



REPUBLIC OF KENYA

MINISTRY OF INFORMATION,  
COMMUNICATIONS AND THE DIGITAL  
ECONOMY

NATIONAL ADDRESSING POLICY  
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## **FOREWORD**

The National Addressing Policy comes at a time when Kenya is undergoing unprecedented digital transformation. ICT evolutions driven by ubiquitous Internet services, skilled youthful population, and an entrepreneurial and innovative culture has precipitated the growth of technological based start-ups. These innovative initiatives have become the basic drivers of the digital economy and influencing Kenya's e-commerce culture.

As a nation, we are witnessing a fundamental change in our way of life in contrast to the days of old. The shift into the digital sphere has affected our mode of work, conducting business, and socially interacted over the last decade. The adoption of the use of digital technologies for social and economic activities has further been accelerated during the COVID-19 pandemic because of the necessary protocols to contain the spread of the pandemic.

A growing population of consumers now shop online, and in most urban areas they are now utilizing ride-hailing companies for their movement, financial technologies for day-to-day transactions, mobile applications for accessing services among others. The Policy, therefore, comes at a time when identification of homes and businesses has become essential to support e-commerce and last mile delivery of goods and services.

This policy calls for the development of a national addressing framework that is unique, efficient, and relevant for effective use in our country. It proposes an integrated system that will require collaboration from multiple institutions in the national and all county governments. The framework will have several components, key among them the National Addressing System of Kenya (NASK). This system will be a national asset and will be vital for facilitating location identification, finance and trade, public service delivery and planning. It is also envisaged that support for growth of innovations will propel our digital transformation as a nation.

There is no doubt that the success of the roll out and implementation of the framework, will depend on the combined efforts of all citizens and require the commitment and synergies of the national and county governments and the private sector. Considering the potential impact of a National Addressing Framework in the improvement of the lives and well-being of our citizenry my Ministry commits to driving these efforts to their full actualization.

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**Ministry of Information, Communications and The Digital Economy**

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## **ABBREVIATIONS AND ACRONYMS**

API	Application Program Interface
CA	Communications Authority of Kenya
CAU	County Addressing Unit
COG	Council of Governors
COVID-19	Coronavirus Disease of 2019
CRS	Coordinate Reference System
CS	Cabinet Secretary
GDP	Gross Domestic Product
GIS	Geographical Information System
GPS	Global Positioning System
ICT	Information and Communication Technology
IEBC	Independent Electoral and Boundaries Commission
ISO	International Organization for Standardization
KICA	Kenya Information and Communications Act
MSME	Micro, Small and Medium Enterprises
NASK	National Addressing System of Kenya
NCAP	National Communications and Addressing Plan
NLC	National Land Commission
PCK	Postal Corporation of Kenya
PESTEL	Political, Economic, Social, Technological, Environmental and Legal
P.O.	Post Office
SDG	Sustainable Development Goals
UN	United Nations
UPU	Universal Postal Union

## KEY POLICY DEFINITIONS

“**Address**” means structured information that provides a verifiable, clear and simple determination of an object for purposes of identification and location.

“**Addressing**” means the assignment of names and numbers to addressable objects.

“**Address data**” means any data required by the National Addressing System of Kenya

“**Addressable Object**” means an object that may be assigned an address.

“**Address Alias**” means refers to a synonymous address set unambiguously determining the same addressable object

“**Cadastral map**” means a map or series of maps developed and maintained by the authority responsible for the survey of land in Kenya.

“**Cabinet Secretary**” means the Cabinet Secretary who is for the time being responsible for matters related to addressing, numbering and postal services.

“**Child Address**” uniquely identifies an addressable object within a parent address.

“**County Unit**” means the County Addressing Unit proposed by this Policy.

“**Data**” has the meaning assigned to it under section 2 of the Data Protection Act.

“**Geo-coding**” means transforming a description of a location, such as an address, coordinates, or a place name, to a location on the surface of the Earth.

“**Geographic Information System (GIS)**” means a locational/positional database system that allows for acquisition, processing, visualization, integration, analysis and presentation of geospatial data and information.

“**Geo-spatial referencing**” means reference to an object by a specific location either on, above or below the earth’s surface.

“**Holders of Address Data**” means any person that possesses address data.

“**Information**” has the meaning assigned to it under section 2 of the Access to Information Act (2016).

“**National Addressing Framework**” means the National Addressing Framework proposed by this Policy.

“**National Addressing System of Kenya**” means the information system to be created and managed by the Communications Authority of Kenya for purposes of addressing in Kenya.

“**National Addressing System of Kenya Address**” means a unique alphanumeric address assigned to an addressable object.

“**Nyumba Kumi**” means the/a strategy adopted by the Government of Kenya of anchoring Community Policing at the household level or any other generic cluster. These households

can be in a residential court, in an estate, a block of houses, a manyatta, a street, community of interest, a gated community, a village or a bulla<sup>1</sup>.

**“Parent Address”** means an address that fully incorporates one or more other addressable objects.

**“Thoroughfare”** A designated route along which a delivery point can be accessed, either directly or via a secondary or tertiary route or other access route.

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<sup>1</sup> Community Policing Information Booklet, First Edition, 2017

## EXECUTIVE SUMMARY

Addressing is accepted as an essential tool for economic and social development globally. Accurate and reliable addressing information is critical to modern-day service delivery, planning and spurs business growth. It is anticipated that Kenya's national addressing system will formalize mainstream economy and add to the nation's digital transformation ecosystem.

This policy seeks to promote the benefits of a National Addressing Framework to provide for the naming, numbering and allocation of addresses for addressable objects such as streets and properties. The Framework will also provide for the development of standardized and easily verifiable naming and addressing data that will among other activities promote the uptake of e-Commerce, e-Trade and improve overall service delivery by the public and private sectors.

This National Addressing Policy provides the foundation for developing the legal, institutional, and regulatory framework for Addressing in Kenya. The policy recommends the development and adoption of a National Addressing Framework, inclusive of standards, and a National Addressing System of Kenya (NASK). The latter will be the foundation for the roll-out of National Addressing in Kenya. The policy calls for the establishment of a scalable, resilient, and secure National Addressing System, whose custodian will be the Communications Authority of Kenya (CA).

The success of this policy further calls for a collaborative engagement mechanism between various agencies at both the national and county governments. The successful implementation of National Addressing Framework will rely on collaboration among all stakeholders at the national and county governments.

This policy sets the stage for developing a vital ecosystem that will enhance trade and inclusivity in service delivery and contributing positively to the country's GDP by both the public and private sectors.

## 1.0 CHAPTER 1: INTRODUCTION AND BACKGROUND

### 1.1 Introduction

The concept of national addressing is recognized world over, as an essential tool for economic and social development. The implementation of addressing does not adopt a one-system-fits-all approach and is largely founded on history, culture, traditions, and other localized practices in any given nation. The commonality in implementation of national addressing systems is the adoption of standards and an information system that guides the process. The development of a National Addressing Framework is, therefore, aimed at creating a single policy and legal framework that will guide creation, management, and utilization of addressing in Kenya. The scope of this Policy is to guide on the unique identification of addressable objects and establishment of a National Addressing System that contains a database to hold data on addressable objects only.

Addressing is defined by the World Bank as an exercise that makes it possible to identify the location of a parcel of land or dwelling on the ground, that is, to “assign an address” using a system of maps and signs that give the numbers or names of streets and buildings.<sup>2</sup>This concept may be extended to urban networks and services, in addition to buildings and other types of urban fixtures, public standpipes, streetlamps, and taxi stands can also get addresses.

The United Nations Economic Commission for Africa (UNECA) defines an address as a primary means to identify and locate a unique object. It is “the precise, complete, permanent and unique location of any spatial object (e.g., thoroughfare, parcel, place of interest and property addresses) using a system of identification such as name, number or descriptor”.<sup>3</sup>

The International Organization for Standardization (ISO) defines an address as “the structural information that allows the unambiguous determination of an object for purposes of identification and location”.<sup>4</sup>

The Universal Postal Union (UPU) states that addresses can either be direct or indirect references to places.<sup>5</sup>

This policy customizes the ISO definition and defines an address to mean structured information that provides a verifiable, clear and simple determination of an object for purposes of identification and location; Therefore, an address shows where people live, work, do business and get services. It should identify the site of a spatial object and allows for understanding of and ability to navigate between addresses.

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<sup>2</sup> Farvacque-Vitkovic, C., Godin, L., Leroux, H., Verdet, F., & Chavez, R. (2005). Street addressing and the management of cities. Washington, D.C.: The World Bank.

<sup>3</sup> United Nations Economic Commission for Africa (2004). Strengthening geo information systems for sustainable development.

<sup>4</sup> ISO 19160-1:2015(en) Addressing-Part 1: Conceptual model

<sup>5</sup> Universal Postal Union, Addressing and Post Code Manual (2009)

Direct references provide a structured description such as a street or postal address or a definite place name while indirect references comprise numbers or codes that refer to a location through some previously created relation. Different forms of addressing are utilized with the information available. A good addressing system should be as precise as possible and, with the advances in technology, geo-mapped or coded.

Development of a national addressing system for Kenya provides an opportunity to build a centralized database of addresses for socio-economic development. The ongoing efforts on Kenya National Spatial Data Infrastructure (KNSDI) further creates an opportunity for the development of an addressing system that is integrated with other national data sets and is geo-coded<sup>6</sup>. This will give the country's addressing system the potential to be an asset that can be used for various applications and services for the benefit of the population, county governments, and the private sector.

## **1.2 Policy Background**

The development of this national addressing policy in Kenya is informed by national, regional, continental and global policies and strategies.

### **1.2.1 Vision 2030**

The Kenya Vision 2030 is the national long-term development blueprint that aims to transform Kenya into a newly industrialised, middle-income country providing a high quality of life to all its citizens by the year 2030. The Vision comprises of three key pillars: Economic; Social; and Political. The Economic Pillar aims to achieve an average economic growth rate of 10 per cent per annum and sustaining the same until 2030. The Social Pillar seeks to engender just, cohesive and equitable social development in a clean and secure environment, while the Political Pillar aims to realize an issue-based, people-centred, result-oriented and accountable democratic system. The three pillars are anchored on the foundations of macroeconomic stability; infrastructural development; Science, Technology and Innovation (STI); Land Reforms; Human Resources Development; Security and Public-Sector Reforms.

Effective addressing and integrated quality address data are seen as an important part of the nation's infrastructure. Kenya's Vision 2030 is implemented using medium term plans (MTP). Currently Kenya is implementing MTP 4 (2023-2027) where a national addressing system is identified to be rolled out within this time period.

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<sup>6</sup> The National Spatial Plan 2015 – 2045. The National Spatial Plan guides the long-term spatial development of Kenya. The Plan envisions spatial development of Kenya in a manner that promotes competitiveness, prosperity, and a high quality of life for the citizens in line with the aspirations of Kenya Vision 2030. The National Spatial Plan establishes a broad physical planning framework that provides physical planning policies to support economic and sectoral planning. The Plan further provides a spatial structure that defines how the national space is going to be utilized for the realization of optimal and sustainable use of land within Kenya (The Ministry of Lands and Physical Planning).

### **1.2.2 National ICT Policy 2022**

Kenya's National ICT Policy provides a framework that promotes the realization of Kenya's digital economy and its benefits, by creating an enabling environment for all citizens and stakeholders. The National ICT Policy provides Kenya's vision for various aspects in Kenya's ICT sector. The Policy specifically seeks to facilitate the creation of infrastructure and frameworks that support the growth of the digital economy. The policy acknowledges the structural and legal inadequacies that hinder the development and evolution of digital transactions and calls for the establishment of a homogenous National Addressing System.

### **1.2.3 Digital Economy Blueprint 2019**

Kenya's Digital Economy Blueprint 2019 is the cornerstone document for Kenya's digital transformation and is anchored on five key pillars: providing affordable, accessible, and reliable infrastructure; development of digital government; development of digital business; development of digital skills and values; and creation of an ecosystem that enables and cultivates innovation-driven entrepreneurship. Achieving affordable, accessible, and reliable digital infrastructure for businesses and households is a foundational requirement for unlocking the potential of the digital economy of which a national addressing framework is considered as a basic infrastructure.

Notably, Kenya is already benefiting from the digital economy as evidenced by the remarkable growth of e-commerce and the gig-economy with several, technology companies having established a footprint in Kenya. Kenya is regarded as Africa's Silicon Savannah and is full of experiences of the transformative power of innovation and digital technologies. The National Addressing System of Kenya will open up new avenues for innovation through utilization of the National Addressing System of Kenya database. Notably, the development of this Policy comes at a time when Kenya is leapfrogging in its digital transformation. The national addressing system will support a digital government and digital business ecosystem which are key components of Kenya's digital economy agenda.

### **1.2.4 East Africa Community Vision 2050**

The aspiration of East Africa Community (EAC) Vision 2050 is to transform the EAC Bloc into an upper middle-income region within a secure and a politically united economies based on principles of inclusiveness and accountability. The key pillars of the EAC vision 2050 include infrastructure development, industrialization, tourism, trade and services development, among others.

### **1.2.5 African Union Agenda 2063**

Africa Union (AU) Agenda 2063 dubbed "The Africa We Want" is Africa's blueprint and master plan for transforming Africa into the global powerhouse of the future. It is the continent's strategic framework that aims to deliver on its goal for inclusive and sustainable development. Agenda 2063 identifies key activities to be undertaken in its 10-year Implementation Plans which will ensure that Agenda 2063 delivers both quantitative and qualitative transformational outcomes for Africa's people. A key activity within Agenda 2063

is the establishment of the Africa Continental Free Trade Area (AfCTA) which aims to accelerate intra-African trade and boost Africa's trading position in the global marketplace. The development of a national addressing system is a critical infrastructure that will support this agenda. The case for addressing in Africa is further supported by AU's Africa Digital Transformation Strategy which specifically calls for strengthening of ICT and postal policies reforms. The Strategy calls for African nations to "accelerate and intensify policy reform and speed up the implementation of existing decisions from the AU policy organs on reform, universal postal service, financial inclusion, post codes and addressing systems."

### **1.2.6 The Sustainable Development Goals**

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The set of 17 SDGs cover issues of ending poverty in all its forms, everywhere; promoting economic and social prosperity, fighting inequality and injustice, and tackling climate change by 2030. SDGs, particularly goal number 9, place technology change and innovation high on the global development agenda. Implementation of Goal 9 on building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation and Goal 17 on promoting partnerships, require improved ways of implementation including strengthening research and development components. The SDGs, though not explicit on addressing systems, promote the development of robust infrastructure for socio-economic development.

### **1.3 Rationale for National Addressing System Framework**

A national addressing system conceptualized and designed for Kenya will put in place a national framework for standards, which consider local contexts such as culture, traditions and norms. In addition, it will provide for an authoritative and immutable addressing digital registry that will have multiple use cases for individuals, businesses, and government. The national addressing framework is envisaged to create a user-friendly environment that facilitates free movement of goods and services through unambiguous address data. A national addressing system will further facilitate socio-economic development through greater uptake of e-commerce and improved service delivery.

Kenya's guiding and strategic documents underpin the need for a national addressing system as a core infrastructure to promote socio-economic development. An addressing system has also been identified as an important tool for the effective disaster management in emergency situations such as flooding, landslides and pandemics. The Covid-19 pandemic has further exacerbated the need for a reliable addressing system. Pandemic mitigation measures such as contact tracing, lockdown and containment as well as the provision of efficient emergency assistance, all emphasise the need for a functional addressing system. It is amidst this backdrop that this Policy has been developed and it is envisioned that its implementation will be an additional tool in the management of the Covid-19 pandemic.

### **1.3.1 National Addressing for Public Service Delivery**

A national addressing system is critical to support quick identification of locations especially in the delivery of emergency services such as fire, ambulance and police. The efficiency of these services is measured by how quickly they can be offered when and where needed. As these services are usually required under crisis conditions, accurate and quick identification of their destinations is essential. Without a proper spatial referencing system, the response time for these services is considerably lengthened and may result in the loss of life destruction of property and a considerable drain on the economy.

### **1.3.2 A National Addressing System to Support E-Commerce**

To support e-commerce, an effective national addressing system ensures that effective delivery of mail, goods, parcels, courier and taxi services is possible. Without a physical address, individuals who desire to receive mail and packages would rely on post office boxes to receive them. Comprehensive street names and property addresses reduce delays in delivery and make e-commerce services more efficient. The benefits of efficient delivery services are not, however, restricted to individuals, as businesses equally rely on addresses to operate efficiently and effectively, especially in the distribution and delivery of goods and services.

### **1.3.3 National Addressing to Support Services**

An address is used for a wide range of private and public services. In some jurisdictions, proof of a physical address is essential for the provision of many services including financial transactions such as opening an account at a bank, accessing telecommunications services, such as obtaining a sim-card for a mobile phone, and other utility services. The development of a national addressing framework in Kenya will support the following functions:

#### **1.3.3.1 Identification**

A functional address system can be integrated with other databases to allow for an individual or business to be linked to a physical location, which is useful for legal, security and billing purposes. An address lends credibility to and complements other forms of identification such as drivers' licenses, electoral records, and property records as these can be cross-referenced to check for validity. For example, each voter can be matched to an address which can be physically verified, thereby eliminating ghost names in the voters register.

Furthermore, an address system supports trust in an ecosystem through which a verified address can be identified. Micro, Small and Medium Enterprises (MSMEs) in developing countries also find it difficult to access credit because they are considered high risk investment and operate under greater financial uncertainty. This difficulty of accessing credit is a major hindrance in the growth of MSMEs. An address will, simply put, place a small business on the map. With a reliable addressing system based on spatial referencing, financial institutions are more likely to offer credit to individuals and small businesses as it reduces the risk factor.

### **1.3.3.2 Planning:**

Information on location of land allows planning to proceed with ease and in a coordinated manner as planners have information which enables them draw up relevant plans for the area. In addition, information on the population residing in different areas of the town and its characteristics can be known and appropriate measures taken to address issues concerning the population. For instance, demographic patterns can be determined, and appropriate actions taken to address it. Therefore, a national addressing system is a useful tool for managing and organizing information about people and activities within a given area (urban or rural) and is helpful in promoting the successful implementation of representative democracy.

### **1.3.3.3 Revenue Collection:**

A national addressing framework can be a useful tool for revenue mobilization and debt collection. Without a clear system of addressing, individuals, companies and property cannot be identified and taxed appropriately. Therefore, more than ever, authorities need a system whereby they can account for what goes on within their areas of jurisdiction.

## **1.3.4 National Addressing for Social Cultural Activities**

Social and cultural activities form a vital part of the fabric of daily activities undertaken by residents, visitors, and tourists. Businesses in the hospitality sector, such as hotels, cinemas, restaurants and holiday destinations, need reliable addresses to help customers easily access them. It can be time-consuming and frustrating looking for a building or the location for any of these activities.

## **1.3.5 National Addressing and Regional Integration**

The secondary effects of a functional, accessible, and continually updated national addressing framework will not only have national significance but regional implications as Kenya's increased economic growth will have far reaching effects in neighbouring countries. NASK will support Kenya's aspirations of active participation in the regional and continental trading blocs which strive for a single digital market. An addressing system will provide the primary source of addresses in Kenya and boost Kenya's digital transformation as envisioned in Kenya's Digital Economy Blueprint.

## **1.4 Policy Goal and Objectives**

### **1.4.1 Policy Goal**

The overarching goal of this policy is to develop frameworks, principles, and strategies for assigning a unique and verifiable address to all transport infrastructure, properties and any addressable objects in Kenya. In line with the Vision 2030, the policy seeks to work towards ensuring the optimum capitalization of the economic, social and cultural rewards associated with a national addressing framework.

## 1.4.2 Objectives

The general objective is to provide a standardized framework for addressing in Kenya. It seeks to ensure harmony in the legislative and regulatory framework governing addressing and promote an enabling environment for the development, management, and utilization of a National Addressing System of Kenya (NASK).

Three key objectives have been identified as follows:

### a) Legislative, Institutional and Regulatory Framework:

Develop a Kenya National Addressing Framework on policy, standards and regulation and an institutional arrangement for the roll-out of the National Addressing System.

### b) Infrastructure

Develop a secure, immutable national repository that leverages on technology for addressing as the foundation for national addressing that serves as the primary source of all address data and addressing information.

### c) Collaborative Framework

Provide a framework for Addressing within the national and county governments and leverage on the input of primary and auxiliary addressing data providers for the benefit of developing an authoritative Kenyan national addressing system.

#### i. Vision

A digitally addressed Kenya by 2030

#### ii. Mission

Establish an integrated National Addressing Framework for Kenya.

## 1.4.3 Guiding Principles and Values

The development of this policy is guided by the following principles:

### a) Collaboration

A successful National Addressing Framework in Kenya will require collaboration between multiple stakeholders including the national and county governments. It will require the establishment of conditions and relationships between the central administration unit for NASK and the multiple agencies and county governments to facilitate the collaborative processes and approaches.

## **b) Inclusivity**

Addressing will be implemented in all of Kenya, this includes urban, semi-urban, rural, informal and refugee settlements with the goal of ensuring every Kenyan citizen and resident has an address.

## **c) Constitutional Principles**

The Constitution of Kenya 2010 prescribes that the State shall provide social and economic rights to Kenyans. Social and economic rights are referred to as “second generation rights” in the human rights naming system and are one of the most significant achievements of the Constitution. One of the ways of enhancing economic and social rights in Kenya is by the establishment of a National Addressing Framework. The establishment of an address infrastructure helps individuals to access their legal rights and encourages people to take advantage of equality before the law.

## **d) Devolved Governance**

Kenya is divided into 47 counties and the Fourth Schedule of the Constitution of Kenya places the responsibility of county planning and development to the counties to manage land survey and mapping, boundaries and fencing, which are a key component of national addressing.

## **e) Public Good and Interoperability**

This Policy promotes addressing as a public good that will serve the interests of all Kenyans. This means that addressing should not be a burden to the taxpayer and address data should be made accessible to those who need to exploit it for public good, to the extent permitted by the Laws of Kenya. Therefore, the national addressing framework will seek to provide utilization mechanisms for both private and public users to plug into NASK for innovation and enhanced delivery of services.

## **f) Private Sector, Innovation, Research and Development**

This Policy recognizes the catalytic impact of a National Addressing Framework to the private sector and will aim to boost digital trade and encourage innovation around addressing solutions through research and development for socio-economic benefits.

## **g) Sustainable Development**

Addressing will spur economic growth and human development through economic, environmental and social accountability. Implementing the National Addressing Framework should contribute to the achievement of the following sustainable goals (SDGs): SDG-9 on Industry, Innovation and Infrastructure - Build Resilient Infrastructure, Promote Inclusive and Sustainable Industrialization and Foster Innovation; and SDG-11 on Sustainable Cities and

Communities - Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable.

#### **1.4.4 Scope of the Policy**

This policy applies to all addressable objects in Kenya. It has been developed for adoption by the National and County governments, and all other relevant stakeholders.

#### **1.4.5 Policy Development Process**

The Ministry of ICT, Innovation and Youth Affairs set up a National Addressing System Steering Committee that comprised of representatives of various key actors from Government as well as from the private sector during the 2016/17 financial year. The national steering committee comprised of members from: Ministry of Information, Communications and the Digital Economy, National Communications Secretariat, Communications Authority of Kenya, Postal Corporation of Kenya, Ministry of Transport Housing Infrastructure and Urban Development, Kenya Urban Roads Authority, Ministry of Lands and Physical Planning, National Land Commission, Ministry of Interior and Coordination of National Government, Council of Governors, Kenya Bureau of Standards, Kenya Revenue Authority, Independent Electoral and Boundaries Commission, Kenya Red Cross Society and Kenya Alliance of Resident Associations.

The Secretariat to the Steering Committee was the Communications Authority of Kenya. The Steering Committee engaged other institutions in the development process which included The Kenya Institute for Public Policy Research and Analysis (KIPPRA), Nairobi Metropolitan Services (NMS), The Kenya Law Reform Commission (KLRC), The Office of the Data Protection Commissioner (ODPC), The Information and Communication Technology Authority (ICTA) and Office of the Attorney General.

The policy development followed a participatory and consultative process among the key industry stakeholders including the County Governments. The process was championed by the Ministry of Information, Communications and The Digital Economy through the NAS Steering Committee. Two national workshops were held to create awareness about NAS, and seven regional workshops were conducted to get the buy-in from the County Governments. Expert inputs were obtained through International and local efforts. Due to COVID-19 restrictions, several stakeholder consultations and public participation were conducted online through interactive video conferencing platforms, websites, social media and e-mail which elicited views on existing challenges and opportunities facing the sector, with stakeholders covering all the 47 counties.

Further stakeholder consultations were held in 2023 to validate the draft Policy and the accompanying Bill before submission of the same to the Cabinet Secretary for further action.

## CHAPTER 2

### 2.0 SITUATIONAL ANALYSIS OF NATIONAL ADDRESSING IN KENYA

#### 2.1 Introduction

Currently, there is no consolidated, unique and harmonized legal and policy framework on addressing in Kenya. However, the lack of a national addressing framework has not inhibited addressing efforts within Kenya. Various government and private sector initiatives have been undertaken in Kenya with the aim of providing addressing and locational services. This section highlights the situation analysis that underpins Kenya's social, legal and institutional realities for national addressing.

#### 2.2 Heterogenous Addressing Systems

There exists multiple addressing and locational services that are in use. In urban areas, some residential communities have developed addressing systems and installed fixtures on the same. There have also been various attempts by multiple county governments to develop addressing systems and signages. Some of these efforts date back to pre-independence. In 1964, after Kenya had gained independence, a street naming sub-committee was formed under the town planning committee of the then Nairobi's City Council. This subcommittee came up with address names or received naming suggestions from the public. There was then a vetting process and proposals were eventually sent to the Minister of Local Government for approval. Some of these earlier interventions helped set a foundation for addressing. Estates in Nairobi's Eastlands such as *Buru Buru*, *Kaloleni* and *Ofafa Jericho* utilized these early attempts. Through the years multiple efforts have been established by different entities to guide the naming and numbering of streets and properties. These for the most part have been ad-hoc and have created a hodgepodge of addressing systems in Kenya.

Historical efforts have been supplemented with innovative private sector addressing systems primarily driven by technology. The use of smart phones and web mapping technologies have made in-roads in filling the gap that exists with the absence of an authoritative national addressing framework. These systems cover a broad range of solutions from traditional property number sequences which are hand painted on the exterior of buildings, ad hoc building names as well as widespread use of descriptive and postal address elements as part of a single address.

#### 2.3 Lack of National Addressing for Last Mile Delivery of Goods and Services.

As a result of the heterogenous addressing systems at play in Kenya, delivery of goods and services and identification of properties is limited and challenging, especially for people who are not familiar with specific geographical area, resulting in delays, increased inefficiencies and high costs. The Couriers Industry Association of Kenya (CIAK) reports that the lack of a unified addressing system translates to delays in delivery due to increased time in tracing locations, and costs for mobile calls as they seek directions from both senders and recipients

of goods. CIAK reports indicate that of all mis-deliveries, 17%; are as a result of the wrong addresses on the label; 58% are delayed pending further information from sender/recipient and 25% are not delivered at all.

A simple, coherent, and readily understandable addressing system is essential for the proper and timely deployment of police, fire and ambulance services as well as military troop deployments, particularly in emergency situations. Unreliable address data is a major obstacle to the positive and prompt deployment of emergency services, including national security services. Police responses to criminal activities, emergency medical and fire services, and the deployment of anti-terrorism personnel all rely, in some form or another, on reliable and effective addressing systems to expeditiously locate those in need of the services.

## **2.4 Addressing Disparity Between Rural and Urban Areas**

The addressing systems that have been rolled out in Kenya have mostly been adopted by urban communities. Consequently, this has led to a marked disparity between formal and informal settlements in both urban and rural areas. In rural parts of Kenya where many settlements are unplanned and/or do not have roads the *Nyumba Kumi* cluster system is sometimes used as a way of locating households with varying degrees of successful adoption. The *Nyumba Kumi* cluster system defines groups of people by physical location and divides settlements into blocks which are then further subdivided into roads and sectors. Within rural areas it is understood from stakeholders that the existence of official street names is almost non-existent, and it is common for roads to be unofficially named by locals based on where it goes to and comes from.

## **2.5 An Outdated Post-Code System**

Kenyans have traditionally utilized post offices for delivery of mail with an option of engaging courier service providers for last mile delivery services. However, this mode of last mile delivery has been overtaken by modern day, door to door services primarily driven by technology. Postal services remain an essential tool for communication. However, with the rise of e-commerce and the consequential need for last mile delivery the Postal Corporation of Kenya needs to re-invent its post codes to align them to a geo-spatial based system. At the inception of Post Offices in Kenya the then postal operator introduced P.O. Box numbers but owing to the structure and format of this numbering scheme, the numbering was exhausted in the year 2000. The Postal Corporation then introduced five-digit postcodes, even though limitless, are linked to the geographical postal delivery office location rather than a coding system that identifies counties, groups of properties or individual properties and are thus insufficient for the development of a national addressing system.

Secondly, the existing system no longer represents the administrative structures of the country, having moved from a province/region structure to a county structure. It is further noted that this design contravenes one of the fundamental principles of postcode design, being that there should be no leading zeros. The reason for this is that in most databases, unless specified as text strings, these zeros fall away. A related reason is that zeros are

often reserved to indicate uncertainty of data elements or pre-verification for data quality certification. It is also noted that a postcode system should have a life of at least twenty years, though preferably closer to fifty. Some postcodes have been around since the late 1960s, although these are in developed countries where data is stable. This policy therefore calls for the Communications Authority of Kenya to review Kenya's postcode systems and develop one that will promote effective last mile delivery and mail routing.

## **2.6 Lack of National Guidelines for Naming to Support a National Addressing System.**

Though limited, there exists street naming and property numbering within Kenya. Street names that do exist are largely a result of historical activities and/or urban expansion that created a need to identify specific locations. Many street names in urban areas appear to be in honour of famous people who have been associated to Kenya, however, there are no national standards for the display or assignment of official street names. There are also instances of similar names assigned to multiple roads. Creation of national guidelines and standards will assist in the implementation of a harmonised national addressing initiative.

## **2.7 Lack of National Standards for Address Signage**

There are no commonly adopted standards in place in Kenya in relation to the design and placement of road signage and address nameplates. There is evidence in many urban areas that ad hoc street name plates have been erected. However, the presence of street name plates or street signage is not ubiquitous or on every street and are at best aimed at pedestrian navigation rather than vehicular use. Many roads in rural areas and informal settlements in Kenya are both unnamed and unmarked. This provides a blank canvass to introduce a systematic approach to naming and property numbering. In doing so, care should be taken to ensure local context, culture, tradition and engagement activities are fulfilled with the introduction of any new system.

It is understood that what street signage that does exist in Kenya is based on the 1975 Traffic Signs Manual legalized by Kenya Gazette supplement No. 90 of 20 December 1974. Some efforts to review the traffic signs manual was initiated in 2005 but is still in draft form. The manual is broken down into two parts; Part 1: road markings; and Part 2: manual for traffic signs.

## **2.8 Multiple Holders of Address Data**

National addressing is a function that relies on multiple holders of address data. These range from boundaries data, road names and classifications to land parcel data. The availability of large-scale digital mapping and aerial imagery for the whole of Kenya will be an important requisite for addressing. The availability of such data will permit a higher degree of data quality and accuracy of address information. Kenya's National Addressing Framework will therefore be dependent on various stakeholders and will require institutional collaboration and integration with the Kenya National Spatial Data Infrastructure, the aggregate system for Kenya's geo-spatial data. Alignment with Kenya's National Spatial

Data Infrastructure will be important to ensure that the NASK can provide one of the essential base data layers. Furthermore, the mandates for mapping and developing GIS lie within other institutions and, therefore, a collaboration framework will be crucial for the actualisation of the National Addressing System for Kenya.

## **2.9 Addressing is a Shared Function Between the National and County Government.**

As an adopted norm, the implementation of street and property naming, and numbering is regarded as a function for counties. Typically, county governments are responsible for uniformity of street naming and property numbering within their jurisdictions utilizing their established procedures and guided by various county and national statutes. The implementation role for addressing is however interwoven with multiple national functions that govern lands, mapping, boundaries and naming. This policy notes that critical elements that are necessary for addressing are found in several legal instruments in both the national and county level. It is therefore essential to first outline the various prevailing statutes in Kenya that will guide the creation of a national framework for the roll-out and management of NASK in Kenya by both national and county governments.

## **2.10 Constitutional, Legislative and Regulatory Framework.**

The function of addressing in Kenya is governed by multiple legal and policy frameworks outlined below. There is however no legal statute that provides for an integrated National Addressing System. The proposed National Addressing Framework will therefore be guided by the following constitutional, legislative and regulatory provisions including but not limited to:

### **2.10.1 The Constitution of Kenya, 2010**

The Constitution of Kenya 2010 sets the foundation for sustainable urban and rural development in Kenya. Article 10 of the Constitution prescribes the national values and principles to include inclusiveness, equality, human rights, non-discrimination, and protection of the marginalized, and sustainable development.

Article 35 further outlines that every citizen has the right to access to information, and the State is obligated to actualize this right. In addition, the Constitution provides for the economic and social rights of every citizen.

In this respect, the Constitution in Article 46 provides for consumer protection in respect of goods and services offered by both public entities and private persons. The Constitution apportions responsibility of planning to both National and County governments and defines planning as a concurrent function.

Articles 67(2)(h) and 186(1) of the Constitution, and the Fourth Schedule assign planning functions to both the national and county governments. The Articles delineates the respective functions and powers of the national government and the county governments, which are as set out in the Fourth Schedule which distributes the functions between the

National Government and the County Governments. The National Government functions include transport and communications i.e. road traffic, National Trunk Roads, postal services, as well as general principles of land planning and the coordination of planning by the counties. The County Government functions include county planning and development, including land survey and mapping, boundaries and fencing.

Article 260 defines “land” as ‘the surface of the earth and the subsurface rock’. In Article 67, the National Land Commission (NLC) is established with several functions which include, to monitor and have oversight responsibilities over land use planning throughout the country, general principles of land planning and the coordination of planning by the counties. In addition to the National Land Commission, Article 258 also lists the Independent Electoral and Boundaries Commission (IEBC) among the Chapter 15 Commissions and Independent Offices. In this regard, Article 188 outlines the role played by IEBC in review of boundaries of counties.

### **2.10.2 The Kenya Information and Communications Act, 1998 (KICA)**

Section 3 of the Act establishes the Communications Authority of Kenya (CA) and Section 5 of the Act sets out the object and purpose of CA, which include licensing and regulation of postal and courier, information and communication services in accordance with the provisions of KICA.

The Kenya Information and Communications (Numbering) Regulations of 2010 mandate the Communications Authority to carry out the following functions:

- a) Establish a National Communications and Addressing Plan (NCAP) for electronic communication numbers and addresses, postal codes, in liaison with international organizations dealing with numbering and addressing matters.
- b) Ensure that the NCAP among other details shall include geographical postal points of delivery.
- c) Appoint, if necessary, a person or an organization to manage or maintain an integrated number or address database.

### **2.10.3 Postal Corporation of Kenya Act, 1998**

The Act establishes the Postal Corporation of Kenya (PCK). PCK operates as a commercial enterprise whose mandate is to provide accessible, affordable, and reliable postal services to Kenya. Section 3 of the Act establishes the Postal Corporation of Kenya (PCK). Section 5 of the Act mandates the PCK to carry out the following functions:

- a) provide and operate postal services, and perform incidental services relating to the receiving, collecting, sending, dispatching and delivering of postal articles and electronic mail.
- b) provide and operate postal financial services, and incidental services relating to the issuing, receiving, and paying of mobile e-money, mobile payments, money remittance business, money and postal orders, postal drafts, postal cheques, postal travellers’ cheques, giro services, cash on delivery, collection of bills, virtual savings services, general electronic online agency services and registration and for delivery

- of newspapers and periodicals, and electronic retail transfers and the National Payments System
- c) perform such other functions or duties as the Cabinet Secretary may, from time to time assign to it.

#### **2.10.4 The County Governments Act, 2012**

The Act contains some key elements in regard to urban management and planning. Section 104(1) provides that a county government shall plan for the county, and no public funds shall be appropriated outside a planning framework developed by the county executive committee and approved by the county assembly. Section 107(1) prescribes that to guide, harmonize and facilitate development within each county there shall be the following plans:

- a) County integrated development plan.
- b) County sectoral plans.
- c) County spatial plan.
- d) Cities and urban areas plan as provided for under the Urban Areas and Cities Act.

#### **2.10.5 The Survey Act 2012**

The Survey Act establishes The Standing Committee on Geographical Names. The duties of the Committee are:

- a) It shall be the duty of the Committee to advise the Minister as to the spelling of all names on maps of Kenya, and in so doing the Committee shall have due regard to historical, orthographical and ethnic considerations.
- b) There shall be published in such manner, and as often as the Minister may direct, lists or maps containing the approved spelling of all such names.

The Act will be useful in guiding the naming of geographical names.

#### **2.10.6 Physical and Land Use Planning Act, 2019**

The Act provides for preparation and implementation of physical development plans and for connected purposes as well as the basis for physical planning and development control. The policy relies on the Act in referencing the importance of planning upon which property numbering and street naming is anchored.

#### **2.10.7 The Urban Areas and Cities Act, 2011**

Section 36 of the Act provides for integrated development planning of Urban Areas and Cities. This shall be the basis for the preparation of environmental management plans including preparation of a geographic information system for a city or a municipality. Section 37 provides for the alignment of integrated development plans of cities and urban areas to the development plans and strategies of county governments. These are easily achieved with a complete and correct addressing system that maps out all the areas in the city.

### **2.10.8 The Inter-Governmental Relations Act, 2012**

The Act establishes a framework for consultation and co-operation between the national and county governments and amongst county governments and establishes mechanisms for the resolution of intergovernmental disputes pursuant to Articles 6 and 189 of the Constitution, and for connected purposes.

The objects and purposes of this Act are to

- a) Provide a framework for consultation and cooperation between the national and county governments.
- b) Provide a framework for consultation and cooperation amongst county governments.
- c) Establish institutional structures and mechanisms for intergovernmental relations.
- d) Provide a framework for the inclusive consideration of any matter that affects relations between the two levels of government and amongst county governments.
- e) Give effect to Articles 187 and 200 of the Constitution, in respect of the transfer of functions and powers by one level of government to another, including the transfer of legislative powers from the national government to the county governments.
- f) Provide mechanisms for the resolution of intergovernmental disputes where they arise.

### **2.10.9 The Kenya Heroes Act, 2014**

The Act provides a legal framework for the recognition and honor of national heroes. The objects and purpose of this Act are to

- a) Provide for the recognition of heroes.
- b) Establish criteria for the identification, selection and honoring of national heroes.
- c) Provide for the categories of heroes
- d) Provide for the establishment of the National Heroes Council and for connected purposes.

### **2.11 Citizen Engagement Framework**

The National Addressing Framework will provide a unique location identifier for all households and citizens in Kenya. For many citizens, their address is part of their identity and forms part of how they may describe themselves for both social interactions and interactions with governmental and commercial service providers. The provision of a formal and standardized address for each citizen will be a significant change to a large proportion of the population. Therefore, it is paramount that stakeholder engagement with all citizens is targeted correctly and appropriately to the various types of citizens in a way that meets their requirements for accessing and understanding what a formal address means to them and others.

This Policy notes that counties have enacted county specific public participation acts. For example, The Embu County Public Participation Act, 2015, The Kisumu County Public Participation Act and Nairobi City County Public Participation Act, 2015. These county specific acts provide for public participation in the governance of the county as set out in the Fourth Schedule of the Constitution. The objects of the county public participation acts

provide a framework for participation by the public in the affairs of the County through actively informing the public about the form and content of legislation, policy and development plans formulated by the County Government. This policy encourages the adherence to these county specific statutes on public participation in the naming processes.

## 2.12 Political, Economic, Social, Technological, Environmental and Legal (Pestel) Analysis

This section presents a PESTEL analysis of the macro-environment influences that impact and have led to the development of this policy.

POLITICAL	ECONOMIC	SOCIAL
<ol style="list-style-type: none"> <li>1. There is goodwill from political leaders in the development of a homogenous national addressing framework.</li> <li>2. Political stability which has enabled consistent growth in the Country's GDP with all economic indicators remaining fairly stable.</li> <li>3. Kenya promulgated a new Constitution in 2010 that introduced reforms in Government administration and political boundaries.</li> <li>4. The Government is currently spearheading a war against corruption, especial relating to land titling.</li> <li>5. Legacy systems and processes have led to bureaucracies that hinder efficient delivery of projects that require collaboration of multiple stakeholders.</li> <li>6. The Council of Governors was</li> </ol>	<ol style="list-style-type: none"> <li>1. There are regional and continental institutions such as African Union, the East African Community, Smart Africa Alliance that are spearheading integration within the African Continent to spur economic growth.</li> <li>2. The African Union is championing the implementation of a Continental Free Trade Area.</li> <li>3. Africa is yet to realize the potential of connectivity in stimulating its economy and bettering the lives of its citizens.</li> <li>4. Kenya is ranked 56 out of 190 economies in the World bank ease of doing business.</li> <li>5. Kenya's economy is driven by mobile with 59.8M active mobile subscriptions as at September 2020 as per the Communications</li> </ol>	<ol style="list-style-type: none"> <li>1. 75.1% of Kenya's population being youthful that is below 35yrs of age; They are agile and adaptive to new lifestyles driven by technology that calls for standardized addressing as an infrastructure backbone</li> <li>2. Changes in demographics (age, growth rate, education level, etc.).</li> <li>3. Due to lack of a uniform national addressing framework, Kenyans have embraced international mapping platforms and local innovations to define their addresses.</li> <li>4. Work has been decentralized to offshore, outsourcing, freelancing and crowdsourcing modes that demand for identification of locations and people.</li> </ol>

<p>established in 2012 and provides a mechanism for consultation amongst County Governments, sharing of information, as well as promoting intergovernmental cooperation on national and county interests amongst other functions.</p>	<p>Authority Sector reports;</p> <p>6. The internet has broken traditional global barriers allowing for trade and realization of big-tech that enjoy consumer numbers larger than anyone-country's population.</p> <p>7. There is high levels unemployment amongst the youth, growth in innovation and entrepreneurship is critical to address unemployment.</p> <p>8. There is inadequate funding and calls for more support of the startup and innovation sector by the youth.</p>	<p>5. The country has a growing innovative culture.</p> <p>6. With a majority of Kenyans connected through their mobile phones, there has been an increase in cybercrimes, fraud and fake news.</p>
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TECHNOLOGICAL	LEGAL	ENVIRONMENTAL
<p>1. In 2019, Kenya embarked on geo-spatial mapping of its entire land mass to address a lack of current spatial data and updating of cadastre maps;</p> <p>2. There is a need for capacity building and acquisition of staff with the requisite skills needed to roll out an efficient national addressing framework; this includes but isn't limited to Geospatial</p>	<p>1. Vision 2030, the National ICT Policy and the Digital Economy Blueprint all call for a national addressing system that stimulates a digital economy</p> <p>2. There are structural and legal inadequacies that have hindered the development and implementation of a national addressing framework.</p> <p>3. Lack of laws and standards governing the Addressing both at</p>	<p>1. Climate changes have increased the occurrence of natural disasters which require accuracy in providing emergency response services.</p> <p>2. There is a need for adequate e-waste policy, laws and regulations that require a clear understanding of our landmass and potential.</p> <p>3. Every Kenyan is entitled to basic human rights, of which, the right to have an address facilitates</p>

<p>engineers, cyber security experts etc</p> <p>3. Kenya recorded the highest internet penetration rate in Africa in the year 2020, with 87.2% of population connected.</p> <p>4. Kenya has several submarine cables providing global connectivity to the country.</p> <p>5. There is currently 9,000 km+ of fibre backbone across all 47 counties.</p> <p>6. There is rapid adoption and change in technologies which impacts demand for Government services and innovations in the private sector.</p> <p>7. There is a need for more focus and funding for Research and Development incentives.</p>	<p>National and County levels</p> <p>4. Technological advancements and solutions are being rolled out in environments with inadequate laws and regulations for digital trade and transactions</p>	<p>government interventions to guarantee their rights.</p>
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## 2.13 International Best Practices

### 2.13.1 Standards

Addressing practices differ essentially from country to country with more than 200 address formats in the world, 200 database structures and at least 20 language scripts are officially used to write addresses<sup>7</sup>. This means that there are diverse addressing schemes adopted in various parts of the world that reflect the local and cultural characteristics and environment. In this regard, there is not a “one-size fits all” when it comes to adopting address assignment schemes. Further, there is a need to design, implement and maintain address schemes and standards that are reflective of national heritage, culture, traditions, language, citizen aspirations and existing systems.

Standardization of addresses improves the efficiency of their usage across sectors. In a highly globalized world, the standardization of addresses across different countries has become increasingly important and the adoption of International Standards can provide guidance for the development of standards to be adopted at a national level. As countries move towards single digital markets and citizens trade on e-commerce platforms the need for address interoperability has also become increasingly important.

There are various International Standards that should be considered in the development Kenya's National Addressing Standards. This policy recommends the development of National Standards aligned to the International Standards Organization and Universal Postal Union addressing standards in collaboration with the Kenya Bureau of Standards (KeBS).

#### 2.13.1.1 International Organization for Standardization (ISO)

The International Organization for Standardization (ISO) developed a suite of international standards for addressing and representation of geographic point location by coordinates. These are outlined in ISO 19160 and ISO 6709 highlighted below:

**The ISO 19160** International Address Standard suite provides guidance on the following parts, under the general title ‘Addressing’:

- (i) Part 1: Conceptual Model - The model provides a common representation of address information, independent of actual addressing implementations. It is not intended to replace conceptual models proposed in other specifications but provides a means to cross-map between different conceptual models for address information and enables the conversion of address information between specifications. This Part defines key terms for postal addressing, postal address components and constraints on their use.
- (ii) Part 3: Quality management for address data – The Objective of this part was to provide guidance to ensure address data quality is maintained and/or improved by establishing a set of address data quality measures.

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<sup>7</sup> <https://www.upu.int/en/Postal-Solutions/Programmes-Services/Addressing-Solutions>

- (iii) Part 4: International postal address components and template languages - This Part defines key terms for postal addressing and postal address components. The UPU S42 adopts the ISO 19160.4.

**The ISO 6709** is the international standard for the interchange of coordinates describing geographic points locations as a representation of latitude, longitude and altitude. It specifies the representation of coordinates, including latitude and longitude, to be used in data interchange and additionally specifies representation of horizontal point location using coordinate types other than latitude and longitude. It also specifies the representation of height and depth that can be associated with horizontal coordinates. Representation includes units of measure and coordinate order. This standard supports point location representation through the eXtensible Markup Language (XML) that allows computer data interchange of longitude and latitude through the use of a single alpha-numeric string to describe point locations.

### **2.13.1.2 Universal Postal Union (UPU)**

The relevant international address standards of the UPU are:

- a) UPU S42 International Postal Address Components and Templates. The UPU S42 International Address Standard contains the address format templates for all countries that have registered address systems and postcode systems and adopts ISO 19160.4.
- b) UPU S53 International Standard for exchange of name and address data. UPU S53 - as an extension of the S42 elements - facilitates exchange of name and address data between postal authorities, businesses, mailers and other organizations. It incorporates the S42 elements and templates.

It is desirable to compare what is adopted with best practices and to note global practices as may be adopted or standardized, to facilitate harmonization, interoperability as well as enable data exchange where this may be required.

This policy recommends adoption of these standards to assist in application of existing knowledge from experiences of the practices in other countries, cooperative information processing with other countries and will assist Kenya to tap into the resources of global or regional agencies.

### **2.13.2 Case Studies**

In addition to the international ISO and UPU standards, the policy recommends other reference models which have been applied in other jurisdictions such as the European Union, Australian and New Zealand, South African, Ghana, United Kingdom and the United States.

#### **2.13.2.1 Infrastructure for Spatial Information in the European Community**

Infrastructure for Spatial Information in the European Community (INSPIRE) is an European Union initiative to establish an infrastructure for spatial information in Europe that is geared to help to make spatial or geographical information more accessible and interoperable for a

wide range of purposes which include address generation. INSPIRE provides data specification on addresses standard that defines the data specifications for addresses within the European Union member states. The specific Data Specification on Addresses standard harmonizes the complexities resulting from different administration and management of addresses in the various EU member states by providing a homogeneous data specification and application schema for addressing within the European Community.

#### **2.13.2.2 Ghana**

In 2010, Ghana launched the National Policy Document and Operational Guidelines on Street Naming and Property Addressing System. These documents provide local metropolitan, municipal and district assemblies (MMDAs) with guidance to develop land-use plans for their cities as well as to name existing thoroughfares.

#### **2.13.2.3 South Africa**

The South African Bureau of Standards (SABS) developed a South African National Standard (SANS) in 2004 for 'a standard framework for South African addresses', subsequently designated as SANS1883. The standard established a geographical information system (GIS) based addressing system with a national address database and consists of three parts:

- a) SANS/WD 1883-1, Geographic Information – Address Standard, Part 1: Data format of addresses.
- b) SANS/WD 1883-2, Geographic information Guidelines for addresses in databases, data transfer, exchange and interoperability.
- c) SANS/WD 1883-3, Geographic information – Guidelines for address allocation and updates.

The objective of the SANS 1883-1:2009 is to enable interoperability in address datasets that will facilitate developing a national address database. This standard specifies and defines the data elements, as well as the address types that can be constructed from the data elements for South African addresses. The standard further defines terms and definitions related to addresses in South Africa. The SANS 1883-1:2009 supports:

- a) the allocation and management of addresses.
- b) the recording.
- c) the geo-coding and spatial representation of addresses.
- d) the delivery of services throughout South Africa; and
- e) the national developmental objectives.

#### **2.13.2.4 United Kingdom**

In the United Kingdom, street naming and property numbering is a statutory Council function. The relevant powers for local authorities are contained in Sections 64 and 65 of the Towns Improvement Clauses Act 1847, and Sections 17, 18 and 19 of the Public Health Act of 1925. These Acts require the local authority to prepare street naming and numbering schemes and to maintain a good standard of street nameplates. The Public Health Act 1925,

Section 19 gives authorities the power to insist that the name of every street shall be shown in a conspicuous position and, also alter or renew it if it becomes for any reason illegible. This section also makes it illegal to pull down or remove a street name, which has been lawfully set up, or to fix a notice or advertisement within close proximity to the sign. These acts also give the Council the ability to produce regulations concerning the erection of signs for the names of public streets and ensure that the names and numbers of all buildings are displayed by their owners in accordance with these regulations.

### **2.13.2.5 Australia and New Zealand**

The AS/NZS 4819:2011 standard for Rural and Urban Addressing provides requirements and guidance for addressing authorities to use for assigning addresses, naming roads and localities, recording and mapping the related information, and related signage in Australia and New Zealand. This Standard provides requirements and guidance relating to:

- a) assigning addresses.
- b) naming roads and localities.
- c) recording and mapping the related information; and
- d) signage related to the above.

Western Australia developed an Address Management Policy authorized under Public Sector Commissioner's Circular 2013-03 Policy Framework and Standards for Address Management in Public Sector Entities. The purpose of the policy is to enable agencies to better capture, store, manage and exchange information that includes an address component. The policy defines the authoritative sources of address information and gives the standards that define the address data components.

### **2.13.2.6 United States of America (USA)**

The Federal Geographic Data Committee (FGDC) published the United States Thoroughfare, Landmark and Postal Address Data Standard.<sup>8</sup> The Standard which was endorsed in 2011 was created to:

1. Provide one standard that meets the diverse address data management requirements for local address administration, postal and package delivery, emergency response (and navigation generally), administrative recordkeeping, and address data aggregation.
2. Support the use of best practices in address data management.
3. Provide a systematic, consistent basis for recording all addresses in the United States.
4. Define the elements needed to compose addresses and store them within relational databases and geographic information systems.

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<sup>8</sup> FGDC is a United States government committee which promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis (<https://www.fgdc.gov>).

5. Define the attributes needed for address documentation, mapping, and quality testing, including address ID's, coordinates, and linear reference locations. Provide a complete taxonomy (systematic classification) of US addresses that is useful to address data managers.
6. Introduce the idea of the address reference system—the formal description of the local address assignment rules, both spatial and non-spatial—and define its elements and attributes, as a basis for address assignment and quality testing.
7. Define tests and procedures for address data quality testing, error-trapping, and anomaly identification.
8. Support seamless exchange of address information, and foster consistent implementation of the standard, by defining XML models for every address element, attribute, and class, integrated into a single XML Schema Document.
9. Offer a migration path from legacy formats to standards-compliant ones.
10. Recognize, as a practical matter, that different business purposes and different data sources will require different levels of complexity in address data records, files and repositories.
11. Build on existing addressing publications and standards from other federal agencies such as the United States Postal Services, the Census Bureau TIGER, the FGDC Content Standard for Digital Geospatial Metadata, the FGDC's National Spatial Data Infrastructure (NSDI) Framework Data Content Standard, and previous FGDC address standard efforts.

The Standard covers thoroughfare, landmark, and postal addresses within the United States, including its outlying territories and possessions and contains four parts: address data content, classification, transfer, and quality:

- a) Address Data Content, the standard provides semantic definitions of a set of objects. It specifies and defines the data elements that may appear in or describe street, landmark, and postal addresses, and address reference systems.
- b) Data Classification, the standard provides groups or categories of data that serve an application. It defines classes of addresses according to their syntax, that is, their data elements and the order in which the elements are arranged.
- c) Data Quality, the standard describes how to express the applicability or essence of a data set or data element and include data quality, assessment, accuracy, and reporting or documentation standards. It specifies tests and measures of address data quality.
- d) Data Exchange, the standard describes how to produce or consume packages of data, independent of technology and applications, to facilitate moving data between agencies and systems. It provides a complete XML schema description for exchange of address data.

The Standard covers each of the main types of addresses found in the United States, and provides a framework for classifying them, understanding their component parts and attributes, testing their quality, and organizing them for exchange with other agencies and the public.

These examples provide Kenya with reference models for application in the conceptualization of Kenya's National Addressing System Framework. Key to note is the adoption of national or common standards that offer guidance to multiple layers of administrative units, such as envisioned in Kenya's addressing framework – a national framework to guide the role out of addressing in all 47 counties.

DRAFT

# CHAPTER 3

## 3.0 POLICY STATEMENTS

### 3.1 Development of a Policy and Regulatory Framework for National Addressing

Kenya lacks a comprehensive policy and legal framework that limits the effective implementation National Addressing best practices. The aim of this Policy and subsequent legal framework is to promote appropriate quality practices, enhance service delivery, as well as promote competitiveness of the country. A policy and regulatory framework will ensure that compliance and enforcement of the use of national addressing can be achieved. In order to provide a conducive legal and regulatory framework for National Addressing, this policy recommends the following interventions:

- a) Formulate laws to guide effective national addressing in the country
- b) Develop and implement regulations for national addressing and naming

### 3.2 Development of a National Addressing System of Kenya Institutional Framework

The country requires an institutional framework to manage the various players and components. This policy recommends the following interventions to build inter-institutional framework for addressing:

- a) Establish an institutional framework to manage addressing in Kenya.
- b) Establish mechanisms to guide access and sharing of addressing data among institutions.
- c) Develop procedures to govern addressing operations within and among institutions; and
- d) Establish mechanisms to ensure seamless connection of services between devolved and national government in sharing of addressing data.

### 3.3 Development of Unique Address Format for Addressable Objects

The Government *will develop a unique address format for addressable objects*. The National Addressing System of Kenya address will be geo-coded to enable its spatial location. This policy stipulates that National Addressing System of Kenya addresses will be issued to all addressable objects in Kenya. Therefore, the policy calls for the following:

- a) Design, development and adoption of a unique address scheme for all addressable objects
- b) Development of mechanisms and procedures to allocate and issue addresses.
- c) Development of a digital National Addressing Information System.
- d) A framework to offer NAS as service to other systems through API's to support services such as e-commerce, navigation and ride hailing services.

### **3.4 Development of National Addressing Standards**

The addressing standards will serve as guidelines to assist in development, coordination, implementation, and management of National Address System. The Standards will define the numbering system to be adopted and other relevant parameters to be observed in the generation of addresses. The policy recommends registration of addresses by every person who owns or occupies a property, building or other physical feature in Kenya. It also provides for assignment of addresses, principles of a national addressing which includes assigning in a unique address to each property, building or other physical feature which distinguishes it from all other addresses in the country and a format and structure of addresses shall be consistent throughout the country, to ensure ease of use and accuracy in addressing. The policy also proposes a format of addresses as well as verification of addresses to ensure accuracy.

The policy recommends the design and establishment of the following standards:

- a) National Addressing Standards of Kenya
- b) NASK Data Standards will provide the following;
  - i. Guidelines that define the data elements for addressing in Kenya. The guidelines and standards will ensure a common addressing data format for the data that will be used by National Addressing System of Kenya.
  - ii. Addressing Data Specifications that will define the terms and definitions related to addressing data in Kenya including: their attributes, metadata, and conformance specifics on the addressing data semantic requirements that are mandatory for the various government agencies and organizations; and
  - iii. Provide a framework for verification of addressing data.

### **3.5 Development of National Guidelines for Naming**

Names are an important component for the development of a NASK Addresses. This policy therefore recognizes that the mandate of naming is within various institutions. The Government will under-take the following policy measures:

- a) Develop national naming guidelines based on legislative and regulatory frameworks that consider principles of public participation as guided by the Constitution, national heritage, local culture and languages.
- b) This policy provides the following naming guidelines at the national and county levels.
  - I. Historical names of places, people, events from Kenya and selectively from the rest of Africa.
  - II. Names of African insects, birds, animals, plants etc. either in Swahili or local languages.
  - III. Geographical names of Kenyan and, selectively, African rivers, mountains, plains, hills, water bodies, villages, towns, marketplaces, etc. Names of African countries could also be used.
  - IV. Names of departed freedom fighters and other Kenyans of known repute who either gave up their lives for Kenya or whose life contribution assisted substantially in the fight for our independence.
  - V. In consultation with the Ministry of Defense names of modern-day heroes who have lost their lives in service for the country.

- VI. Important cultural artifacts like various traditional attires, customs, social events, etc. either in Swahili or local languages.
- VII. Abstract names in Swahili which have special national significance such as Umoja, Amani and Shujaa.
- VIII. Names that have national significance and denote Kenyan pride. The policy discourages the usage of names of living political figures but encourages the use of names of living heroes as identified by Kenya's Heroes Act, 2014.

### **3.6 Review of Postal Codes by the Postal Corporation of Kenya (PCK)**

The current post-codes are outdated and therefore will need to be reviewed so that they can be integrated into the National Addressing System. This will ensure conformity to international standards, operational interoperability, and alignment with regional and global requirements.

*This policy calls for PCK to review Kenyan post codes to align international standards and to reflect the administrative changes that have occurred in Kenya since the year 2010.*

### **3.7 Create Awareness on National Addressing**

The National Addressing System of Kenya is designed for all Kenyans as a public service to aid in Kenya's socio-economic development. The government will create awareness on the National Addressing System. The Government will, therefore, undertake the following:

- a) Promote and support the creation of mechanisms that contribute to high levels of awareness and knowledge dissemination; and
- b) Develop effective awareness programs for industry especially MSMEs and establish awareness programs that are inclusive.

## CHAPTER 4

### 4.0 POLICY COORDINATION AND IMPLEMENTATION

Various government agencies at both the national and county levels will play significant roles in the implementation and management of national addressing. The following agencies will be responsible for rollout addressing;

#### 4.1 Ministry Responsible for Addressing and Postal Services

Currently, the mandate of the Ministry of Information, Communications and The Digital Economy is derived from Presidential Executive Order No.1/2022 and comprises the formulation of policies and laws that regulate standards and services in the Information, Communications and The Digital Economy, telecommunications in the media industry.

The Ministry's role in the circumstances will be to ;

- a) Develop and review an enabling policy for the deployment and maintenance of a National Addressing Framework.
- b) Initiate and support the roll out of the National Addressing in Kenya through pilot programs with county governments and

#### 4.2 Communications Authority of Kenya

This policy delegates the responsibility for National Addressing, Naming and Numbering Management to the Communications Authority of Kenya(CA) . The role of the CA will include:

1. Establish, manage, maintain, and act as custodian of the National Addressing System.
2. Interface with national and county governments to ensure that all addressable objects in Kenya can be identified by an address allocated and assigned.
3. Develop, implement, and monitor guidelines and standards for Addressing in Kenya.
4. Manage the use of shared infrastructure for the purposes of proper implementation of addressing and implementation of a robust and secure National Addressing System.
5. Promote dialogue on addressing to facilitate alternative dispute resolution mechanisms.
6. Provide advisory services on matters related to the addressing.
7. Interface with holders of address data.
8. Manage National Addressing System of Kenya as a consumer service.
9. Build capacity development to ensure effective implementation, monitoring and management of addressing.
10. Promote and raise awareness on national addressing in Kenya.
11. Any other functions as may be directed by the Cabinet Secretary

### **4.3 Functions of County Governments**

The County governments be the interface for NASK at the county level. For this purpose, they shall be responsible for ensuring address data provided and signage is compatible with required standards.

### **4.4 National Addressing Compliance**

Overall custody of the National Addressing System of Kenya will be under the Communications Authority of Kenya, which will be responsible and accountable for the overall development, maintenance and utilization of the system. This includes monitoring and enforcement of the implementation of prescribed standards thereby guaranteeing consistency and quality for all stakeholders.

The authority to enforce national compliance with the NASK Standards will be vested in the Communications Authority of Kenya and will ensure the National Addressing System of Kenya is adopted as set out in the Standards. At the county level, the County Addressing Unit shall have authority to enforce local compliance with National Addressing System of Kenya, including the authority to:

- a) Approve any changes to existing street names.
- b) Approve all applications made by property developers for new access ways and related street names.
- c) Ensure conformity with the standards set out for street name signage and property addressing.
- d) Require service providers within a county to adopt the NASK address set out in the Standards.
- e) Require any non-compliance to be remedied within a specified timeframe; and
- f) Institute fines for continued non-compliance.

## **CHAPTER 5**

### **5.0 MONITORING AND EVALUATION**

The Communications Authority in conjunction with the Ministry will monitor and evaluate the status of implementation of the policy, through the following interventions:

- a) Build human and institutional capacity within the relevant institutions to effectively undertake monitoring and evaluation.
- b) Establish sector-wide monitoring and evaluation frameworks and plans to ensure policy interventions are achieved; and
- c) Undertake monitoring through continuous data and information collection during policy implementation period.

### **5.1 Policy Implementation**

The implementation of this Policy and shall be vested in the Communications Authority of Kenya.

### **5.2 Policy Review**

This Policy shall be reviewed in five (5) years to address the efficacy of implementation and maintenance of National Addressing System of Kenya at both the national and county levels.