsibility in practice. Conversations on entrepreneurship, large-scale infrastructure, leadership, ethics, personal branding and regional collaboration challenged the familiar idea of an engineer's career as a purely technical path. The launch of the ACEK Future Leaders website marked an exciting step forward for the platform while the presence of established leaders in the engineering space also made something important visible: leadership is built through continuity, mentorship and the willingness to create room for those coming next.

The climate resilience article brings another question into focus: what happens when the conditions we design for are no longer the conditions we experience? With floods and droughts increasingly disrupting infrastructure and economic activity, resilience has become a design, maintenance and investment question. The article pushes us toward forward-looking climate projections, nature-based solutions, digital monitoring and lifecycle thinking.

The discussion around the National Infrastructure Fund Act, 2026 takes the profession beyond the traditional construction role. With infrastructure financing increasingly seeking private and alternative sources of capital, engineers have a role in the decisions that determine whether projects are technically feasible, financially viable and ultimately bankable. Feasibility studies, cost, risk, procurement and constructability are all part of that conversation.

> ***ACEK Future Leaders website marked an exciting step forward for the platform while the presence of established leaders in the engineering space also made something important visible***

The wider discussion on engineering and infrastructure financing brings this connection into focus. Technical decisions carry financial and commercial consequences, with choices on alignment, pavement design, construction methodology, programme and maintenance requirements influencing capital costs, operating costs, risk allocation and the wider financial model of a project. Understanding how engineering decisions translate into financial and commercial outcomes gives engineers greater influence over the projects they help shape.

Then comes a very different application of engineering: AI-enhanced microwave imaging for early lung cancer diagnosis. Antennas, microwave sensing, artificial intelligence, IoT, edge computing and 5G converge around a healthcare challenge, with the potential to make non-invasive screening more accessible in resource-limited settings. What makes the article valuable is its recognition that this technology still has to overcome data limitations, connectivity gaps and clinical evaluation before it can become a practical solution.

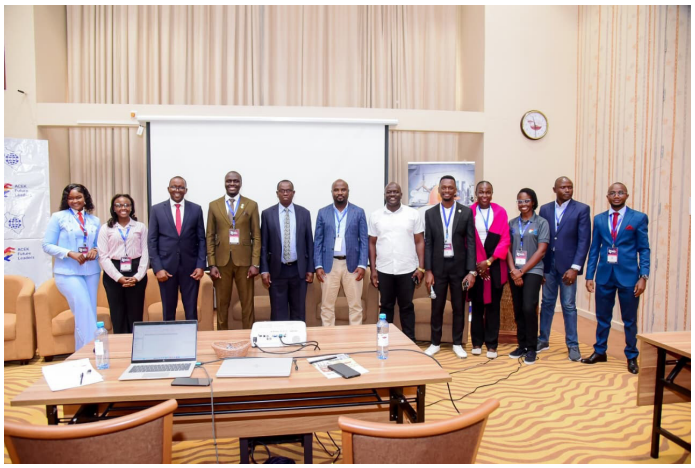
Engineering is becoming a profession that asks more of us. The knowledge we build must inform the decisions we make; leadership must carry responsibility; innovation must respond to real challenges; and ultimately, our work must create impact. From climate resilience and infrastructure finance to emerging technology and healthcare, these are the spaces in which the next generation of engineers will be called to contribute.

Perhaps this is what it means to be a Future Leader: to keep learning, to question what can be improved, to have the courage to try something different, and to leave a meaningful mark on the profession and the communities it serves.

"The future of engineering is not waiting for us. We are already building it."

Christine Jane Osano,
Editor

Website and Merchandise Launch







ACEK FL SUMMIT HIGHLIGHTS

BUILDING TOMORROWS ENGINEERS TODAY; INSIDE THE 3RD ACEK FUTURE LEADERS SUMMIT



Eng. Henry Kevin Nyakundi, P.Eng., PMP, a Professional Civil Engineer, certified Project Management Professional (PMP), *and an accomplished infrastructure project leader with extensive experience in engineering design, construction supervision, and project management across multiple sectors.*

Beyond project delivery, Eng. Nyakundi is deeply committed to capacity building and professional development. As a member of the MCBT Capacity Building and Training Team, he has contributed to equipping engineers and project professionals with the knowledge, skills, and practical tools needed to deliver impactful and sustainable infrastructure.

He is also a passionate advocate for sustainability, resilient infrastructure, and thoughtful urban development. Through articles and professional commentaries published in platforms such as Business Daily, he has explored topics including sustainable infrastructure, urban planning, and the future of Kenyan cities, encouraging engineers to embrace innovation while designing communities that are inclusive, resilient, and environmentally responsible.

Today, he joins us to share insights on Capacity Building and Entrepreneurship, drawing from his experience in engineering practice, project management, professional training, and thought leadership.

Day Zero of the 5th Annual ACEK Conference put Kenya's next generation of engineers on stage with the people who built the profession's platforms before them.

The 5th Annual Conference of the Association of Consulting Engineers of Kenya opened its programme at Sawela Lodge, Naivasha, under a theme that set a clear tone for the week: Engineering Transformation, Scaling Green Growth, Smart Infrastructure and Resilient Futures. Before the main conference sessions began on Wednesday, the Association gave an entire day, Tuesday 11th August, to its Future Leaders. The 3rd ACEK Future Leaders Summit ran from early morning registration to a closing fireside chat in the evening, and it carried a weight that went beyond a warm-up act for the main event. It functioned as a working session on what the engineering profession in Kenya expects from the generation now entering it.

The day opened with remarks from Elvis Alwala, Chair of ACEK Future Leaders, followed by the Institution of Engineers of Kenya CEO Eng. Maureen Auka and ACEK President Eng. Gabriel Jabong'o. Eng. Harrison Ketter, KenGen's Power Generations Manager for the Eastern Region, delivered the opening keynote. His presence on a programme built around young engineers signalled something the rest of the day reinforced repeatedly: the country's established utilities and infrastructure agencies see genuine value in engaging early with engineers who are still building their careers, not just recruiting them once they arrive.

Two keynote addresses shaped the morning's thinking. Eng. Dominic Kundu, Regional Director for KeRRA in Kwale, spoke on professional practice and industry growth in an era of public-private investment, a subject that sits close to the daily reality of Kenyan engineers navigating a construction sector increasingly financed through partnerships rather than straight exchequer allocation. Eng. Nicholas Airo, CEO of NAS International, followed with a keynote on engineering entrepreneurship, pushing the audience to treat professional

registration and technical skill as a foundation for building something of their own, not only a route into salaried employment.

Those two ideas fed directly into the morning's plenary session on capacity building and knowledge transfer in engineering entrepreneurship. The panel brought together Kundu and Airo alongside Eng. Henry Nyakundi of WTS Energy, James Muriithi, founder and CEO of RoadsHUB, Eng. Wanja Kinyua of Sigma Consulting and Service Engineering, and Eng. Yvonne Robert, Director of Leeds Vonne Limited. The range on that panel, from a road authority regional director to the founder of a homegrown roads technology venture, gave the session a practical edge. It framed capacity building not as a single training programme but as a set of relationships between established practitioners, regulators, and the entrepreneurs trying to build new firms inside the same regulatory environment.

The next plenary turned toward leadership development, ethics, networking, and personal branding, and it did something the programme handled well throughout the day: it placed Kenyan engineering in a regional frame. Eng. Howard Ashihundu of KeNHA's Upper Eastern Region and Eng. Maureen Auka spoke alongside Eng. Ceaser Kisa Wakiibi, Vice Chair of the Uganda Association of Consulting Engineers, and Engr. Charles Narh Tetteh from Ghana. For young Kenyan engineers whose professional networks tend to stop at the border, hearing directly from counterparts in Uganda and Ghana on ethics and personal branding offered a rare comparative lens on what professional conduct and reputation building look like elsewhere on the continent, at a moment when regional infrastructure and trade integration under the African Continental Free Trade Area is becoming more relevant to engineering practice.

The middle of the day gave floor time to the machinery that keeps ACEK Future Leaders running. Four committees, Governance Research & Publication, Membership Capacity Building and Training, Monitoring and Partnerships, and Events and Welfare, each presented in six-minute slots, followed by a sponsor presentation from Titus Kimeli of ICEA Lion Group. It is easy to skip past committee reports in a conference recap, but for an association built on volunteer leadership, these sessions are where accountability actually happens. They are also where younger members see, concretely, how an engineering association runs day to day, which matters for anyone considering leadership themselves.

> ***The country's established utilities and infrastructure agencies see genuine value in engaging early with engineers who are still building their careers, not just recruiting them once they arrive.***

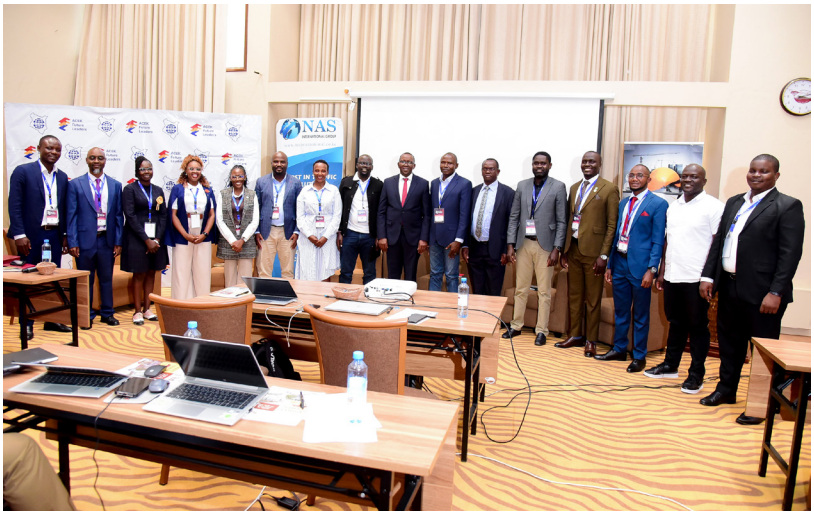
After lunch, Eng. Dr. John Mativo delivered a keynote on preparing young engineers for large-scale infrastructure projects, a topic that speaks directly to a persistent gap in Kenya's engineering pipeline. Technical training equips graduates with calculation methods and design standards, but very little in a typical curriculum prepares an engineer for the scale, stakeholder complexity, and financing structures behind a highway, a geothermal plant, or a regional water scheme. Mativo's session addressed that gap directly, and it set up what became the emotional center of the day.

That was the leadership panel bringing together every ACEK Future Leaders chair from the group's founding: Eng. Kennedy Kiunga, who led from 2014 to 2019, Eng. Harun Mamboleo, 2019 to 2020, Aluora Kenneth, 2021 to 2022, John Jairo, 2023 to 2024, Mike Jomo, 2025 to 2026, and the present chair Elvis Alwala, taking over for 2026 to 2027. Few young professional bodies in Kenya can assemble every one of their past leaders on a single stage. The panel gave the current generation of Future Leaders a direct line to the people who built the platform they now use, and it turned succession from an abstract governance concept into a visible, six-person conversation about what the role actually demands.

The day closed with the formal launch of ACEK Future Leaders' own merchandise and website, closing remarks, and a fireside panel discussion before delegates broke for tea ahead of the main conference's opening ceremony the following morning.

ACEK FL 3rd Summit











BUILDING TOMORROW: CLIMATE-RESILIENT INFRASTRUCTURE FOR KENYA



Purity Nzilani Maluki is a registered Graduate Engineer with the Engineers Board of Kenya, *currently specializing in site engineering for real estate developments. Her research focuses on water resources, wastewater management, climate-resilient infrastructure, and emerging engineering technologies. She holds a BEng in Civil and Structural Engineering from Moi University and serves as the Secretary of the Governance, Research, and Publications (GRP) Committee for the Association of Consulting Engineers of Kenya Future Leaders Council (ACEK-FL). Purity is dedicated to advancing sustainable global engineering practices, technical research, and climate-adaptive infrastructure solutions.*

The built environment in East Africa is under an unprecedented challenge. Kenya's economic development is based on a vast network of roads, bridges, dams, energy grids, and public facilities, all of which are essential for the country's ambitious national development plans and the rapid urbanization taking place. Structural vulnerabilities have been revealed in these assets due to intensification of hydro-meteorological shocks, including multi-year droughts and sudden, catastrophic flood events. The scale of the damages and losses from the short and long rains of 2023–2024 was no longer abstract; damages and losses were estimated at Ksh187.82 billion, with people displaced by the rains in 38 counties, while the Nakuru–Eldoret highway, a major regional trade route, was made impassable for several days (Makokha, 2024; OCHA, 2024; Michael, 2026). The impact of the disruptions to the transportation corridors, siltation of reservoirs and failure of urban drainage systems affected the entire national economy, with estimates of the 2024 floods alone cutting about 0.3% off Kenya's GDP growth (Oberholzer and Fourie, 2024).

Ksh 187.82 billion

Estimated damages and losses from the short and long rains of 2023 - 2024



Fig: The Nakuru-Eldoret Highway at Timboroa Market washed by floods in 2024. Source: (Makokha, 2024).

Transitioning from reactive emergency repairs to proactive, climate-proof design has become an essential imperative for built environment professionals. Engineering designs today must take into account environmental and hydrological conditions 30 to 50 years from now. Incorporating climate risk modelling into early engineering processes, implementing Nature-Based Solutions alongside grey infrastructure, refreshing and modernizing building codes, and implementing innovative financing models will enable Kenya to build a built environment that can withstand climate change.

The Landscape of Exposure and Infrastructure Vulnerability

The geographical diversity in Kenya results in a complex matrix of climate risks. The country has more than 85% of its land mass as vulnerable Arid and Semi-Arid Lands (ASAL) and major population centers like Nairobi, Mombasa, Kisumu, and Nakuru have high urban flood dynamics, localized heat islands, and drainage stress. In the transport sector, high rainfall intensity often leads to significant scouring of bridges, erosion of embankments and instability of slopes along key logistics corridors. The same conditions apply to hydraulic and energy networks. Extended droughts lead to lower river flows and less hydro-power potential, and increased flash floods lead to erosion of topsoil into the major river basins, siltation of dams like Masinga, and reduced long-term water storage. Rising sea level and high-energy storm surges in coastal cities exacerbate coastal erosion, posing risks to port installations, tourism facilities, groundwater aquifers and other coastal infrastructure. Severe weather events also directly disrupt community protective structures, increasing health and social risks for vulnerable groups, especially children (Nzenge & Mulwa, 2026).

Technical Pillars for Climate-Resilient Engineering

Solutions to these challenges must come from a paradigm shift in infrastructure development, design and operation. Traditional engineering design relies on historical climate baselines to project 1-in-50-year or 1-in-100-year storm return periods, but under accelerated climate change this data is no longer stationary. Engineers need to move towards non-stationary approaches in hydrological modelling, including forward-looking regional climate projections, directly into hydraulic calculations and structural tolerances. The State Department for Roads has started to implement this in practice where on unstable sections like the Lorian Swamp, engineers are testing geotextile reinforcement and softer embankment slopes, while new rainfall and streamflow monitoring stations provide updated data to hydrological models for designing and planning maintenance (Kung'u, 2025). This change also requires increased drainage culvert sizes, increased bridge clearances, and increased stormwater retention volume, as well as material properties, such as polymer modified bitumen and concrete mixes that are resistant to water absorption and chemical exposure, appropriate for coastal and flood-prone conditions.

> ***Traditional engineering design relies on historical climate baselines to project 1-in-50-year or 1-in-100-year storm return periods, but under accelerated climate change this data is no longer stationary.***

Nature-based Solutions provide high-value protection in addition to hard engineering protection. Vegetated bioswales, permeable paving, and retention wetlands absorb storm runoff and trap sediment before water reaches concrete arterial drains, while coastal defenses blending mangrove restoration with engineered revetments provide self-sustaining wave barriers. The informal riparian settlements in Nairobi provide a working example where youth-led groups are rehabilitating riverbanks and rethinking rivers as green corridors that not only manage floods, but also provide a public space. This approach is now included in a national plan for climate-resilient upgrading of informal settlements (Cities Alliance, 2026). Materials innovation reinforces this hybrid approach at the building scale, from Nairobi-based Gjenge Makers converting 10 to 25 tonnes of plastic waste weekly into durable paving blocks (Euronews, 2023), to Interlocking Stabilized Soil Blocks cutting construction costs by up to 60% using locally available soil (Lugaria, 2024).

In addition to materials, embedding IoT sensors, GIS, and remote sensing into key assets allows continuous monitoring. For instance, a digital twin of a major bridge or dam can simulate stress events and help engineers to perform predictive maintenance before structural failures occur.

Policy Realignment, Standards, and Economic Governance

Institutional frameworks are the foundation of technological innovation for systemic resilience. Kenya's national building codes and public works manuals are shifting towards Eurocodes with local annexes that incorporate East African climatic parameters, and the Climate Change Act of 2016 requires the government to develop a National Climate Change Action Plan every five years, with the current plan running to 2027, which includes integrating considerations of resilience into the transport, housing and energy sectors (Climate Change Act, 2022; Climate Action Tracker, 2025). The County Climate Change Funds now focus on locally identified priorities, which is a



Fig: Garden City boasts Africa's largest solar carport system. Source: (Maina, 2014).

recognition that flood risk in Isiolo is not the same as in Kisumu, and the National Treasury's Disaster Risk Financing Strategy for 2026 to 2030 considers floods and droughts as a fiscal risk to be planned for ahead of time rather than emergency funding after the event (Michael, 2026).

A parallel objective is the harmonization and implementation of national quality standards for energy and utility infrastructure that will speed up the uptake of climate-smart technologies in the country, and ensure long-term grid resilience (Ochieng et al., 2023), as stated in Kenya's National Energy Policy 2025–2034, which explicitly addresses climate-resilient power systems (Ministry of Energy and Petroleum, 2025). Momentum in the market has been building, with the Kenya Green Building Society reporting 147 registered or certified green buildings by 2025, compared with 44 at the same time three years ago (Syovata Ndambuki, 2025). A new national standard for green buildings is imminent, with water-efficient fixtures and heat- and flood-resilient design becoming mandatory rather than optional (KCND, 2025).

Environmental impact assessments should also integrate Climate Risk Assessments to consider future exposure before final design approval. Viewing resilient infrastructure as a public good justifies Whole Lifecycle Costing in public procurement over low initial capital expenditure where upfront investment in durable materials and adaptive design yields significant savings across an asset's operational life, and reduces the recurring, increasingly unaffordable national habit of post-disaster rebuilding (Vaidya & Bhowmick, 2026).

The Path Forward for Industry Practitioners

The development of a climate resilient country is an ongoing multidisciplinary process. Project managers, structural designers, urban planners and policy specialists need to work together as an integrated team, and engineers need to be able to use Building Information Modelling platforms that incorporate life-cycle carbon tracking and environmental vulnerability assessments. Climate finance mechanisms, including green bonds, climate adaptation funds, and blended public-private partnerships, enable infrastructure leaders to design bankable climate-smart projects that can access global capital, as has been shown to be commercially viable in Nairobi's local market by EDGE- and LEED-certified development projects like Garden City Mall (Maina, 2014). Finally, built environment climate resilience is not only a technical requirement, but a moral obligation. Incorporating climate foresight into all design, material selection, and policy considerations will help safeguard critical national assets and create a safer, more resilient economic base for generations to come for the built environment community in Kenya.

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Engineering Strategic Impact; Beyond The Drawing Board

Engineers' Strategic Role in Kenya's Infrastructure Financing

A case study of the National Infrastructure Fund Act, 2026



Eng. Latoya Ouna, CE, MCIArb, MIEK,

Technical Director – Design Masters Studio, Board Member – National Infrastructure Fund

Kenyan engineers are often seen as implementers, not creators, of infrastructure policy. While project implementation gives them insight into cost, risk, feasibility, and delivery, procurement rules and contracts, financing mechanisms are typically developed with little engineering input. Without engineering perspectives at the policy level, infrastructure projects become more expensive to implement and slower to complete.

In the FY2024/25 estimates, the National Treasury allocated KES 707.4 billion to development expenditure, representing approximately 3.9% of GDP. Of this amount, infrastructure accounted for KES 477.2 billion, or 64.0% of total development expenditure, marking a 1.9% increase from the previous year's KES 468.2 billion.[1] However, the National Assembly's Budget and Appropriations Committee identified KES 859.5 billion in unfunded expenditure for FY2024/25, including KES 374.5 billion in unfunded development expenditure.[2]

Traditionally, projects are approved within a development budget that must compete annually with recurrent obligations. The FY2024/25 estimates indicate that interest payments, pensions, and net lending increased by 14.7% to KES 1,213.4 billion, a rise partly due to the high cost of debt servicing.1 Even well-designed infrastructure programs are frequently re-prioritized, re-scoped during implementation, or subjected to partial budget releases, resulting in extended project timelines. Financiers, who might otherwise invest alongside the government, have historically accounted for this risk—not the technical risk inherent to the project, but the risk that the public partner's funding commitment may not persist through subsequent budget cycles.

KES 477.2 billion

The amount accounted in infrastructure, from the KES 707.4 billion allocated by the National Treasury for development expenditure

The National Infrastructure Fund Act, 2026 (Act No. 4 of 2026) is intended to address these challenges, underscoring its significance for engineers.[3] Two provisions are particularly relevant: section 4(d), which establishes national capacity-building as a statutory purpose of the Fund, and section 32, which requires that Fund financing be contingent upon an approved feasibility study.[4] Together, these provisions create a framework that attracts private and non-traditional capital alongside state funding, providing co-financiers with assurance that projects are fully funded and bankable, rather than subject to annual budget uncertainties. For engineers, this framework emphasizes that such confidence must be grounded in rigorous, locally informed feasibility assessments rather than government guarantees alone. It expands the engineer's role

beyond design and supervision to include structuring, gatekeeping, and influencing how capital is allocated and safeguarded.

Engineers often occupy policy-influencing roles without recognizing their work as policy engagement. Technical specifications embedded in the Public Procurement and Asset Disposal Act serve as the foundation for infrastructure projects and originate from engineering practice rather than legal drafting. Standard forms of contract, such as the FIDIC Red, Yellow, and Silver Books, are routinely administered by engineers serving as the Engineer under the contract. This position confers quasi-judicial authority over certification, variations, and the early resolution of disputes through the Engineer's determination. Furthermore, Bills of Quantities, an engineering construct, dictate how public funds are accounted for in every infrastructure project nationwide.



> ***The Institution of Engineers of Kenya, Association of Consulting Engineers of Kenya, and Engineers Board of Kenya offer robust professional development programs in project development and engineering design.***

Professional bodies also formalize this influence. The Institution of Engineers of Kenya, Association of Consulting Engineers of Kenya, and Engineers Board of Kenya offer robust professional development programs in project development and engineering design. These organizations also engage with the government on procurement thresholds, technical standards, and engineering fee scales across both private and public sectors. The activities are rarely seen as traditional policy engagement, however, engineers typically respond to existing laws and contracts instead of participating in legislative or policy design.

Section 4 of the NIF Act sets out the purpose of the Fund. Alongside scaling up infrastructure development, mobilising private capital, and reducing reliance on public debt, section 4(d) commits the Fund to strengthening national capacity for the origination, structuring, and execution of large and complex infrastructure projects.

Achieving this objective requires strong engineering capability. Origination means identifying bankable projects from technical, environmental, and social perspectives, and determining feasibility, cost, timeline, and risk before proposing a financial structure. Structuring calls for engineers who can clearly communicate technical risks to lenders and investors, including construction, completion, and performance risks, and how these relate to commercial terms. Execution requires supervisory and contract administration skills to keep complex projects within technical and financial limits during construction. Viewed this way, section 4(d) places a responsibility on the engineering profession to define "national capacity" in practical terms. If left undefined, capacity building may be reduced to training or study tours, rather than fostering a sustainable, structural approach. A more effective strategy embeds local engineers in project preparation from the outset, enables Kenyan firms to lead feasibility and structuring, and develops engineers skilled in both technical delivery and the commercial aspects of public-private partnerships and blended finance.

Section 4(d) intersects with three procurement regimes, and engineers' project development decisions determine which framework applies. The Public Procurement and Asset Disposal Act is the default for direct public procurement. The Public Private

Partnerships Act, 2021, governs privately financed infrastructure through competitive bidding, privately initiated proposals, and, in some cases, direct procurement, using standard bidding documents from the PPP Directorate. PPADA applies more to public funded projects than to fully privately funded projects. The NIF Act oversees both but does not specify its own procurement method. Instead, section 19 allows the Board to participate through equity, debt, quasi-equity, or other project finance mechanisms. The chosen instrument determines whether a project proceeds as a public works contract under PPADA, a PPP under the 2021 Act, a combination of both, or if the Fund must develop its own standard documents and procurement structures. As a result, origination and structuring under section 4(d) are procurement-law decisions before they become financing decisions. An engineer advising at the feasibility stage—whether recommending a public-private partnership, a publicly procured contract funded by NIF debt, or national budget funding—effectively determines the procurement pathway, risk allocation, and contract form for the project. Proficiency in all three statutes is now essential for engineers involved early in NIF-supported projects.

Once the procurement pathway is set, selecting the appropriate standard contract documents, such as FIDIC forms, is the next step. The choice of form affects the project's bankability. The Silver Book places design and completion risk on the contractor, making it preferred by lenders and development finance institutions for privately financed or blended projects, as it offers cost and time certainty. The Red Book,



The Silver Book places design and completion risk on the contractor, making it preferred by lenders and development finance institutions for privately financed or blended projects, as it offers cost and time certainty.

which involves measurement and valuation with an independent Engineer certifying employer-designed works, is more common for publicly procured projects. The Yellow Book, a design-and-build form with contractor-led design, is often used for projects with mixed public-private financing.

As NIF-backed projects increasingly blend public and private capital, the contract form chosen during structuring faces investor scrutiny similar to the cost plan. Engineers often prepare the technical case in the feasibility study and then serve as the Engineer responsible for certifying and administering the contract. This dual role—as both architect of risk allocation and its enforcer—highlights the need for engineering judgment in selecting the contract form.

The Act explicitly links investment decisions to project bankability. Section 19 authorizes the Board to invest based on a project's bankability, while section 33 mandates that the feasibility study address affordability and value for money. Collectively, these provisions establish a fund that seeks to attract capital by promising returns, while simultaneously limiting the state's exposure to the associated risks.
If technical risk is overstated in a feasibility study, a viable project may be deemed unbankable or require excessive government support. If technical risk is understated, a project may pass the Board's bankability test but fail during construction, turning manageable risks into contingent liabilities the Act seeks to avoid. To mitigate procurement and contract risk, engineers must be involved during financial structuring, not only after key decisions are made.

Section 32 is the operational hinge of the Act. Setting aside financing terminology, the feasibility study is primarily an engineering deliverable, supported by legal and financial inputs. Technical requirements and site or land preparation are core elements of feasibility studies that consulting engineers routinely conduct, such as geotechnical investigations, site

analyses, preliminary designs, cost estimates, and constructability assessments. Affordability and value-for-money assessments, though financial, require engineers' input on costs and timelines. Engineers should not accept value-for-money conclusions based on unrealistic costs or schedules. Section 32 is a significant entry point for engineering firms in the NIF framework. Every project submitted to the Board requires a feasibility assessment, a process engineers are well qualified to lead, especially those specializing in project preparation, geotechnical analysis, and structural or civil feasibility. This stage allows the engineering profession to ensure quality control. Feasibility studies that understate technical risk to improve bankability often lead to cost overruns, delays, or defects—issues engineers can help prevent from the start.

Lastly, Engineers should take a strategic approach by defining standards for NIF-related feasibility work. Professional bodies such as IEK, ACEK, EBK, and KETRAB should proactively organize local engineers to lead feasibility and structuring processes under section 4(d), rather than allowing minimal or symbolic local involvement. Individual practitioners and firms should prioritize demonstrating feasibility and project preparation experience that meets development finance institution (DFI) standards, gaining fluency in PPADA, the PPP Act, and the NIF Act, and preparing to work with legal and financial experts. Engineers can no longer afford to engage with infrastructure financing law only at the construction stage. By then, key decisions on fundability, feasibility, procurement, contracts, and capacity development have already been made.

In conclusion, while the NIF Act was not initially designed as an engineering statute, sections 4(d) and 32 make it highly relevant to the profession. Capacity building and feasibility are engineering responsibilities that will determine the Act's success. Kenyan engineers have the expertise to lead this effort. The key question is whether the profession will organize to seize these opportunities or continue to accept a limited role in projects where fundamental terms are already set.

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Engineering, Finance And The Future Of Infrastructure Delivery: The Engineer's Role In Infrastructure Finance And PPP Delivery

By Eng. Kefa Seda O. , Director General, Public-Private Partnerships Directorate, National Treasury



Eng. Kefa Seda is the Director General of the Public-Private Partnerships (PPP) Directorate at the National Treasury. *A Civil and Structural Engineer with over two decades of experience across the private and public sectors, he has specialised in infrastructure development, project finance and PPPs. He previously served in senior roles at KeNHA and is a registered engineer, member of the Institution of Engineers of Kenya (IEK), and an APMG-certified PPP professional.*

Engineering decisions establish the technical and economic foundations upon which major infrastructure investments are developed, financed and sustained throughout their operational lives. The capacity of an asset determines the scale of investment required, design specifications influence capital expenditure, construction methodology shapes implementation timelines and financing requirements, operating standards determine recurrent expenditure, and maintenance strategies affect lifecycle costs and long-term asset performance. These relationships place engineering at the heart of infrastructure investment, since many of the assumptions eventually interrogated through financial modelling, commercial assessment and lender due diligence originate in the technical work undertaken during project development.

Public-Private Partnerships bring this relationship between engineering and finance into particularly sharp focus through long-term transactions that integrate the design, financing, construction, operation, maintenance and performance of infrastructure. The technical solution establishes what must be financed and the conditions under which the asset is expected to perform, with the resulting capital requirements, operating costs, construction programme, lifecycle obligations and technical risks feeding directly into the commercial and financial structure of the transaction. Successful PPP development consequently requires engineers who can understand the financial implications of technical choices and financiers who can interrogate the engineering assumptions underpinning the numbers presented in a financial model.

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My professional journey as a civil and structural engineer has given me a practical appreciation of this connection across the private and public sectors, major infrastructure development and PPP transactions. Engineering trained me to interrogate the physical requirements of an asset, quantify the resources needed to deliver it, assess the risks

surrounding its construction and determine the standards required to sustain its performance, while my subsequent engagement with project finance and PPPs exposed me to the financial, commercial and contractual architecture through which those engineering decisions are converted into investable infrastructure projects. This experience has shaped my conviction that engineering competence has an important place throughout project development, transaction structuring, financing and long-term infrastructure management

Project finance gave me a deeper understanding of the financial consequences carried by engineering decisions throughout the life of an infrastructure investment. Quantities established during design translate into project costs, construction schedules influence the timing of debt drawdowns and financing charges, technical specifications determine operating and maintenance obligations, asset capacity informs service and revenue assumptions, and lifecycle requirements influence the expenditure needed to maintain

agreed performance standards. The financial model captures these variables in monetary terms and tests their collective effect on cash flows, debt-service capacity, financing requirements and investment returns, creating a direct connection between engineering judgment and the bankability of the project.

Bankability is built on the credibility of the technical, financial and commercial assumptions supporting an infrastructure project and the capacity of those assumptions

The financial model captures these variables in monetary terms and tests their collective effect on cash flows, debt-service capacity, financing requirements and investment returns, creating a direct connection between engineering judgment and the bankability of the project.

to withstand rigorous due diligence. Investors and lenders need confidence in the project scope, capital cost, construction programme, operating expenditure, maintenance requirements, demand assumptions, projected revenues and technical performance before committing capital, since each variable can affect the project's ability to meet its financial obligations. Engineering studies provide a significant part of the evidence required for this assessment and give financiers a basis for evaluating the reliability of the assumptions incorporated into the financial model.

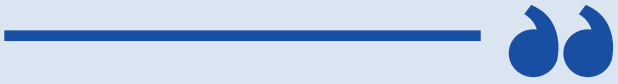
A road PPP demonstrates clearly how engineering decisions travel through an infrastructure transaction and ultimately influence its financing structure. Decisions on alignment, pavement design, interchange configuration, drainage, construction methodology, design capacity and maintenance requirements establish significant components of capital expenditure, construction time, operating expenditure and lifecycle cost, while traffic forecasts and service capacity inform the revenue assumptions used in financial modelling. The resulting project economics influence debt capacity, financing terms, investor returns and the contractual allocation of construction, operational and performance risks, giving the engineer a direct line of influence across the technical and financial architecture of the transaction.

Infrastructure projects across energy, water, housing and other sectors exhibit the same fundamental relationship between technical configuration and financial performance. Installed capacity, plant availability and operating efficiency influence the output and revenue profile of an energy project, treatment capacity and network configuration shape the capital and operating requirements of water infrastructure, and specifications governing housing and social infrastructure influence construction costs, maintenance obligations and lifecycle performance. The engineering definition of an asset consequently provides essential inputs into the financial assessment of the capital required to build it, the resources required to operate it and the cash flows or public payments required to sustain it.

Rigorous project preparation converts an infrastructure concept into a technically credible and

financially assessable investment proposition capable of being taken through procurement and financing. Feasibility studies must establish the engineering solution, scope, capacity, cost, construction programme, environmental and social requirements, operating model and lifecycle obligations with sufficient confidence to support the economic, commercial and financial assessments undertaken during project development. Reliable technical information strengthens the financial model, provides a firmer basis for pricing risk and gives government, investors and lenders greater clarity on the obligations associated with delivering and operating the asset.

Risk allocation translates engineering and project uncertainty into defined contractual responsibilities with direct implications for financing and long-term project performance. Geotechnical conditions, design complexity, construction methodology, completion schedules, technology performance, operating requirements and maintenance obligations can create risks that affect project cost, cash flows and service delivery, making their early identification an essential component of transaction preparation. Each material risk should be allocated to the party with the authority, expertise and practical capacity to manage it, supported by contractual provisions that establish clear responsibilities and performance requirements throughout the project life.



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Land acquisition requires equally deliberate treatment during infrastructure planning and PPP structuring given its influence on project readiness, construction schedules, cost certainty and financing. Major infrastructure frequently depends on land whose acquisition involves statutory processes and government institutions, making early identification of land requirements an important part of technical planning and project preparation. Medium- and long-term infrastructure planning can provide government with sufficient visibility to secure strategic corridors and project sites at an appropriate stage, reducing uncertainty around implementation schedules and strengthening the information presented to investors and lenders during transaction development.

The financial structure selected for a PPP must reflect the engineering characteristics, service requirements, revenue profile and risk architecture of the individual infrastructure asset.

Design-Build-Finance-Operate structures assign defined responsibilities across design, construction, financing and operation, while annuity and availability-payment arrangements establish payment obligations linked to specified service and performance requirements.

Revenue-generating assets can incorporate mechanisms governing the treatment and sharing of revenues, with the overall transaction structure aligning financing obligations, project risks, service standards and long-term asset performance within a coherent contractual framework.

Digital technology is strengthening the connection between engineering information, infrastructure performance and financial decision-making throughout the project lifecycle. Artificial intelligence, Internet of Things technologies, predictive modelling and digital twins can provide project teams with timely information on construction progress, asset condition, operational performance and emerging technical risks, improving the evidence available for project management and contractual oversight. Reliable performance data can also support payment mechanisms, lender monitoring and lifecycle asset management where these requirements are incorporated into the contractual architecture of the transaction.

Kenya's experience with the Nairobi Expressway provides valuable institutional and transaction knowledge that can strengthen the structuring of

subsequent infrastructure PPPs. Experience gained in project preparation, financing, implementation, operation and revenue performance provides practical evidence that can inform decisions on risk allocation, contractual architecture, financial structuring and government participation in project revenues. Revenue-sharing mechanisms deserve particular attention in infrastructure assets with significant income-generating capacity, since their design can establish clear parameters

for government participation in project revenues within a structure that supports the financing and performance obligations of the transaction.

The development of Kenya's PPP programme must systematically convert transaction experience into stronger project preparation, sharper risk assessment and increasingly sophisticated financial and contractual structures. Lessons arising from procurement, financial close, construction, operations, revenue performance and contract management provide an institutional knowledge base that can strengthen subsequent transactions and improve the quality of projects presented to the market. The Nairobi–Mombasa project provides an opportunity to apply accumulated experience in developing a transaction architecture grounded in technical requirements, project economics, risk allocation, financing considerations and long-term public value.

The engineering profession must develop the multidisciplinary capability required to participate effectively in this evolving infrastructure investment environment. Engineers working in project development, infrastructure finance, PPP transaction advisory and policy need a practical understanding of financial modelling, project finance, contractual principles, risk allocation, regulation and environmental, social and governance requirements, enabling them to understand the wider consequences of the technical decisions under their responsibility. This competence strengthens multidisciplinary project teams by ensuring that engineering judgment remains connected to the commercial, financial and contractual decisions governing infrastructure delivery.

Financial literacy gives engineers the capacity to trace technical decisions through the economics of an infrastructure project and understand their effect on investment performance. An engineer should be able to interrogate the technical assumptions contained in a fin ancial model, understand the relationship between capital expenditure and financing requirements, assess the effect of construction schedules on financing costs, appreciate the influence of operating and maintenance requirements on cash



An engineer should be able to interrogate the technical assumptions contained in a fin ancial model, understand the relationship between capital expenditure and financing requirements, assess the effect of construction schedules on financing costs, appreciate the influence of operating and maintenance requirements on cash flows, and recognize the financial consequences associated with technical and performance risks.



flows, and recognize the financial consequences associated with technical and performance risks. Contractual literacy strengthens this capability by enabling engineers to understand how specifications, completion requirements, performance standards and lifecycle obligations are translated into enforceable commitments over the duration of a PPP agreement.

Young engineers entering infrastructure development should deliberately build financial, commercial and contractual competence alongside the technical rigor that defines the engineering profession. Structured professional development, multidisciplinary project experience and specialized programmes in PPPs and project finance can equip engineers to engage confidently with financiers, economists, lawyers, transaction advisers, policymakers and investors while retaining responsibility for the technical integrity of infrastructure.

Professional pathways such as the APMG PPP Certification Program and training offered by

institutions including Strathmore provide opportunities to develop this multidisciplinary capability.

Kenya's infrastructure ambitions will increasingly depend on professionals capable of understanding the complete investment architecture surrounding the assets they are responsible for developing and managing. Engineers occupy a particularly important position within that architecture because their decisions influence the capital required, the risks assumed, the financing mobilized, the contractual obligations created and the performance ultimately delivered by the infrastructure asset. Strengthening the engineer's command of

project finance and PPP structuring will deepen the profession's contribution to the preparation of bankable projects and support the mobilization of capital required to deliver sustainable infrastructure at national scale.

Engineering beyond the blueprint captures an expanded professional responsibility grounded in the recognition that infrastructure exists simultaneously as a physical asset, a long-term investment and a platform for delivering essential economic and public services. The engineer who understands the interaction among technical design, project economics, financing, risk, contractual performance and lifecycle asset management is equipped to influence the quality of infrastructure investment throughout its development and operational life, strengthening the capacity to structure projects that can attract capital, withstand rigorous due diligence and deliver sustained value to the country.







AI-Enhanced Microwave-Antenna Imaging with 5G Connectivity for Early Lung Cancer Diagnosis in Resource-Limited African Healthcare Settings



Victor Nyataige Okombe is an aspiring electrical and electronics engineer and researcher pursuing a Bachelor of Science in Electrical and Electronics Engineering at South Eastern Kenya University (SEKU), Kenya.

He currently serves as the Chair of the IEEE Antennas and Propagation Society (APS) Student Chapter at the IEEE SEKU Student Branch, where he promotes student engagement in antenna and propagation research, technical activities and professional development. His research interests include microwave engineering, antenna design, biomedical imaging, artificial intelligence in healthcare and wireless communication systems. He is passionate about developing innovative engineering solutions that address real-world healthcare challenges, particularly through the integration of microwave sensing and intelligent technologies. His current research focuses on the development of microwave antenna-based imaging systems for lung tissue characterization, with an emphasis on advancing accessible, non-invasive diagnostic technologies.

Abstract—*Lung cancer is the leading cause of cancer death worldwide, yet in much of Africa its burden is masked by late presentation and frequent misdiagnosis as tuberculosis, compounded by limited access to CT and MRI. This paper proposes a system framework combining non-ionizing microwave-antenna imaging, artificial intelligence (AI), the Internet of Things (IoT) and 5G connectivity for accessible lung-cancer screening. A wearable thorax-belt antenna array exploits the dielectric contrast between malignant and healthy tissue, while an AI pipeline handles clutter removal, image reconstruction and tumour classification and a 5G/IoT layer links results to remote specialists. We review the supporting literature, outline the proposed architecture and discuss the accessibility gains and validation challenges relevant to clinical translation.*

Keywords—*Microwave imaging, lung cancer, artificial intelligence, IoT, 5G, tele-oncology, sub-Saharan Africa.*

Lung cancer caused an estimated 1.9 million deaths worldwide in 2024 [1]. Recorded incidence in Western and Middle Africa is among the lowest globally, but this is widely attributed to underdiagnosis rather than low disease burden, since the region carries a disproportionately high mortality-to-incidence ratio [2]. A major driver is repeated misdiagnosis as pulmonary tuberculosis: a Zimbabwean cohort found 53% of confirmed lung cancer patients had received a prior TB diagnosis, with a median 8.37-month delay and 77% already at stage IV [3]. CT and MRI, the reference standards for early detection, remain costly and concentrated in urban referral centres, leaving rural populations with little practical screening access. A non-ionizing, low-cost, tele-connected alternative is therefore needed, and this paper proposes one built on microwave-antenna imaging integrated with AI, IoT and 5G.

Microwave imaging operates between 300 MHz and 30 GHz, a non-ionizing band that allows repeated, safe scanning [4]. Diagnostic contrast arises because malignant tissue typically exhibits higher permittivity and conductivity than healthy tissue, producing a stronger backscattered signal [4], [5]. Image reconstruction commonly uses Delay-and-Sum (DAS) or the more clutter-resistant Delay-Multiply-and-Sum (DMAS) algorithm, the latter shown to localize malignant responses more consistently than DAS on both phantom and patient data [6], [7]. AI increasingly augments this pipeline: a recent wearable-belt lung-monitoring study combined an XGBoost model on raw scattering parameters

for size estimation with a CNN on reconstructed images for detection, outperforming reconstruction-only baselines [8]. On the connectivity side, mobile-health infrastructure across Africa is expanding rapidly [9] and 5G-enabled tele-clinics have already been piloted in humanitarian settings, such as a 2025 deployment at a displaced-persons camp in Nigeria [10], though most of the continent still depends on basic mobile channels rather than uniform high-bandwidth coverage.

The proposed architecture (Fig. 1) has four layers. A wearable thorax belt carries a microstrip-patch or Vivaldi antenna array driven by a 3–5 GHz vector network analyser, coupled to the skin through a matching medium to reduce surface clutter [4]. The resulting S-parameters pass through an AI pipeline that performs clutter removal, DAS/DMAS or learned image reconstruction and CNN-based tumour detection, sizing and staging [8]. An edge-computing node runs this inference locally so that only compact classification results need to be transmitted when bandwidth is limited. Where 5G or broadband is available, full images are sent for specialist tele-review; otherwise, summary results are transmitted over standard mobile channels and confirmed cases feedback into a retraining database.

Relative to CT/MRI, a wearable microwave device is expected to be substantially cheaper and deployable at primary-care level rather than only in tertiary hospitals, though the cost and outcome figures associated with this project remain illustrative planning estimates rather than validated clinical data. Key open challenges include the scarcity of large, Africa-representative lung-imaging datasets (most AI evidence to date comes from breast phantoms or small cohorts) [7], [8]; coarser spatial resolution than CT and sensitivity to breathing motion and antenna coupling [4], [7]; uneven 5G/broadband coverage outside pilot deployments [9], [10]; and the need for a staged clinical validation pathway comparable to ongoing microwave-imaging trials in breast cancer detection [11].

Combining microwav-antenna imaging with AI-based re-construction/classification and IoT/5G connectivity offers a plausible, non-ionizing, lower-cost complement to CT/MRI for lung cancer screening in resource-limited settings. Realizing this requires phantom and patient-data validation, integration testing under realistic clutter and motion conditions and a staged clinical evaluation pathway before deployment in African health systems.

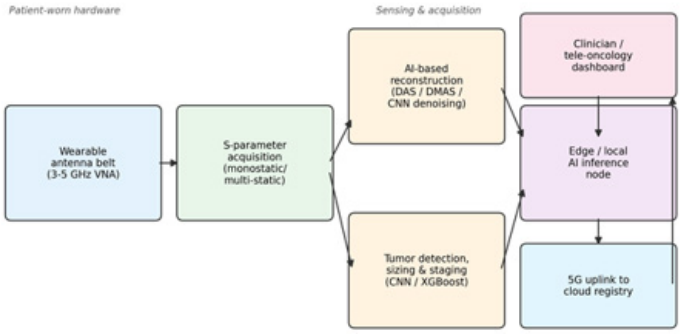


Fig. 1. Proposed system architecture: wearable antenna acquisition, AI reconstruction/classification and 5G-linked tele-oncology review.

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Participant

















VOICES, REFLECTIONS & PROFESSIONAL INSIGHTS

FROM THE CONFERENCE TO PRACTICE:

Reading the Future Leaders Summit against the realities of engineering practice in Kenya today, five takeaways stand out.

First, public-private financing is no longer a specialist topic. Kundu's keynote and the entrepreneurship plenary both treated PPP structures as something every practicing engineer needs to understand, not a subject reserved for finance departments. Kenyan engineers working on roads, energy, or water infrastructure increasingly need to read a project's financing structure with the same fluency they apply to its technical drawings.

Second, entrepreneurship is a legitimate career track, not a fallback. Airo's keynote and the presence of founders like James Muriithi on the capacity building panel signal that ACEK treats venture building as a valid outcome of an engineering education, one that deserves structured support rather than incidental encouragement.

> ***Kenyan engineers working on roads, energy, or water infrastructure increasingly need to read a project's financing structure with the same fluency they apply to its technical drawings.***

Third, professional ethics and personal branding deserve the same rigor as technical competence. The cross-border panel with Uganda and Ghana made clear that reputation, conduct, and networking are professional skills that engineers can develop and compare across markets, not soft add-ons to an engineering career.

Fourth, association governance is a training ground for infrastructure leadership. The committee presentations and the six-chair leadership panel both demonstrate that running committees inside ACEK Future Leaders builds exactly the coordination and accountability skills that large infrastructure projects demand later.

Fifth, regional integration is moving from policy discussion to daily practice. With Ugandan and Ghanaian counterparts on the programme, and AfCTA discussions elsewhere in the main conference, Kenyan engineers should expect cross-border collaboration and competition to become a normal part of professional life, not an occasional conference topic.

The 3rd ACEK Future Leaders Summit set a strong foundation for the days that followed at Sawela Lodge. For an association built on the idea that today's future leaders become tomorrow's industry chairs and directors, Day Zero did exactly what it needed to do: it connected the people currently building the profession's next chapter with the people who built the chapter before them.



ENGINEERING TRANSFORMATION: REFLECTIONS/ INSIGHTS FROM ACEK-FL STUDENTS WHO ATTENDED THE CONFERENCE

BY;

- *Marion Nyathira Civil engineering student, JKUAT*
- *Odeka Beatrice, JKUAT*
- *Meshack Real*
- *Edwin Mwai, Civil Engineering, JKUAT*
- *Philip Njuguna*
- *Brian Rioba; Author*

The ACEK Future Leaders Summit in Naivasha was an enriching opportunity to learn, connect and reflect on the future of engineering and our role as young professionals.

The experience exposed us to the realities and opportunities within the engineering profession from career development and mentorship to entrepreneurship, innovation, local content, digitalisation and the growing role of AI in engineering.

One of the strongest lessons was that we should not simply wait for opportunities; we should learn to create them. As engineers, we are problem solvers. When we identify challenges in our communities, we should think beyond finding employment and consider how our skills, ideas and partnerships can help develop solutions.

We were also reminded that growth requires continuous learning, practical exposure and mentorship. Technical knowledge alone is not enough. Integrity, adaptability, collaboration and the ability to create value are equally important.

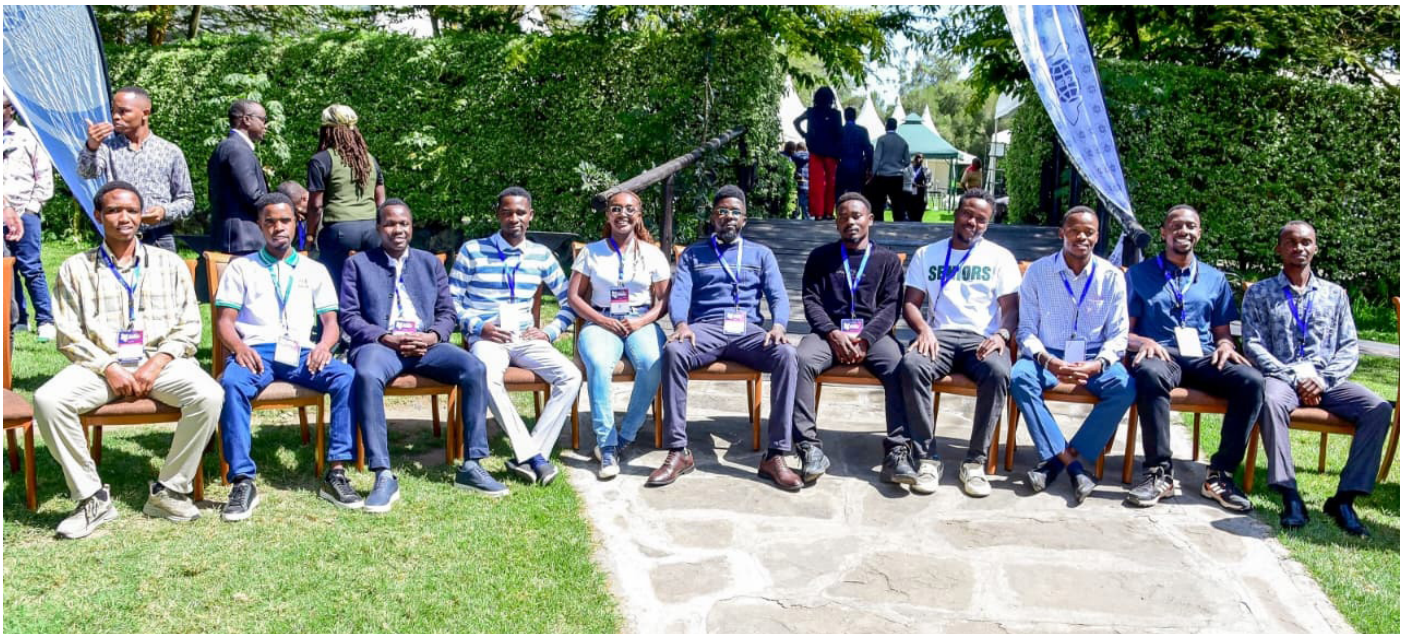
For students and young engineers, I would strongly encourage getting involved in ACEK Future Leaders (ACEK-FL). It creates an opportunity to interact with industry professionals, learn from experienced engineers and understand what the profession actually demands beyond the classroom.

These engagements help us connect classroom theory to real-world engineering requirements seeing how the concepts we study translate into projects, decisions, challenges and solutions in practice.

As young engineering leaders, we have a responsibility to contribute to a stronger engineering profession by supporting one another, sharing knowledge, embracing technology and creating opportunities for others to grow.

The future of engineering is not something we should simply wait for. It is something we must actively help build.

The blueprint may be blank, but what we do with it is up to us.



ACEK FL EVENTS



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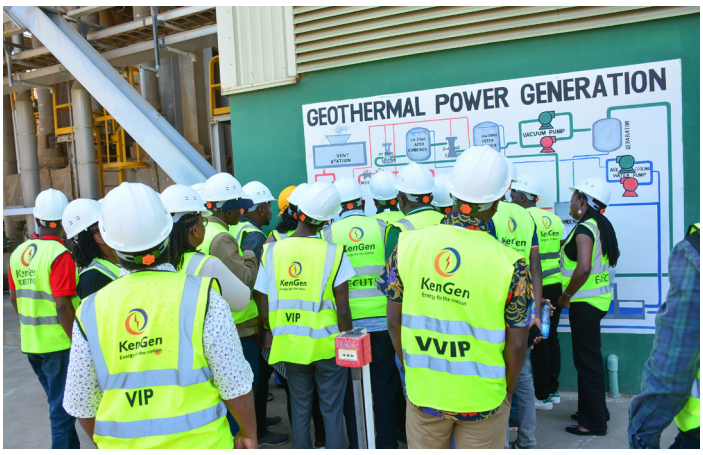
Shalomgate Children Homes





Olkaria Visit





Tree Planting





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Dinner









Rironi Mau Summit





ACKNOWLEDGEMENTS

ACKNOWLEDGEMENT & CLOSING REMARKS

Building Tomorrow's Engineering Leadership Today

Acknowledgements

The publication of this issue of the ACEK-FL Chronicles and the success of the 3rd ACEK Future Leaders Summit at Sawela Lodge, Naivasha, reflect the dedication of key industry leaders, partners, and contributors.

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- **Keynote Speakers & Industry Leaders:** Gratitude to leadership from key utilities and public agencies, including ***Eng. Harrison Ketter*** *(KenGen)*, ***Eng. Dominic Kundu*** *(KeRRA)*, ***Eng. Nicholas Airo*** *(NAS International)*, ***Eng. Howard Ashihundu*** (KeNHA), and ***Eng. Dr. John Mativo***, alongside regional delegates from Uganda and Ghana for cross-border insights.
- ***Purity Nzilani Maluki*** *(Secretary, GRP Committee)* for her research on climate-resilient infrastructure and hydrological modeling in Kenya.
- ***Eng. Latoya Ouna*** for her critical analysis of the National Infrastructure Fund Act, 2026 and the expanding strategic role of engineers in public finance and project bankability.
- ***Eng. Kefa Seda O.*** *(Director General, PPP Directorate, National Treasury)* for his masterclass on infrastructure finance, project bankability, and PPP delivery.
- ***Victor Nyataige Okombe*** *(Chair, IEEE APS Student Chapter at SEKU)* for his paper on AI-enhanced microwave imaging for early lung cancer diagnosis.
- ***Eng. Henry Kevin Nyakundi*** for his technical commentary on capacity building, entrepreneurship, and summit highlights.
- **Student Authors (*Marion Nyathira, Odeka Beatrice, Meshack Real, Edwin Mwai, Philip Njuguna, and Brian Rioba*)** for their reflections on bridging classroom theory with professional practice
- **Leadership Continuity:** Special recognition to past ACEK-FL chairs—***Eng. Kennedy Kiunga, Eng. Harun Mamboleo, Aluora Kenneth, John Jairo, and Mike Jomo***—for their commitment to mentorship during the summit's leadership panel.
- **Sponsors & Working Committees:** Appreciation to partner sponsor ICEA Lion Group (Titus Kimeli) and the four ACEK-FL working committees (*Governance, Research & Publication; Membership Capacity Building & Training; Monitoring & Partnerships; Events & Welfare*) for driving execution and governance.



Closing Remarks

As we close this edition of the *ACEK-FL Chronicles*, one central message resonates across every article and summit reflection: **the role of the engineer is expanding rapidly.**

Whether evaluating climate risks to protect vital transport corridors, shaping the bankability and risk allocation of major investments under the National Infrastructure Fund Act, mastering PPP finance to deliver national assets, or deploying AI and 5G connectivity to improve primary healthcare, today's engineers are called to be strategists, innovators, and policy shapers.

Leadership in engineering is not a title to be inherited in the distant future; it is an active responsibility to be exercised today. It requires us to ask hard questions, bridge technical design with commercial reality, demand integrity in our practice, and design systems that deliver sustainable value for generations to come.

To our student members and young graduate engineers: get involved in ACEK-FL, seek out mentorship, embrace multidisciplinary skills, and take active ownership of your career trajectory. The blueprint for our country's infrastructure and technological future is being drawn right now—and what we choose to write on it is entirely up to us.

"The future of engineering is not waiting for us. We are already building it.

GRP Committee, ACEK-FL

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