



**REPUBLIC OF KENYA**

**MINISTRY OF ICT, INNOVATION AND YOUTH AFFAIRS**

**NATIONAL ADDRESSING POLICY**

**Draft**

**June 2021**

DRAFT FOR PUBLIC PARTICIPATION

## FOREWORD

The National Addressing Policy comes at a time when Kenya is undergoing unprecedented digital transformation. Technological innovations driven by accessible internet, a skilled youth and entrepreneurial culture has culminated in the growth of technological based start-ups which are driving the digital economy and have increased Kenya's e-commerce culture.

As a nation, we are witnessing a fundamental change in our way of life. The way in which we have traditionally worked, conducted business, and socially interacted has over the last decades seen a shift into the digital sphere. The use of digital technologies for social and economic activities has seen a rapid adoption during the COVID-19 pandemic as a result of the necessary protocols to contain the spread of COVID-19.

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. A growing population of Kenyans now shop online, and in most urban areas Kenyans are now utilizing ride hailing companies for their movement.

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

There is no doubt that the success of the roll out and implementation of the National Addressing Framework, depends on the combined efforts of all Kenyans. It will also require commitment and synergies both at the national and county governments as well as the private-sector support. Given the potential of a National Addressing Framework to improve people's lives, my ministry commits to driving these efforts to its full actualization.

Sincerely

**Joe Mucheru, EGH**

## TABLE OF CONTENTS

FOREWORD .....	ii
TABLE OF CONTENTS.....	iii
ABBREVIATIONS AND ACRONYMS.....	v
KEY POLICY DEFINITIONS.....	vi
EXECUTIVE SUMMARY .....	viii
CHAPTER 1: INTRODUCTION AND BACKGROUND.....	1
1.1. Introduction .....	1
1.2. Background.....	2
1.2.1 Vision 2030 .....	2
1.2.2 National ICT Policy Guidelines 2020 .....	2
1.2.3 Digital Economy Blueprint .....	3
1.2.4 The Sustainable Development Goals .....	3
1.3. Rationale for National Addressing System Framework.....	3
1.3.1 National addressing for Public Service.....	4
1.3.2 National Addressing System to Support E-Commerce.....	4
1.3.3 National Addressing to Support Services.....	4
1.3.4 National Addressing for Social Cultural Activities.....	5
1.3.5 National Addressing and Regional Integration .....	5
1.3.6 A Localized National Addressing for Kenya .....	5
1.4. Policy Goals and Objectives.....	6
1.4.1 Goals.....	6
1.4.2 Objectives .....	6
1.4.3 Vision .....	7
1.4.4 Mission.....	7
1.4.5 Guiding Principles and Values .....	7
1.5. Scope of the Policy.....	9
1.5.1 Policy Development Process.....	9
CHAPTER 2: SITUATIONAL ANALYSIS OF NATIONAL ADDRESSING IN KENYA.....	10
(i) The Constitution of Kenya, 2010 .....	14
(ii) The Kenya Information and Communications Act, 1998 (KICA) .....	15

(iii) Postal Corporation of Kenya Act, 1998.....	15
(iv) The County Governments Act, 2012.....	15
CHAPTER 3: THE KENYA NATIONAL ADDRESSING FRAMEWORK.....	22
3.1 A National Addressing Conceptual Framework.....	22
3.2 National Addressing Framework - Naming.....	22
3.3 A Digital System.....	23
3.4 National Addressing Standards.....	24
CHAPTER 4 POLICY COORDINATION AND IMPLEMENTATION.....	27
4.1 Ministry of ICT, Innovation and Youth Affairs.....	27
4.2 National Addressing Council.....	27
4.3 Office of the Registrar of Addresses (ORA).....	28
4.3.3 Office of the Registrar of Addresses and NASK Management.....	30
4.4 County Governments.....	31
4.4.1 County Addressing Coordination Committee.....	31
CHAPTER 5: MONITORING AND EVALUATION.....	32
5.1 Policy Implementation.....	32
5.2 Policy Reporting.....	32
5.3 Policy Review.....	33

DRAFT FOR PUBLIC PARTICIPATION

## ABBREVIATIONS AND ACRONYMS

API	Application Program Interface
CA	Communications Authority of Kenya
CACC	County Addressing Coordination Committee
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
NAC	National Addressing Council
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
MSME	Micro, Small and Medium Enterprises
UN	United Nations
UPU	Universal Postal Union

## KEY POLICY DEFINITIONS

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

“**Addressing**” means the naming of streets and the numbering of properties for purposes of allocating addresses.

“**Address data**” means any data required by the National Addressing System including land parcels boundary data, parcel numbers, registration sections, registration dates, retirement dates, road centrelines, road classes, road identification, road names, county boundaries, national boundary, ward boundaries, constituency boundaries, buildings, building units, building complexes, street names, geographical names and aerial imagery.

“**Addressable object**” means a street, property or any object that can be allocated an address.

“**Cadastral**” (map or survey) means showing the extent, value and ownership of land, especially for taxation purposes.

“**Cabinet Secretary**” means the Cabinet Secretary who is for the time being responsible for matters related to addressing.

“**Child Address**” uniquely identifies a building or development(s) within a parent address. A child address usually does not have private direct access to a thoroughfare.

“**Council**” means the National Addressing Council proposed by this Policy to be established in statute;

“**County Committee**” means the County Addressing Coordination Committee proposed by this Policy to be established in statute;

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

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

“**Geo-referencing**” means the process that establishes a (mathematical) relationship between paper coordinates (example: centimeters or millimeters) on a planar map and actual (geographic) coordinates. The coordinates of a certain number of points (registration points or ticks) must be known in both systems for geo-referencing.

“**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.

**“Information”** has the meaning assigned to it under section 2 of the Access to Information Act;

**“National Addressing Framework”** means the National Addressing Framework proposed by this Policy to be established in statute;

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

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

**“Nyumba Kumi”** a strategy 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>.

**“Office of the Registrar”** means the Office of the Registrar of Addresses proposed by this Policy to be established in statute;

**“Parent Address”** This uniquely identifies a property, being a land parcel or building, which has frontage on a street or other thoroughfare. It comprises the elements of property identifier, thoroughfare identifier and locality.

**“Registrar”** means the Registrar of Addresses proposed by this Policy to be responsible for the Office;

**“Street Addressing”** means a system used to locate a building or property, using the street name and a main entrance number. It involves sign installation, numbering the main entrance of buildings, mapping and recording these data.

**“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. Usually on land but can also be over water bodies.

---

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

## EXECUTIVE SUMMARY

Addresses are accepted as an essential tool for economic and social development globally. Accurate and reliable addressing information is critical to modern-day emergency service delivery, planning and spurs business growth. A National Addressing Framework provides for the naming, numbering and allocation of addresses for addressable objects such as streets and properties. The Framework also provides a standardized and easily verifiable naming and addressing information and will promote the uptake of e-Commerce and improve service delivery.

National Addressing Policy provides the foundation for developing a legal, institutional, and regulatory framework for National 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) that will be the foundation for the NASK roll-out in Kenya. The policy calls for the establishment of a scalable, resilient, immutable, and secure National Addressing System, whose custodian will be the Office of the Registrar of Addresses (ORA).

The Policy further calls for a collaborative framework between various agencies in both the national and county governments. The successful implementation of National Addressing Framework will rely heavily on collaboration between all relevant stakeholders at the national level and the 47 county governments. This policy sets the stage for developing a vital asset in Kenya that will be utilized by both the public and private sectors, enhancing trade and inclusivity in service delivery and contributing positively to the country's GDP.

## 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 all implementations 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.

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, such as public standpipes, streetlamps, and taxi stands also get addresses. United Nations Economic Commission for Africa (UNECA) defines 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>

International Standard Organization (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> This policy adopts this definition. 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.

The Universal Postal Union (UPU) states that addresses can either be direct or indirect references to places.<sup>5</sup> 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 advent of technology, geo-mapped or coded. This offers

---

<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)

addressing system precise location information. However, in most cases, this is limited by the availability of cadastral maps or data.

Development of a national addressing system for Kenya provides an opportunity to build a centralized database of addresses which will be recommended to be designated as a critical information infrastructure 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 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 benefit the population, county governments, and the private sector.

## **1.2. Background**

### **1.2.1 Vision 2030**

The Kenya Vision 2030 is the national long-term development blueprint that aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment. 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-centered, 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.

### **1.2.2 National ICT Policy Guidelines 2020**

Kenya's National ICT Policy provides a framework that will help realize the potential of Kenya's digital economy by creating an enabling environment for all citizens and stakeholders. The policy provides Kenya's vision for various aspects in Kenya's ICT sector. Specifically, the policy 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 online transactions and calls for the establishment of a homogenous National Addressing System.

---

<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.

### **1.2.3 Digital Economy Blueprint**

Kenya's Digital Economy Blueprint is the anchor document for Kenya's digital transformation and is anchored on five key pillars. These are: providing affordable, accessible, and reliable digital 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 with remarkable evidence of e-commerce and gig-economy growth, technology companies such as riding-hailing companies having established a footprint in Kenya. Kenya is regarded as the Silicon Savannah and is full of experiences of the transformative power of innovation and digital technologies. NASK will open up new avenues for innovation through utilization of the NASK database. Notably, the development of this policy comes at a time when Kenya is leapfrogging its digital transformation; a 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 The Sustainable Development Goals**

Sustainable Development Goals (SDGs) are a set of 17 SDGs and covers 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 ("build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation") and other goals such as 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 Framework is important as it creates a user-friendly environment that facilitates movement and locating places. Addressing is also deemed as essential in the facilitation of socio-economic development particularly in e-commerce and public service delivery.

### **1.3.1 National addressing for Public Service**

These include emergency and public safety 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. Since 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. This may result in loss of life and/or destruction of property. This is a huge loss to society and a drain on the economy.

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

To support e-commerce, an effective national addressing system ensures that effective delivery of mail, goods, parcel, 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. Additionally, individuals without post office boxes are forced to rely on others who have addresses to receive packages or they simply cannot receive them through delivery services. Delivery services are, thus, limited where it is difficult to locate places. Comprehensive street names and property addresses reduce delays because of the trips which have to be made to the post office and therefore make postal delivery services more efficient. The benefits of efficient delivery services are not, however, restricted to individuals. With time considered to be "the soul of commercial transactions" businesses, industrial establishments, and commercial activities depend 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 also used for a wide range of private and public services such as planning and utility services such as telecommunications, electricity, water and sewerage. Furthermore, without a standard address system by which an individual can be identified, accessing credit becomes a challenge particularly for individuals simply because a person's identity cannot be easily verified.

In some jurisdictions, proof of a physical address is essential for many financial transactions such as opening an account at a bank or a store, or even obtaining a sim-card for a mobile phone. Small and medium scale enterprises in developing countries also find it difficult to access credit because they are considered high risk investment and operate under greater external 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 identification system which is based on a system of spatial referencing financial institutions are more willing to offer credit to individuals and small businesses as it reduces the risk factor.

#### 1.3.4 National Addressing for Social Cultural Activities

Social and cultural activities such as religious gatherings and entertainment are part of the fabric of daily activities undertaken by residents, visitors, and tourists. Businesses in the hospitality sector, such as hotels, guest houses and holiday destinations, need a reliable form of street addresses to help customers access these locations. 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 significance as Kenya's increased economic growth which will have far reaching effects in neighboring countries. An addressing system will provide a single source of truth for all addresses in Kenya and boost digital business, digital government and, in general, Kenya's digital transformation as envisioned in Kenya's Digital Economy Blueprint.

#### 1.3.6 A Localized National Addressing for Kenya

A national addressing system framework will set in place standards, a conceptual framework that considers local context, culture, traditions and public engagement in its execution. In addition, it will provide for an authoritative and immutable addressing digital registry that will have multiple user cases for individuals, businesses, and government. The development of a national addressing framework in Kenya will therefore assist in the following ways:

- (i) **Identification:** An addressing system is used by town authorities as a tool for the identification of individual residents. With a functional address system, a person's identity can 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.
- (ii) **Digital Economy and Service Delivery:** An addressing system will support the growth of a vibrant e-commerce industry. A national addressing framework is the key to e-commerce, e-trade, e-government, digital financial services, e-navigation, and modernization of postal services. The national addressing framework therefore, has potential to leapfrog Kenya's digital economy through the added efficiency of locating businesses and persons. The National Addressing Framework will facilitate identification which will in turn facilitate provision of numerous services among them modern ICT

services such as e-commerce and door-to-door mail delivery, enhance communication and support various essential services to citizens and government mandate by respective agencies.

- (iii) **Planning:** Information on location of the land allows planning to proceed in a more coordinated manner as planners have knowledge 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, unemployment patterns, if any, 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 the city and is helpful in promoting the successful implementation of representative democracy.
- (iv) **Revenue Collection:** A national addressing framework is 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.

#### 1.4. Policy Goals and Objectives

##### 1.4.1 Goals

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). Six key objectives have been identified as follows:

- (i) **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.

- (ii) **Infrastructure:** Develop a secure, immutable national repository that is the foundation for a National Addressing System of Kenya (NASK) that serves as the single source of truth for all address data and addressing information.
- (iii) **Partnership:** Provide a framework for Addressing within national and county governments in view of the devolved functions.
- (iv) **Integration and Collaboration:** Provide a framework to leverage on the input of existing mapping and postal infrastructure for the benefit of developing an authoritative Kenyan national addressing framework.
- (v) **Technology:** Provide a supportive framework for NASK to leverage on existing technologies and new and emerging technologies for addressing
- (vi) **Service Delivery:** Provide for the utilization mechanisms for private and public users to plug into NASK for enhanced delivery of services.
- (vii) **Research and Development:** Continually improve on the socio-economic benefits accrued from the implementation of uniform Addressing in Kenya.

#### 1.4.3 Vision

Quality, standardized national addressing framework to spur our socio-economic development.

#### 1.4.4 Mission

Establish an integrated National Addressing Framework for Kenya.

#### 1.4.5 Guiding Principles and Values

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

- (i) **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.

- (ii) **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.
- (iii) **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.
- (iv) **Devolved Governance:** Kenya is divided into 47 counties that are headed by governors. 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.
- (i) **Open Data** – wherever possible Addressing will reuse existing spatial data on addressable objects. Address data should also be accessible at no cost as permitted by the Laws of Kenya on access to information and data protection.
- (ii) **Private Sector and Academia** – the 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.
- (iii) **Public Good** – the policy promotes Addressing as a public good that will serve the interests of all Kenyans. This means that Addressing should never become a burden to the taxpayer or a reason for discrimination.
- (iv) **Interoperability** – the National Addressing standards will seek to accommodate all addressing types that are currently in use to ensure ease of implementation and adherence.
- (v) **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 SDGs: **SDG-9:** Industry,

Innovation and Infrastructure - Build Resilient Infrastructure, Promote Inclusive and Sustainable Industrialization and Foster Innovation. **SDG-11: Sustainable Cities and Communities - Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable**

## **1.5. Scope of the Policy**

This policy applies to all streets, properties, and all addressable objects in Kenya. It has been developed for adoption by the National and County governments and any other entity that hold address data.

### **1.5.1 Policy Development Process.**

The Ministry of ICT, Innovation and Youth Affairs set up National Addressing System Steering Committee that comprised of representatives of various key actors both 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 Technology, 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 was the Communications Authority of Kenya.

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 ICT, Innovation and Youth Affairs 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, stakeholder consultations and public participation were conducted online through interactive video conferencing platforms, websites, social media and e-mail, views were elicited on existing challenges and opportunities facing the sector, with stakeholders covering all the 47 counties.

## **1.6 Covid-19**

In 2020 and 2021, COVID-19 affected all countries around the world, Kenya like all other countries was forced to implement restrictive containment measures to manage the pandemic and embraced technology to carry out contact tracing of possible Covid-19 cases. Pandemic mitigation measures such as tracing of persons, lockdown and containment and providing emergency assistance all call for the quick identification of citizens. This brought to the forefront the need to roll-out an addressing system framework in Kenya and emphasized the need for a framework that is reliable and efficient to aid in the delivery of services to Kenyans. It is amidst this backdrop that this policy has been developed and it is envisioned that its implementation will be expedited as an additional measure in the management of the Covid-19 pandemic.

## **CHAPTER 2: SITUATIONAL ANALYSIS OF NATIONAL ADDRESSING IN KENYA**

Kenya lacks a coherent nation-wide addressing system framework to the detriment of its socio-economic development. Business transactions increasingly move online, but challenges in last mile delivery are a major hindrance to the growth of e-Commerce. Inaccurate and inaccessible address information further impede emergency response and national security. Currently, there is no consolidated, unique and harmonised legal and policy framework on addressing in Kenya. However, the lack of a national addressing framework has not inhibited addressing efforts within Kenya.

### **1. 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 which have come with the advent of 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 P.O. Box address elements as part of a single address.

## **2. Efficient and Cost-Effective Last Mile Delivery of Goods and Services.**

Despite the heterogeneous systems at play in Kenya, delivery and location of places is limited and challenging, especially for people who are not familiar with a certain geographical area, resulting in delays, increased inefficiencies, and high costs. The Couriers Industry Association (CIAK) reports that the lack of a unified addressing system translates to delays in delivery due to time used 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 and even military troop movements, particularly in emergency situations. Unreliable locational data is a major obstacle to the positive and prompt deployment of emergency services, including national security services. Police attempting to locate criminals, medics traveling to save lives and the deployment of anti-terrorism personnel all rely, in some form or another, on reliable and effective addressing systems. There have also been numerous reports of ambulance and fire services unable to expeditiously locate those in need of their services and this has resulted in immense losses, including loss of human life.

## **3. 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 urban areas and rural areas and informal settlements. 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 commonly roads are unofficially named by locals based on where the road goes to and from, e.g. Mombassa Road or Nakuru Road.

## **4. Postal Codes and Postal Services**

Kenyans have traditionally utilised post offices for delivery of mail with an option of engaging courier service providers. Postal services therefore remain as an essential tool for communication. The rise of e-commerce and consequential need for last mile delivery mandates PCK to re-invent its systems to align to geo-spatial located postcodes. NASK integration with postcodes will assist in more effective last mile delivery and mail routing, however for this to be done PCK has to review its current post-codes.

In 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 this numbering

scheme was exhausted in 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 districts, 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 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. Consequently, it is imperative that the design of a new postcode system is considered.

#### **5. National Guidelines for Street Naming and Property Numbering.**

Though limited, there exists street naming and property numbering within Kenya.<sup>7</sup> 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 Nairobi appear to be in honor 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 a guideline and standards will assist in development of a national framework to guide the national addressing initiative.

Although there is a lack of a unified national addressing framework, it is the norm for counties to carry out naming of streets, buildings, roads and other addressable objects, as part of their planning functions.

#### **6. 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 Nairobi and other parts of the country that ad hoc street name plates have been erected but these are not ubiquitous or available for every street and at best are aimed at pedestrian navigation rather than vehicular use. The large majority of roads in rural areas and informal settlements in Kenya are both unnamed and unmade. This provides both a blank canvass onto which it will be easier to introduce a street naming and property numbering scheme and systematic approach to naming streets and numbering properties, but care should be taken to ensure local context, tradition and engagement activities are fulfilled with the introduction of any new system.

---

<sup>7</sup> Nairobi Metropolitan services estimates that there are only 40% of streets and roads named in Nairobi.

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.

## **7. Multiple Players and Data Contributors for a Geo-Coded Addressing in Kenya.**

This policy recommends NASK addresses to be geo-coded. The availability of large-scale digital mapping and aerial imagery for the whole of Kenya will therefore be an important requisite. The availability of such data will permit a higher degree of data quality and accuracy of address information.

### **7.1 Multiple Data Contributors.**

Geospatial data for Kenya exists and resides in various institutions which include Survey of Kenya, Kenya Roads Board, IEBC and county governments.<sup>8</sup> The Kenya's national addressing framework will therefore be depended on many 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. The mandates for mapping and developing GIS lies within another state department and therefore a collaboration framework will be crucial for NASK actualization.

### **7.2 Addressing is a responsibility of both 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, local administrations are responsible for uniformity of street naming and property numbering within their administrative areas but in adherence with established procedures and standards. The purpose of this control is to make sure that any new street names and property numbers are allocated logically to ensure amongst other things, the effective delivery of mail and the location of addresses by the emergency services. Clear, unambiguous property addresses are therefore essential. Whilst the appropriate legislation exists for county governments and the Road Authorities to name and number land parcels and roads some further work is recommended to ensure that compliance and enforcement of the use of national addressing can be achieved.

---

<sup>8</sup> (1) Survey of Kenya (SOK): Contains information regarding Land Parcels Boundary, Parcel Number, Registration Section (Source), Registration Date and Retirement Date. (2) IEBC: Contains information regarding County Boundaries, National Boundary, Ward Boundary, Constituency Boundary". (3) KRB: Contains information regarding Road Centrelines, Road Class, Road ID, Road Names and (4) County Government: Contains Information regarding Buildings, Building Units, Building Complexes and Street Names.

## 8. Constitutional, Legislative and Regulatory Framework.

The National Addressing Framework should adhere to the current laws of Kenya that guide the national and county functions. It will be crucial for the Framework to define the roles of both national and county governments. At the county levels how county governments will engage with communities to ensure implementation, public awareness and alternative dispute resolution in relation to addressing matters. The National Addressing Framework will therefore be guided by the following constitutional, legislative and regulatory provisions.

### (i) 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. The Constitution defines planning as a concurrent function.

Articles 186(1) and 67(2)(h) of the Constitution, and the Fourth Schedule assign planning functions to both the national and county governments. The Article delineates the respective functions and powers of the national government and the county governments, which are as set out in the Fourth Schedule. The Fourth Schedule of the Constitution contains 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. The NLC is responsible for monitoring and oversight of 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.

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

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

The Kenya Information and Communications (Numbering) Regulations, 2010 mandate CA 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.

**(iii) 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 travelers' 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
- c) electronic retail transfers and the National Payments System
- d) perform such other functions or duties as the Cabinet Secretary may, from time to time assign to it.

**(iv) 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.

### 9. 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 change to a large proportion of the population and therefore it is paramount that stakeholder engagement to 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.

### 10. 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</li> </ol>	<ol style="list-style-type: none"> <li>1. There are regional and continental forums such as African Union, Smart Africa 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> </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</li> </ol>

<p>war against corruption, especial relating to land titling.</p> <p>5. Legacy systems and processes have led to bureaucracies that hinder efficient delivery of projects that require collaboration of multiple stakeholders.</p> <p>6. The Council of Governors was 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>4. Kenya is ranked 56 out of 190 economies in the World bank ease of doing business.</p> <p>5. Kenya's economy is driven by mobile with 59.8M active mobile subscriptions as at September 2020 as per the Communications 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>platforms and local innovations to define their addresses.</p> <p>4. Work has been decentralized to offshore, outsourcing, freelancing and crowdsourcing modes that demand for identification of locations and people.</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>
--	---	---

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</p>	<p>1. Vision 2030, the National ICT Policy and the Digital Economy blueprint all call for a national addressing</p>	<p>1. Climate changes have increased the occurrence of natural disasters which require accuracy in providing</p>

<p>data and updating of cadaster maps;</p> <ol style="list-style-type: none"> <li>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 engineers, cyber security experts etc</li> <li>3. Kenya recorded the highest internet penetration rate in Africa in the year 2020, with 87.2% of population connected.</li> <li>4. Kenya has 4 submarine cables providing connectivity to the country.</li> <li>5. There is currently 9,000 km+ of fiber backbone across all 47 counties.</li> <li>6. There is rapid adoption and change in technologies which impacts demand for Government services and innovations in the private sector.</li> <li>7. There is a need for more focus and funding for Research &amp; Development incentives.</li> </ol>	<p>system that stimulates a digital economy</p> <ol style="list-style-type: none"> <li>2. There are structural and legal inadequacies that have hindered the development and implementation of a national addressing framework.</li> <li>3. Lack of laws and standards governing the Addressing both at National and County levels</li> <li>4. Technological advancements and solutions are being rolled out in environments with inadequate laws and regulations for digital trade and transactions</li> </ol>	<p>emergency response services.</p> <ol style="list-style-type: none"> <li>2. There is a need for adequate e-waste policy, laws and regulations that require a clear understanding of our landmass and potential.</li> <li>3. Every Kenyan is entitled to basic human rights, of which, the right to have an address facilitates government interventions to guarantee their rights.</li> </ol>
--	---	---

## 11. International Best Practices

## **11.1 Standards**

Standardization of addresses improves the efficiency of their usage across sectors. 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 no “one-size fits all” when it comes to adopting address assignment schemes. Further, the need to design, implement and maintain address schemes and standards that are reflective of national culture, traditions, language, the citizens, and existing systems. The aforesaid notwithstanding, International Standards can provide guidance for the development of standards to be adopted at a national level.

In our highly globalized world, the standardization of addresses through Countries has become increasingly important. Therefore, as Countries move to enter single digital markets and citizen trade on e-commerce platforms the need for address interoperability has also become increasingly important.

There are several the International Standards that should be considered in the development of the National Addressing Framework. The International Standards referred to below do not seek to develop new standards of addressing, but rather enable the interoperability of address datasets.

This policy recommends the adoption of International Standard Organization addressing standards and consideration of any other International Standards, including those listed below. The National Addressing Framework will be aligned and harmonized with UPU, ISO and any other national and international address and postcode standards.

## **11.2 International Organization for Standardization (ISO)**

The International Organization for Standardization (ISO) developed a suite of international standards for addressing. 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.

- (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.

### **11.3 Universal Postal Union**

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. 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:

- (i) apply existing knowledge from experiences of the practices in other countries,
- (ii) approach directly stakeholders of such systems in other countries for cooperative information,
- (iii) tap into the considerable resources of the Universal Postal Union (UPU) and similar global or regional agencies.

The Kenya Addressing structures will therefore seek to be compliant with the Universal Postal Union International Standard for Addresses and Postcodes. The relevant international address standards of the UPU are: UPU S42 International Postal Address Components and Templates; and UPU S53 International Standard for exchange of name and address data.

In addition to the ISO and UPU standards the policy recommends benchmarks with other National Addressing standards such as the Australian and New Zealand Standards as well as South African National Standards.

### **11.4 Australia and New Zealand Standards 4819:2011**

The AS/NZS 4819:2011 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. This Standard provides requirements and guidance relating to:

- (i) assigning addresses;
- (ii) naming roads and localities;
- (iii) recording and mapping the related information; and
- (iv) signage related to the above.

### **11.5 South African National Standards (SANS) 1883-1:2009**

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 the following:

- (i) the allocation and management of addresses;
- (ii) the recording;
- (iii) the geo-coding and spatial representation of addresses;
- (iv) the delivery of services throughout South Africa; and
- (v) the national developmental objectives.

## 11.6 Comparative Studies

Nations across the world adopt Addressing frameworks that are unique are specialized to their socio-cultural dynamics. This policy reviewed Addressing systems deployed in Ghana, South Africa, United Kingdom and Australia.

In 2010, Ghana launched the National Policy Document and Operational Guidelines on Street Naming and Property Addressing System. These policy 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.

The Standards South Africa, a division of the South African Bureau of Standards (SABS), in 2004 to develop a South African National Standard (SANS) for 'a standard framework for South African addresses', subsequently designated as SANS1883. SANS 1883 establishes a geographical information system (GIS) based addressing system with a national address database, SANS 1883 consists of three parts:

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

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.

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 give the standards define the address data components.

Addressing systems therefore vary not only in practicality but in their policy and legal frameworks.

## **CHAPTER 3: THE KENYA NATIONAL ADDRESSING FRAMEWORK**

### **3.1 A National Addressing Conceptual Framework**

Adopting a national addressing framework requires both social and technical considerations. Technical considerations as guided by international best practices and social considerations that are unique to the social and cultural traditions. An addressing system is therefore tied with the identities of individuals in a given locality and the methods of building a geodatabase influenced by spatial and cadaster data. Therefore, the development of Kenya's National Addressing Framework will be dependent on many stakeholders and will require collaboration and public participation. The National Addressing Framework will be a functional physical address system that will blend the technical features of that system with Kenya's socio-cultural environment.

### **3.2 National Addressing Framework - Naming**

This policy envisions that citizens will play a role in the establishment of a naming system and consequently, the street name will be an expression of the perceptions of place of the people residing in an area and its landmarks. national values and ethos and speak to the history and cultural heritage of Kenya. The policy therefore recommends that assigning of names to roads and public buildings is guided by:

- (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) Other 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.

### **3.3 A Digital System**

This policy recommends that the national addressing framework adopts ICTs to deploy a digital National Addressing System. Deployment of a digitalised addressing system will leapfrog national addressing from a naming and numbering exercise to a geo-map addressing system that will serve as an active asset with serviceable applications. This policy therefore further recommends a National Addressing System of Kenya (NASK) that will be geo-coded to ensure that addresses are matched with geographic coordinates on a map.

#### **3.3.1 National Addressing System of Kenya (NASK)**

It is envisioned that NASK will be integrated with other national systems as it will be reliant on existing cadastral mapping and other Geographic Information System (GIS). GIS mapping is a crucial process for capturing, storing, verifying, and displaying data related to locations/addresses and has been utilized in Kenya. GIS is recommended as it has the capability to various attributes of map data, such as streets, buildings, and vegetation and is essential for analytics and applications. It is therefore recommended that NASK is implemented using GIS for developing street addressing. It is envisioned that the National Addressing Framework will set out the institutional mechanisms to enable utilization of existing GIS mapping data and hence fast-track the roll-out of NASK. A Geo-coded NASK will also assist in the automation of some address allocation tasks which can be derived through geoprocessing algorithms without the need for resource extensive field data capture.

Due to the importance of NASK, this policy recommends that it is designated as critical information infrastructure in line with the provisions of the Computer Misuse and Cyber Crimes Act, 2018. Utilizing the myriads of datasets that will feed into NASK, the system will in turn analyze and translate these inputs to geo-coded unique addresses for all locations in Kenya. Address Generation will be an inherent component of NASK. The unique location identifier that will be generated will be regarded as the “NASK Address”. NASK will generate alpha numeric characters for each addressable object which will then be matched to the existing name and for those that are not named be allocated a name by the appropriate county government. The sequencing and the model of addresses that will be adopted in Kenya will be outlined in the National Addressing Standards discussed below.

### **3.3.2 NASK Database**

Another key component of NASK will be the database that will store NASK Addresses and other related address data and addressing information. The Database shall hold addressing information which includes the naming of streets, the numbering of properties, and or any other data that is relevant to the functioning of NASK including primary and auxiliary data.<sup>9</sup> These data sets will be integrated into NASK through the Kenya National Spatial Data Infrastructure.

The NASK Database will therefore be the repository for all addressing-related data. The database will be the single source of truth that provides verifiable and accurate addressing information for the continued deployment of NASK. The NASK Database will be a scalable, resilient, immutable, and secure system.

The NASK Database shall embrace emerging technologies in ensuring high performance, security, scalability, resilience, accessibility, compatibility, privacy and compliance. The Database will also offer interoperability to key NASK consumers such as utilities, financial institutions, eCommerce, telecommunication and mapping service providers.

## **3.4 National Addressing Standards**

Highlighted earlier is the unique nature of addressing as a socio-technical system. Naming and numbering primarily provides addressing (regarded as a social aspect) and its technical oriented back-end for user services. Both these aspects will require defined peculiarities that will ensure quality, reliability, usability and security. This policy therefore recommends the development and adoption of National Addressing Standards that will guide the development and implementation of addressing in Kenya.

The Standards will designate the “NASK Address” model that will be adopted by Kenya. It will define the parent (primary) and a child (secondary) address. A parent address format

---

<sup>9</sup> The Primary data sources are institutions with spatial data which include IEBC, KRB, National governments and mapping companies, among others. Auxiliary data sets are the derived from the primary auxiliary data sources that made up of citizens' data, Post codes' areas, population census data, hydrological features, utilities, educational, Financial public administration institutions, security, healthcare, social cultural and infrastructure institutions, agricultural, tourists' attraction, emergency response facilities, Economic structures, and Vegetation.

provides the basic location identifiers while a child address offers ancillary information. For example, a **parent address format** provides for the *Address Number, Road Name or alphanumeric descriptor+ Ward + County + Postcode* e.g. 1963, Independence Day Street, Nairobi Central, Nairobi.<sup>10</sup> In cases where the road has not been named the address would read 1963, KE1212 - 63, Nairobi Central, Nairobi (KE1212 - 63 being an automatically generated NASK Address”. A **Child address format provides for more information such as** Property Name, Address Number + Road Name or alphanumeric descriptor + Locality + ward + County + Postcode + Country e.g. *Uhuru House, 1963, Independence Day Street, Jamhuri Corner, Utawala, Nairobi, 147137, Kenya*

The policy recommends NASK Address to feature postcodes. Postcodes facilitate last mile delivery and mail routing. The increasing use of web and mobile technologies and e-commerce service delivery means that physical addresses and postcodes are becoming essential to meet the challenges of door-to-door delivery of goods. The standards will include addressing and harmonization of postal codes for last mile delivery.

NASK Address model to be defined in the standards will also denote the zoning to be utilized, determine the baseline and coverage, assign a system for streets, and building identification. Zoning will involve specifying the areas to be addressed and grouping them into relevant sectors such as Ward, Sub-County etc. Zones will create a recognized and meaningful reference. Determining the Baseline and Coverage will be specified to enhance NASK practicality and integration to existing administrative units.

The Standards will outline the system for Street and Building Identification and provide a unique system that will be used for naming of streets, numbering of streets and identification of buildings in Kenya. These include sequential numbering system (buildings are assigned sequential numbers, alternating between odd numbers on one side) and or Metric numbering system (assigns odd and even numbers based on the metric distance between a building entrance and the beginning of a street).

The NASK Standards will assist both the national and county governments in the implementation of NASK. The Standards will provide a common understanding of the processes involved and will assist the county governments, in consultation with the national government, to coordinate, implement and publicise the National Addressing System of Kenya.

This policy is cognizant that some counties had already started the process of numbering and as this is a naming and addressing infrastructure project, the standards will take into account existing structures, road and building names that are ready for integration rather than replacement. Secondly, this policy calls for inclusiveness and therefore addressing should be of equal importance in both rural and urban areas.

---

<sup>10</sup> Alphanumeric descriptor is utilized where road has not been named and is generated for NASK Addressing.

### 3.4.1 Proposed Components of National Addressing Standards

The National Addressing Standards will therefore provide for the following (but not limited to):

- (i) Definitions and concepts of addresses in Kenya including defining a parent and child address.
- (ii) Street Naming Standards and Procedures. The policy recommends.
- (iii) Thoroughfare Management: This will include but not limited to:
  - a. Road Numbering
  - b. Road Naming
  - c. Road Hierarchy - Identified using the road classifications as provided by KRB, the Major Road is assigned the highest level (level 1) on the hierarchy, Other roads emanating from a major road are assigned subsequent levels in the hierarchy in a downward cascading manner.
  - d. Road Direction - defines the numbering progression direction of land parcels along the street/road, road direction of the major roads within shall be from the south-west to-ward the North and East etc
- (iv) Assigning, reviewing, and procedures for approval of street names. NASK Standards will be developed in collaboration with other existing legal frameworks that govern street types and suffixes. Such as the street or access way classification and suffixes which are based on standards used by the National government Ministry in charge of Roads in Kenya. NASK standards will therefore align with the Ministry's classification of roads and streets.
- (v) NASK address format. Address Generation will define parent address elements and child address as discussed earlier in this section.
- (vi) NASK Address Point Generation: address point generation will guide on the addressing point such as using Frontage Center.
- (vii) Address Number Generation will identify and define the sequential and metric method (according to existing and planned parcels). This will be crucial for providing a guide on planning and generation of numbers for urban, rural residential and non-residential areas in Kenya.
- (viii) Signage Specifications to include installation of street name and signage, Street Name Sign Color and Illumination, Height of Street Name Signpost and Material, Street Name Plate Dimensions and Lettering, Street Name Sign Placement, and Installation of Property Number Plates.
- (ix) Set protocols for the NASK and its operationalization. The Standards will outline the technical specifications that will be required for address datasets, to facilitate developing a national address database.

### **3.4.2 Review of Post Codes**

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.

## **CHAPTER 4 POLICY COORDINATION AND IMPLEMENTATION**

The success of addressing in Kenya will call for a ‘one-government’ approach and a collaborative framework based on intra- and inter-government partnerships. Various Government agencies at both the national and county levels will play significant roles in the implementation and management of national addressing. The following are the institutions that will be mandated with rolling out addressing in Kenya.

### **4.1 Ministry of ICT, Innovation and Youth Affairs**

The mandate of the Ministry as derived from Presidential Executive Order No.1/2020 comprises the formulation of policies and laws that regulate standards and services in the ICT sector, telecommunications in the media industry, Youth Empowerment, and mainstreaming Youth in the national development agenda.

The Ministries role in this policy will include:

- 4.1.1 Development of a policy and conducive environment for the development and maintenance of an National Addressing Framework.
- 4.1.2 Initiate and support the roll out of the National Addressing in Kenya through a pilot programme with county government(s).
- 4.1.3 Cross-sectoral coordination and harmonization of all key actors that contribute to the success of the National Addressing Framework.
- 4.1.4 Develop, coordinate, and implement both the National ICT policy and the monitoring and evaluation (M&E) framework across all sectors of the economy to ensure that the implementation of programs and projects is effective to support the social and economic sectors of the economy; and
- 4.1.5 Creation of an enabling environment for investments and innovations that leverage on the country’s National Addressing Framework.

### **4.2 National Addressing Council**

The Policy recommends the establishment of a National Addressing Council which will consist of the following:

- (a) the Cabinet Secretary in the Ministry for the time being responsible for addressing who shall be the chairperson of the Council;
- (b) the Chairperson of the Council of Governors who shall be the Co-Chairperson;
- (c) the Cabinet Secretary in the Ministry for the time being responsible for Lands;
- (d) the Cabinet Secretary in the Ministry for the time being responsible for the National Treasury;
- (e) the Cabinet Secretary in the Ministry for the time being responsible for Transport;
- (f) the Cabinet Secretary in the Ministry for the time being responsible for Security;
- (g) the Attorney General; and
- (h) the Registrar who shall be the secretary to the Council and an ex-officio member of the Council.

**The Policy proposes that the function of the Council, in addition to performance of any function relevant to the execution of their mandate, will be as follows:**

- (a) advice and make recommendations to both levels of government on matters relating to addressing;
- (b) provide strategic direction on all matters relating to addressing;
- (c) facilitate alternative dispute resolution mechanisms for matters related to addressing referred from the Office; and
- (d) receive, consider, and make decisions based on the reports and recommendations of the Registrar and the County Committee.

### **4.3 Office of the Registrar of Addresses (ORA)**

#### **4.3.1 Role of the Office of the Registrar of Addresses**

This policy proposes the establishment of the Office of the Registrar of Addresses which shall be an office within the Public Service, that shall regulate addressing in Kenya. The role of the Office of the Registrar will include:

- (a) oversee the implementation of and be responsible for the enforcement of addressing in Kenya;
- (b) establish, manage, maintain and act as custodian of the National Addressing System;
- (c) coordinate use of shared infrastructure at both national and county levels for the purposes of proper implementation of addressing and implementation of a robust and secure National Addressing System;

- (d) facilitate alternative dispute resolution mechanisms on disputes arising under this Act;
- (e) coordinate with national and county governments to ensure that all addressable objects in Kenya can be identified by an address allocated by the Office of the Registrar;
- (f) provide advisory services on matters related to the addressing to the national and county governments;
- (g) develop and implement guidelines and standards for Addressing in Kenya;
- (h) monitor the implementation of standards for Addressing at national and county government levels;
- (i) coordinate with county governments to input address data into the National Addressing System;
- (j) collect and store address data from national and county governments for the purpose of maintaining an accurate and complete National Addressing System;
- (k) manage access to National Addressing System;
- (l) enforce compliance with addressing;
- (m) recommend to the Cabinet Secretary to Gazette any reasonable fees as may be deemed necessary for the proper administration of addressing in Kenya;
- (n) monitor the implementation of standards for Addressing at national and county government levels;
- (o) manage National Addressing System of Kenya as a consumer service;
- (p) capacity development at National and County government levels to ensure effective implementation, monitoring and management of addressing;
- (q) promote dialogue on addressing at national and county levels.

#### **4.3.2 Office of the Registrar of Addresses and NASK Data**

The Office of the Registrar of Addresses will collect address data for NASK from custodians or primary contributors of data and will include data from the following:

- (i) IEBC on boundaries on the names and boundaries of constituencies.
- (ii) Kenya Roads Board on its records regrading Road Inventory for the road network in Kenya.
- (iii) National Government on cadastral data and geographic names
- (iv) County Governments on planning information, Buildings and Building Unit Data
- (v) PCK for postal codes.
- (vi) Mapping Companies on accumulated data on land mapping and geographic information systems verified by relevant authorities.

NASK will also comprise address data derived from consumers in both the public and private sectors. Government consumers shall comprise regulatory functions such as those of the Communications Authority of Kenya in charge of postal and courier services; revenue collection such as the Kenya Revenue Authority; security and emergency service providers.

Address data and any other information necessary for addressing from private sector consumers will include security and emergency services, home delivery services, taxi

services, citizen and resident physical addresses and know your customer (KYC) processes necessarily required by banks, utility service providers among others.

The remit of Office of the Registrar of Addresses will be to coordinate public and private sector input into and access to National Addressing System without itself taking on the responsibility of collecting and managing the individual data sets of primary contributors, consumers and other providers consolidated in the National Addressing System. The Office of the Registrar will close the institutional distance between public as well as private sector resources with addressing needs.

#### **4.3.3 Office of the Registrar of Addresses and NASK Management**

Overall custody of the National Addressing System of Kenya (NASK) will be under the Office of the Registrar of Addresses, 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 guaranteeing consistency and quality for all stakeholders.

ORA will work in collaboration with the County Governments to collect and aggregate data to input in the NASK Database. County governments shall have access to NASK in order to input addressing data generated at the county level.

#### **4.3.4 Office of the Registrar of Addresses and County Governments**

The Office of the Registrar of Addresses shall be responsible for the coordination and management of addressing data from various stakeholders from the National and County Governments. This will consider devolved and non-devolved functions to ensure accurate and complete addressing information. As the Office of the Registrar of Addresses is responsible for developing standards for use in the development of NAS information systems at the National and County level. For this purpose, the Office of the Registrar of Addresses shall be responsible for ensuring address data provided by counties is compatible with required standards.

#### **4.3.5 Office of the Registrar of Addresses and NASK as a Service:**

This policy recognizes that NASK will be utilized as a service. NASK as a service will emanate from its unique data for possible exploitation by both private and public sector. For example, NASK will facilitate accurate navigation services. Second, the national addressing system can be used for Location Based Services which will be crucial for e-commerce. Third and as Kenya transforms to a digital economy, NASK will be crucial for the adoption of smart cities. The national addressing framework will be fundamental for integration of city services e.g, in in the upcoming Konza Technopolis. This Policy therefore recognizes that national addressing framework will play a more significant role not only for

citizens, but also for functioning of different automated services and systems within the various city systems in Kenya.

The ORA will ensure the ubiquitous use of NASK within Kenya. To stimulate the digital economy, the Office of the Registrar of Addresses shall not only ensure the accuracy and integrity of the NASK data but manage the exploitation of NASK data in line with existing privacy and access to information laws as well as international best practices and standards. NASK data will be a tool that can be used for innovation and research in addressing solutions.

The Office of the Registrar shall manage the NASK database, Geo-coding services & API, Address Locator (web address), Address search and verification scheme. From Office of the Registrar, various citizens and consumer organisations shall be users of the aggregated data sets. These include but not limited to the Kenya Revenue Authority, county governments, security services, e-commerce platforms, land use and physical planning entities, emergency services, postal and courier service providers, taxi services, among others.

#### **4.4 County Governments**

It is envisaged that the physical implementation of numbering and addressing for properties and streets at the county level will be spearheaded by county governments. This policy therefore proposes the establishment of a County Addressing Coordination Committee (CACC) which will interface with the Office of the Registrar of Addresses.

##### **4.4.1 County Addressing Coordination Committee**

The County Addressing Coordination Committee (CACC) will implement, monitor and coordinate national addressing in the counties. The CACC will collaborate with Office of the Registrar of Addresses to ensure uniformity in the implementation of Addressing in Kenya.

CACC will also work collaboratively with the local community or neighborhood organizations or associations that are recognized by the county government and other relevant stakeholders in the addressing process. The functions will be as follows:

- (i) Ensure that all address data on existing and proposed addressable objects within their jurisdiction are transmitted on a real-time basis to ORA for input in NAS and appropriate signages erected in accordance with the standards for national addressing.
- (ii) Promote public awareness and sensitization on the use and benefits of Addressing at their respective counties.

## **CHAPTER 5: MONITORING AND EVALUATION**

The National Addressing Policy will be guided by the National Monitoring and Evaluation Policy which provides for the roles and responsibilities of all state and non-state institutions in the implementation of public projects and programs by enhancing accountability, efficiency, effectiveness, transparency and utility.

For the Ministry to be able to effectively monitor and evaluate the status of implementation of the policy, the following interventions will be put in place:

- (i) Build human and institutional capacity within the relevant institutions to effectively undertake monitoring and evaluation.
- (ii) Establish sector-wide monitoring and evaluation framework and plans to ensure policy interventions are achieved.
- (iii) Undertake monitoring through continuous data and information collection during policy implementation period.

The data and information will inform the quarterly and annual reports which will be amalgamated at the Ministerial level and presented to the Principal Secretary of the State Department for Planning to inform policy decisions.

Data and information will be presented in annual reports which are made accessible to the stakeholders. Reports relating to sectoral and sub-sectoral issues including those relating to lessons learnt will also aid in the monitoring and evaluation aspects of this policy.

The assessment of the policy will be undertaken annually to gauge the implementation progress with an impact evaluation of the policy will be undertaken after every three years to analyze the extent to which the objectives have been achieved.

### **5.1 Policy Implementation**

The implementation of this Policy and consequential law will be gradual and in phases and will start by having the policy approved. The National Addressing Bill will be approved to become law. The other critical development of this Policy will involve establishment of the Office of the Registrar of Addresses. The funding of the Office will be from monies allocated by the National Assembly.

### **5.2 Policy Reporting**

The Office of the Registrar of Addresses shall report to the Cabinet Secretary responsible for ICT while the CACCs shall report quarterly to the Office of the Registrar of Addresses on the progress of implementation in the following areas:

- (i) Specific activities undertaken.
- (ii) Expected outcome and results.

- (iii) Any other information requested by the appropriate supervisory teams.

### **5.3 Policy Review**

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

Key components of this National Addressing Policy review shall include:

- (i) Effectiveness and impact of ongoing addressing implementation activities.
- (ii) Compliance with International Standards and Compliance Certifications.
- (iii) Institutional frameworks and stakeholder analysis.
- (iv) Identification of key challenges and solutions; and
- (v) Revision of implementation mechanisms as required.

DRAFT FOR PUBLIC PARTICIPATION