Annex I to Addendum II

# KONZA CLOUD EXPANSION AND SMART CITY FACILITIES FEASIBILITY STUDY REPORT

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**Produced by: Digital Science Technology Limited, Nairobi**
**On Behalf MOI University for Konza Technopolis**

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## DEFINITION OF TERMS

| Term | Definition |
|---|---|
| Bottom-Up Economic Transformation Agenda | A national development strategy aimed at empowering individuals and communities at the grassroots level - especially low-income earners, small businesses, and marginalized groups - to drive inclusive economic growth from the "bottom" of the social and economic pyramid upward. |
| Fourth Medium Term Plan | Kenya's five-year national development plan that guides the implementation of the country's long-term vision - Kenya Vision 2030. It outlines government priorities, programs, and projects to be achieved between the year 2023 and 2027. |
| Konza Cloud | The Konza cloud computing platform and digital infrastructure developed by the Konza Technopolis project, a flagship initiative of Kenya Vision 2030. It is managed by the Konza Technopolis Development Authority (KoTDA) and serves as a national smart city and technology innovation hub. |
| Konza Cloud Platform | An online platform developed and managed by the Konza Technopolis Development Authority (KoTDA) that allows users to access, manage, and deploy cloud services directly within the Konza Cloud environment. |
| Kenya Cloud Policy, 2024 | A national framework developed by the Kenya Government to guide the adoption, deployment, and management of cloud computing services across the public and private sectors in Kenya. |
| The National AI Strategy (2025–2030) | A government-led Artificial Intelligence strategic framework launched in March 2025 by the Ministry of Information, Communications and the Digital Economy (MoICDE). |
| Data Protection Act (2019) | A national law was enacted in 2019 to regulate how personal data is collected, stored, used, transferred, and destroyed. |
| Digital Transformation Agenda (2022–2032) | A 10-year national strategic roadmap initiated in 2022 to guide ICT infrastructure development, digitization of government services, digital skills development, |

| Term | Definition |
|---|---|
| | innovation, regulation, and bridging the digital divide - aimed at accelerating socioeconomic growth and positioning Kenya as a regional digital economy hub. |
| Foreign Direct Investment | Cross-border investments where a foreign entity (individual, company, or government) establishes or acquires a lasting interest and significant influence in a business enterprise in Kenya. |
| Infrastructure as a Service (IaaS) | A cloud computing model that provides virtualized computing resources such as servers, storage, and networking over the internet, allowing organizations to rent IT infrastructure on demand instead of investing in physical data centers and hardware. |
| Software as a Service (SaaS) | A cloud computing delivery model where software applications are hosted and managed by a service provider and accessed by users over the internet, typically through a web browser. |
| Platform as a Service (PaaS) | A cloud computing model that provides developers and organizations with a ready-to-use environment including operating systems, databases, middleware, and development tools to build, test, and deploy applications without managing the underlying infrastructure. |
| Public Private Partnership (PPP) | A long-term contractual arrangement between a public sector entity and a private sector partner in which the private party finances, designs, builds, operates, or maintains a public infrastructure project or service, and receives payment through user fees, availability payments, or other agreed mechanisms. |
| Appropriation-In-Aid (AIA) | Revenues collected by a government ministry, department, or agency (MDA) that are used to meet part of its operational expenditure rather than being remitted to the Consolidated Fund. These revenues are usually generated from fees, charges, fines, licenses, or services provided by the MDA. |

# CHAPTER ONE

# INTRODUCTION

## Overview

The KNDC is currently hosting 133 out of the targeted 451 Government institutions and 38 enterprises across Kenya. The data centre has up-to date raised revenue of over KShs. 379 million in a span of three (3) years since it became operational, which is an average annual revenue of Kshs.126.3 million. The Data Centre offers services in the areas of Software as Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS), Collocation Services and Networking. The Data Centre has also partnered with government agencies to support digitization of government records and services in line with the Government Directive.

The government through KNDC has successfully established the foundational digital backbone and operational intelligence layer that defines the city's smart urban ecosystem through deployment of an Intelligent Transportation System (ITS) across twelve sites enhancing mobility efficiency and traffic management, while the installation of 141 smart poles has enabled seamless integration of smart lighting, digital signage, emergency response systems, public address points, and Wi-Fi access, thereby improving connectivity and public safety within the city. Further, installation of Video Intelligent Surveillance System comprising 600 outdoor cameras to strengthen real-time public safety monitoring, complemented by eight environmental monitoring sensors that provide continuous data on air quality and environmental health. The development of 79 kilometers of fibre backbone infrastructure ensures high-speed connectivity, forming the backbone of the city's smart services and digital operations. These systems are centrally managed through the Intelligent Operations Centre (IOC), which serves as the city's nerve centre for command, control, and analytics across multiple domains, including mobility, safety, utilities, and environmental management. In addition, the Konza Smart Facilities Digital Experience Centre serve as the physical and technological anchors of the city's innovation ecosystem. The Digital Experience Centre functions as a living laboratory for showcasing emerging technologies, promoting public-private partnerships, and demonstrating smart solutions to investors, innovators, and citizens.

The Konza Technopolis is planned to be a smart city, a technology hub, Science Park and an area for innovation, which will advance Kenya's Knowledge-based economy by developing a sustainable smart-city and innovation ecosystem. Figure 1-2 presents a depiction of KNDC.

## Rationale

The Konza National Data Centre (KNDC) has been instrumental in supporting e-government services, enterprise solutions, and innovation across the public and private sectors. However, with the increasing shift toward a knowledge-based economy, KNDC's current cloud and computer capacity is fast becoming inadequate to meet increased demands. Rapid digitalization across sectors spurred by government e-services, fintech expansion, and private sector innovation has driven exponential growth in data generation, storage, and processing needs. The Data Centre

is currently operating at almost 100% resource utilization, limiting its ability to accommodate new workloads, especially in cloud computing, Artificial Intelligence, and Internet of Things (IoT).

The Kenya Cloud Policy (2024) mandates a cloud-first approach for public ICT systems, advocating for the adoption of sovereign, secure, and scalable cloud services to support digital transformation. The KNDC, as a designated government cloud service provider, must scale up to meet this expanded mandate, yet its current infrastructure constrains its ability to do so effectively. Similarly, the Kenya's National Artificial Intelligence Strategy (2025–2030) emphasizes the need for foundational AI-ready infrastructure, positioning Konza as a key enabler of model training, ethical AI deployment, and national research. Without expanding KNDC's capacity, the country risks missing a strategic opportunity to become a continental leader in AI development and innovation. Further, the Data Protection Act, 2019 requires that all sensitive and personal data be stored and processed locally. However, current capacity limitations have led some institutions to resort to foreign data centers, undermining Kenya's data sovereignty, increasing exposure to cyber risks, and violating the spirit of national privacy legislation.

# CHAPTER TWO

# PROJECT DESCRIPTION

**Overview**

This chapter provides a detailed description of the Konza National Data Center Project, outlining the proposed interventions and their alignment with key national policies, strategies, and legislative frameworks that support the planned expansion. It elaborates on how the project contributes to Kenya's digital transformation agenda and compliance with relevant ICT, data protection, and infrastructure development policies. The chapter also highlights the expected outputs and anticipated outcomes of the expansion, emphasizing its role in enhancing digital service delivery and economic growth. Additionally, it presents a stakeholder analysis, identifying key partners, beneficiaries, and their respective roles in the successful implementation of the project.

**Policy, Legal and Regulatory Framework**

**Kenya Vision 2030 and its Medium-Term Plans**

The Konza National Data Center Cloud Expansion aligns with Kenya Vision 2030's goal of transforming Kenya into a newly industrializing middle-income country, providing a high quality of life to its citizens in a clean and secure environment by the year 2030. It supports Vision's Economic and Social Pillars by providing world-class digital infrastructure that enables innovation, data-driven decision-making, and efficient service delivery. Through enhanced ICT capacity and connectivity, the project contributes to the realization of the Fourth Medium-Term Plan (MTP IV) goals and objectives, which emphasize digital transformation, ICT infrastructure development, and the promotion of Konza Technopolis as a sustainable smart city.

**Bottom-Up Economic Transformation Agenda (2022-2027)**

Under the Bottom-Up Economic Transformation Agenda (BETA), specifically the Digital Superhighway and Creative Economy Pillar, the expansion of the Konza National Data Center (KNDC) cloud infrastructure directly advances the government's goal of expanding access to digital services, fostering innovation, and creating employment in the digital economy. The project will accelerate government digitization transformation agenda, empower MSMEs through affordable and secure cloud solutions, and stimulate growth across ICT-related value chains, thereby enhancing service delivery and economic inclusion. Moreover, by strengthening digital infrastructure, the project will also catalyze the realization of the other four BETA pillars on Agriculture, Healthcare, MSME Development, and Housing and Settlement through technology-enabled efficiency, data-driven decision-making, and improved service access.

**Kenya Cloud- First Policy, 2024**

The KNDC cloud expansion project is a direct enabler of the Kenya Cloud-First Policy (2024), which mandates all government Ministries, Departments, and Agencies (MDAs) to prioritize cloud adoption in the delivery of digital services. The Kenya Cloud Policy establishes a national framework for transitioning to secure, efficient, and sustainable cloud-based ICT infrastructure across government and related entities. It mandates data localization for sensitive information, enforces compliance by national and county governments, and promotes "green cloud computing" to reduce environmental impact. The policy seeks to lower costs by shifting organizations from

capital to operational expenditure models, enhance cybersecurity and data classification, and strengthen business continuity through disaster recovery and backup systems. By fostering collaboration, interoperability, and data sovereignty, the policy underpins Kenya's digital transformation agenda driving efficiency, innovation, and secure service delivery while ensuring the protection of national data assets.

**Kenya Artificial Intelligence Strategy (2025–2030)**

The Data Center expansion provides the foundational infrastructure necessary for implementing the Kenya Artificial Intelligence Strategy, which emphasizes data availability, processing power, and secure storage as key enablers of AI innovation. The enhanced cloud and computing capacity will support AI research, machine learning applications, and the deployment of intelligent public service solutions.

**ICT Digital Masterplan (2022-2032)**

Aligned with the Kenya ICT Digital Masterplan (2022–2032), the expansion advances the plan's key pillars Digital Infrastructure, Digital Government, Digital Business, and Digital Skills. It strengthens the country's core ICT backbone, supports e-government services, enhances business competitiveness through digital platforms, and facilitates skill development in cloud and data management. Overall, the project reinforces Kenya's position as a regional leader in digital infrastructure and innovation.

**The Digital Economy Blueprint, 2019**

Kenya's Digital Economy Blueprint (2019) provides a strategic vision for leveraging digital infrastructure, innovation, skills, and government services to drive economic transformation and inclusive growth while positioning the country as a regional technology hub; the Konza National Data Centre and Smart City Solutions directly advance this vision by providing world-class cloud infrastructure, enabling e-Government platforms, fostering digital entrepreneurship, and creating an innovation-driven ecosystem that supports businesses, startups, and public service delivery.

**National ICT Policy, 2019**

The commercialization of the Konza National Data Center directly advances the National ICT Policy by strengthening digital infrastructure, ensuring data sovereignty, promoting local innovation, and enabling smart urban solutions. Together, they position Konza Technopolis as a catalyst for e-governance, investment, and Kenya's digital transformation.

**National Innovation Masterplan, 2023**

The National Innovation Masterplan supports the commercialization of the Konza National Data Center by positioning it as platforms for innovation, entrepreneurship, and digital solution deployment, thereby accelerating Kenya's transition to a knowledge-based economy.

**Data Protection Act, 2019**

The KNDC expansion is fully aligned with the Data Protection Act, 2019, which establishes the legal framework for protecting personal data and ensuring privacy. As the project involves cloud and data hosting services, it will implement robust data security, confidentiality, and access control measures to ensure compliance with the Act. The expanded facility will enhance data

sovereignty, promote adherence to national data handling standards, and support the Office of the Data Protection Commissioner (ODPC) in enforcing responsible data governance across public and private sector clients.

**Computer Misuse and Cybercrime Act, 2019**

The Computer Misuse and Cybercrimes Act, 2018 (effective 2019) provides Kenya with a comprehensive legal framework to prevent, detect, investigate, and punish cybercrimes while promoting cybersecurity and the safe use of ICT systems. The Act protects the confidentiality, integrity, and availability of digital infrastructure and data key enablers of Kenya's digital economy. It also establishes institutions such as the National Computer and Cybercrimes Coordination Committee (NC4) to strengthen national cyber resilience. In the context of the Konza National Data Centre (KNDC), the Act underpins the expansion and operation of the facility by ensuring a secure and trusted environment for hosting government and private sector digital services. As KNDC scales up its capacity to serve more institutions under the Kenya Cloud Policy, adherence to this Act safeguards sensitive data, promotes compliance with national cybersecurity standards, and reinforces confidence in Kenya's emerging digital infrastructure ecosystem.

**Project Stakeholder Analysis**

The Konza Data Center expansion is guided by a structured stakeholder management approach designed to ensure effective coordination, minimize implementation risks, and maximize the project's socio-economic benefits. This approach promotes transparency, collaboration, and alignment of interests among key partners. The following are the key stakeholders in the Konza National Data Center (KNDC) expansion project and the extent of their involvement and interest in its successful delivery:

# CHAPTER THREE

# MARKET AND DEMAND ANALYSIS

The surge in digital demand has been driven by several factors. The Government of Kenya's commitment to a cloud-first approach under the Kenya Cloud Policy (2024) and the Government Digital Transformation Agenda (2022–2032) has led to the migration of many public systems and services to cloud environments. Simultaneously, the Bottom-Up Economic Transformation Agenda (BETA) emphasizes the Digital Superhighway as a key enabler for growth, promoting innovation, digital inclusion, and service efficiency across sectors such as healthcare, education, agriculture, and financial services. As a result, data generation, processing, and storage needs have grown exponentially, far outpacing the current infrastructure capacity at KNDC.

Further, the Konza National Data Centre (KNDC) serves as the digital backbone of Konza Technopolis, integrating and powering all smart city facilities through secure, reliable, and scalable infrastructure. It provides computing, storage, and cloud capabilities that enable real-time data processing, analytics, and coordination across various systems. Through the city's fibre backbone, the KNDC connects and supports the Intelligent Transportation System, Smart Poles Infrastructure, Video Surveillance Platform, and Environmental Monitoring Sensors, ensuring efficient traffic management, enhanced safety, and proactive environmental monitoring. In addition, the Data Centre underpins the Intelligent Operation Center (IOC), which relies on its processing power and data analytics to monitor and coordinate city operations in real time. It also supports the Digital Experience Center by providing live data feeds and analytical insights that showcase the city's performance to investors and citizens. Overall, the KNDC functions as the core enabler of Konza's digital ecosystem, ensuring interoperability, data-driven decision-making, and seamless delivery of smart city services.

This project directly aligns with the Kenya Cloud Policy (2024), which introduces a "Cloud-First" strategy for public ICT infrastructure. The policy advocates for the adoption of sovereign, scalable, and secure cloud solutions that promote interoperability, resilience, and efficiency in digital service delivery. It highlights the central role of cloud computing in ensuring data localization, cybersecurity, disaster recovery, and cost optimization within the public sector. As the national sovereign cloud provider, KNDC is uniquely positioned to operationalize these policy objectives by offering policy-compliant, secure, and affordable infrastructure tailored to the needs of public institutions and the private sector alike. The proposed expansion will strengthen KNDC's ability to provide a robust foundation for digital public infrastructure (DPI), while supporting innovation, service delivery, and business continuity across government and industry.

**Target Market and Customer Segments**

The Konza National Data Centre (KNDC) targets a diverse customer base across the public, private, and regional sectors to ensure broad utilization, sustainable revenues, and strategic alignment with Kenya's Digital Economy Blueprint. The primary market focus includes Government Ministries, Departments, and Agencies (MDAs), as well as County Governments, which require secure cloud hosting, e-government applications, and data management services.

Additionally, education and research institutions form a key segment, leveraging KNDC's infrastructure for academic computing, digital libraries, and research data storage.

The Data Centre also serves local and international enterprises, including SMEs and multinational corporations, seeking reliable, scalable, and secure cloud solutions to enhance business continuity and digital transformation. Finally, the regional market within East and Central Africa presents opportunities for cross-border data services, disaster recovery hosting, and digital trade facilitation, positioning KNDC as a regional hub for trusted cloud infrastructure and data sovereignty.

# CHAPTER FOUR

# TECHNICAL ANALYSIS

**Overview**

This chapter presents a comprehensive technical analysis for the proposed expansion of the Konza National Data Centre (KNDC) infrastructure. It outlines the existing setup, the identified capacity gaps, the proposed technological framework, system components, and technology specifications that will enable the facility to scale its cloud services securely and efficiently. The analysis considers scalability, interoperability, performance, energy efficiency, and compliance with Kenya's ICT, data protection, and security standards.

The facility has three computer room floors with IT racks deployed in two computer rooms and one white space for future expansion. In two computer rooms there are five IT modules and in the third is whitespace. The photo below shows an IT Module with secure access.

There are five (5) modules of cabinets with 26 IT cabinets, 2 network 6 cooling cabinets and 2 power distribution cabinets each. Each IT cabinet is a standard 42U rack measuring 600mm in width by 1200mm in depth. The layout is shown in Figure 4-2 of the 140 cabinets available in the current infrastructure; equipment has been deployed in 77 cabinets, leaving 53 cabinets empty.

The KNDC cloud environment runs on a customized OpenStack-based KVM virtualization platform, which manages pooled compute, storage, and networking resources under an Infrastructure-as-a-Service (IaaS) model. The compute layer is built on Kernel-based Virtual Machine (KVM), enabling server virtualization through virtual machines (VMs) that abstract physical hardware into scalable, multi-tenant resources.

In addition to computing virtualization, the environment incorporates:

- **Storage Virtualization:** Implemented through software-defined storage technologies that abstract physical storage infrastructure into logical pools supporting block storage (for VM disks), object storage (for scalable and unstructured data), and file storage services. Capabilities such as replication, high availability, thin provisioning, and performance tiering ensure resilience, scalability, and optimal resource utilization.
- **Network Virtualization (including SDN capabilities):** Delivered through OpenStack networking services, enabling logical segmentation using VLAN/VXLAN overlays, virtual routers, floating IP allocation, tenant isolation, and policy-based security controls. Software Defined Networking (SDN) principles support centralized control, programmability, automation, and improved network agility within the virtualized cloud environment.
- **Virtualized Security Services:** Including software-based firewalls, load balancers, and other network functions deployed within the cloud stack to enhance security and service delivery.

**Cloud Infrastructure**

The KNDC cloud environment runs on a customized OpenStack KVM virtualization platform, which manages the pool of compute, storage, and networking resources in an Infrastructure-as-a-Service (IaaS) model.

The forward-looking roadmap for the KNDC is to move towards container-based architecture. The Cloud Container Engine (CCE), which is a Kubernetes service, will further enhance the cloud infrastructure capabilities.

The Cloud Container Engine (CCE) also provides native support for open-source containerization solutions such as Docker and orchestration platforms like Kubernetes. This integration will enable seamless implementation of Continuous Integration/Continuous Deployment (CI/CD) pipelines, auto scaling, and multi-cloud portability.

To ensure operational reliability and asset preservation, KNDC maintains structured annual support agreements across compute, storage, virtualization, cybersecurity, power, cooling, maintenance consultancy, connectivity, and fire suppression systems.

The current Konza Sovereign Cloud is a multi-zone, Tier III cloud infrastructure within the existing Konza National Data Centre (KNDC). The proposed expansion will deliver computing, storage, databases, analytics, and networking services to national and county governments, public agencies, and private / corporate enterprises. The project will be implemented under a Public–Private Partnership (PPP) model to leverage private sector capital, expertise, and operational efficiency, while maintaining government oversight and compliance with data protection and cybersecurity standards.

Hot and cold aisle containment has already been deployed for the available empty racks, and the new equipment will enjoy optimal airflow management. Further, Environmental sensors will be recalibrated for higher thermal density zones as the new equipment is deployed. No significant increase in water or refrigerant consumption is expected, given the available capacity. Overall, the integration will have a negligible impact on HVAC performance and will remain within Tier III cooling design tolerances.

The current Data Center Network (DCN) solution is designed based on a high-performance Spine–Leaf architecture to deliver scalable, reliable, and low-latency connectivity for enterprise data center environments. At the core layer, two spine switches will be deployed, each equipped with 6 fans and 4 Switching Fabric Units (SFUs) to ensure high availability and stable operation, along with four-line cards including 2 × 36-port 100GE line cards and 2 × 48-port 10GE line cards, fully populated with transceivers to provide high-density and high-bandwidth switching capacity.

In terms of network security, the existing network is built around two geographically distributed data centers, each implementing a layered security architecture with two edge firewalls to protect north–south traffic and two data center (DC) firewalls to control internal east–west traffic and segmentation. To address increasing performance demands and evolving cybersecurity threats, all existing firewalls will be enhanced with new-generation models that provide higher throughput, improved scalability, and advanced security capabilities.

The data center will be enhanced with two dedicated DDoS protection devices to defend against volumetric and application-layer attacks, ensuring service continuity under large-scale attack scenarios. Furthermore, an Endpoint Detection and Response (EDR) platform, together with EDR software deployed on virtual machines, will be introduced to strengthen endpoint-level security.

The current EDR system continuously monitors workloads, detects malware and abnormal behaviors, and sends analysis results to the central platform. Through integration and collaboration with the proposed firewall infrastructure, the platform will automatically enforce security policies, enabling firewalls to dynamically block malicious traffic based on real-time threat intelligence from the EDR system. This coordinated defense mechanism will provide end-to-end visibility and protection, significantly improving threat detection, response speed, and overall security posture across both data centers.

# CHAPTER FIVE

# FINANCIAL AND ECONOMIC ANALYSIS

This chapter presents the financial and economic analysis of the project, providing a comprehensive assessment of its viability and expected contribution to national development. It begins with capital and operational cost estimates, followed by revenue projections and pricing assumptions to establish the project's income potential. The financing plan and funding sources are outlined, alongside key financial indicators. The chapter also highlights the wider economic impact in terms of employment creation, GDP contribution, technology spillovers, investment attraction, and enhanced competitiveness.

**Capital and Operational Cost Estimates**

With respect to other related costs, the project does not require new supporting infrastructure or land acquisition, as it builds on the already operational KNDC and Smart City Facility and its horizontal infrastructure (roads, utilities, broadband, etc.). This eliminates additional financial burdens from ancillary projects.

The Konza Data Centre Cloud and Smart City Facility Sustainability and Operations Plan take into consideration Service Continuity and Sustainability after Completion as it will provide adequate hosting capacity for data and services enabling the deployment of AI and Big Data. These will be realized through implementation and strict adherence to Operation and Maintenance (O&M) Plan defined in the PPP agreement, Continuous capacity building of operations staff, Integration of smart facility management systems for predictive maintenance and energy optimization and customer feedback mechanisms to ensure consistent service quality. Further, there will be regular stakeholders' engagement during operation phase, incentivization of private Sector partner through performance-based metrics, enhanced Staff development and retention programs will enhance institutional memory and operational ownership. Further, promoting community engagement through employment and local procurement will enhance social sustainability. The following are key measures to ensure operational sustainability:

Based on current capacity, utilization rates, and market growth forecasts, the KNDC expansion is expected to achieve an additional annual gross revenue within its first full operational year after completion.

The projection assumes: Average occupancy rate of 95% across cloud and colocation services with 25% annual growth rate in utilization due to increasing digital adoption by public and private sectors. In addition, a gradual price escalation of 5–7% annually accounts for inflation, increased service complexity, and technological upgrades.

The project's funding framework is designed around a blend of public, private, and development partner contributions, ensuring diversification of financing streams and risk-sharing among stakeholders.

# CHAPTER SIX

# COORDINATION AND IMPLEMENTATION FRAMEWORK

**Overview**

This chapter outlines the governance, implementation, and operational framework for the Konza National Data Centre (KNDC) Cloud Expansion Project. It highlights a multi-stakeholder management structure led by KoTDA with oversight from the State Department for ICT & Digital Economy, National Treasury, private sector, and development partners, ensuring accountability, policy alignment, and efficient service delivery. The chapter details a recommended Hybrid Public Private Partnership–AIA funding model, leveraging government support, private investment, and donor contributions for scalable and sustainable infrastructure development. Operations and maintenance are guided by Uptime Tier III standards, preventive and corrective maintenance, energy efficiency, disaster recovery, and performance monitoring. Finally, a comprehensive risk assessment and mitigation framework addresses technical, financial, legal, environmental, social, and political risks, ensuring resilience, compliance, and long-term sustainability of the Data Centre.

KoTDA serves as the lead implementing agency, responsible for project coordination, management, and oversight to ensure alignment with Kenya's Digital Economy Blueprint and Vision 2030 objectives. The State Department for ICT and the Digital Economy provide policy direction and regulatory support, while the National Treasury is responsible for funding and fiscal compliance. Strategic partnerships with private technology firms, service providers, and development partners bring in innovation, technical expertise, and capacity building.

# CHAPTER SEVEN

# SUSTAINABILITY AND SOCIAL IMPACT

**Overview**

Environmental sustainability Analysis (E waste management, energy efficiency, water resource management, green policy considerations)

The Konza National Data Centre (KNDC) expansion integrates environmental sustainability as a core aspect of feasibility. This ensures that the project is not only technically and financially viable but also socially and environmentally responsible, in line with Kenya's Green ICT Strategy, Vision 2030, and international best practices for sustainable data centres. Key environmental considerations include:

i. **E-Waste Management:** To minimize environmental and health impacts from obsolete IT equipment. The Authority must implement structured e-waste collection, recycling, and disposal through certified partners. Further, Promote reuse of components where feasible. This will reduce regulatory risk, promote a circular economy, and ensure compliance with NEMA and Waste Management Regulations.

ii. **Energy Efficiency:** To optimize energy consumption and reduce carbon footprint. The Authority must deploy energy-efficient servers, advanced cooling systems, and real-time energy monitoring. Integrate renewable energy sources, including solar power, and explore waste-to-energy solutions. This will lower operational costs, enhance power resilience, and align with ISO 50001 standards.

iii. **Water Resource Management:** To ensure responsible and efficient water use. The authority must incorporate or utilize water-efficient cooling technologies, closed-loop systems, and rainwater harvesting where feasible. This will minimize environmental impact, reduce operating costs, and ensure compliance with water management regulations.

iv. **Green Policy Compliance:** align with national and international environmental standards. The KNDC must undertake Environmental Impact Assessments (EIA), apply green building principles, sustainable procurement, and ISO 14001 compliance. This will enhance regulatory approval likelihood, reduce environmental risks, and improve stakeholder confidence.

# CHAPTER EIGHT

# IMPLEMENTATION FRAMEWORK

## 8.0. Overview

The Chapter outlines the implementation framework for the Konza Cloud Expansion Project, detailing the phased execution plan, procurement strategy, and monitoring and evaluation framework. The project will be implemented over 36 months through a Public Private Partnership (PPP) arrangement, starting with project design, structuring, and approvals by the National Treasury and the PPP committee, followed by procurement of a private partner/investor, financial closure, and commissioning of the expanded cloud infrastructure. The procurement process will adhere to the Public Private Partnership Act, 2021, and the Public Procurement and Asset Disposal Act, 2015, under a Design-Build-Finance-Operate-Transfer (DBFOT) model to ensure transparency and value for money. A robust Monitoring, Evaluation, Reporting, and Learning (MERL) framework will track performance ensuring accountability, continuous improvement, and effective delivery of the project's objectives.

The procurement process will adhere to the Public Private Partnership Act, 2021, Public Procurement and Assets Disposal Act, 2015 and related regulations, ensuring transparency, competitiveness, and value for money. A Design-Build-Finance-Operate-Transfer (DBFOT) model is proposed, where the private partner/investor will Design, finance, install infrastructure, and operate the expanded facility under a defined concession period before transfer to the Government of Kenya. The PPP Committee within KoTDA, in collaboration with the PPP Directorate, State Department for Public Investments Management and Assets Management and the National Treasury, will oversee the process from prequalification and bid evaluation to contract negotiation and signing. Contract provisions will outline performance standards, revenue-sharing models, service-level agreements (SLAs), and dispute resolution mechanisms to safeguard public interest.