ZAMBIA NATIONAL SPATIAL DATA INFRASTRUCTURE POLICY

2026 - 2030

Integrating Spatial Data. Enabling Decisions. Building a Better Nation.

CONTENTS

FOREWORD

The Government of the Republic of Zambia recognises spatial data as a critical national resource that underpins evidence-based planning, sustainable development, and effective service delivery. In an era where timely, accurate, and accessible geospatial information is essential for informed decision-making, the establishment of a robust Zambia Spatial Data Infrastructure (ZNSDI) marks a significant milestone in our national development agenda.

The NSDI policy will provide a coordinated framework for the production, management, sharing and use of spatial data across public institutions, the private sector, academia, and development partners. The NSDI aims to reduce duplication of effort, enhance efficiency and improve the quality and accessibility of geospatial information nationwide through promoting common standards, interoperability and data sharing mechanisms.

The Policy will support the achievement of Zambia's national development priorities, including sustainable land management, infrastructure development, environmental protection, disaster risk reduction and digital transformation. Furthermore, the policy is aligned to regional and global frameworks such as the African Spatial Data Infrastructure (ASDI) and the United Nations Integrated Geospatial Information Framework (UN-IGIF), thereby reinforcing Zambia's commitment to international best practices.

The successful implementation of the NSDI policy will depend on strong institutional collaboration, capacity building and sustained investment in geospatial technologies and human capital. I therefore call upon all stakeholders to actively participate in the implementation and monitoring and evaluation of the policy framework.

It is my sincere hope that the NSDI policy framework will serve as a foundational platform for innovation, transparency and inclusive development, thereby meaningfully contributing to Zambia's socio-economic transformation.

Patrick K. Kangwa

SECRETARY TO THE CABINET

ACKNOWLEDGEMENTS

The development of the Zambia National Spatial Data Infrastructure (ZNSDI) has been made possible through the collective efforts, commitment, and collaboration of numerous institutions and individuals. The Government of the Republic of Zambia extends its sincere appreciation to all stakeholders whose contributions were instrumental in the formulation of this framework.

Special recognition goes to E-Government Division for its guidance on digital transformation and data governance. The Ministry of Lands and Natural Resources, in particular the Survey Department and the Zambia Statistics Agency for providing technical leadership and coordination throughout the NSDI policy development process. Appreciation is also extended to other line ministries, government departments, and statutory bodies for their valuable technical inputs and sectoral expertise.

Government further acknowledges the contributions of local authorities, academia and research institutions, professional bodies, and private sector organisations, whose participation enriched the framework and ensured that it responds to national needs and practical implementation realities.

Gratitude is also extended to cooperating partners, especially the European Union (EU), World Bank and other development agencies for their financial and technical support.

Finally, sincere thanks are conveyed to all technical experts, Technical Groups and individuals who dedicated their time, knowledge, and effort to the consultations, reviews and validation processes that culminated in the completion of the NSDI policy. Their collective contributions have laid a strong foundation for improved geospatial data coordination, accessibility and use in support of Zambia's sustainable development goals.

Percy Chinyama

NATIONAL COORDINATOR

ELECTRONIC GOVERNMENT DIVISION (SMART Zambia Institute)

WORKING DEFINITIONS

Fundamental geospatial dataset	A geospatial dataset that has been identified as being the minimum primary set of geospatial information that cannot be derived from other geospatial datasets, and that is required to spatially represent phenomena, objects or themes important for the realization of economic, social and environmental benefits, consistently across the nation.
Geospatial dataset	An identifiable collection of related geospatial information.
Geospatial data custodian	A public sector entity or organisation, appointed by the National Coordinating Committee, which captures, maintains, manages, integrates, archives, distributes or uses geospatial information.
Geospatial information	Information about geographical phenomena or objects and their attributes, which may appear or occur on, below or above the earth's surface, and which may be abstract, physical or man-made, and of a temporal nature. It includes spatial information, geo-referenced information, and geographical information.
Metadata catalogue	A technical system for capturing and disseminating of metadata records of available geospatial datasets, primarily to provide for discoverability and determination of fitness for use of geospatial datasets.
National Spatial Data Infrastructure	An infrastructure implementing a framework of policies, data, standards, systems and tools, people, and interconnections for the management of the collection, maintenance, dissemination and use of geospatial information, at the national level.
ZNSDI Coordinating Committee	Committee established under the ZNSDI Policy to govern and coordinate the functions of the ZNSDI.
ZNSDI Technical Committee	Committee established under the ZNSDI Policy to oversee all technical matters under the ZNSDI.
ZNSDI Technical Unit	A unit established under the ZNSDI Policy to undertake the day-to-day operations of the ZNSDI.
ZNSDI Working Groups	Working groups established under the ZNSDI Policy to assign and supervise the technical unit.

ACRONYMS

APIS	Application Programming Interface
EGD	Electronic Government Division
GIS	Geographic Information Systems
ICT	Information and Communication Technology
ISO	International Organization for Standardization
IT	Information Technology
MGEE	Ministry of Green Economy and Environment
MoE	Ministry of Energy
MLGRD	Ministry of Local Government and Rural Development
MLNR	Ministry of Lands and Natural Resources
MNDP	Ministry of National Development Planning
MoMMD	Ministry of Mines and Mineral Development
NLA	National Land Audit
NRSC	National Remote Sensing Centre
NSDI	National Spatial Data Infrastructure
RDA	Road Development Agency
SDI	Spatial Data Infrastructure
WARMA	Water Resource Management Authority
ZDA	Zambia Development Agency
ZEMA	Zambia Environmental Management Agency
ZESCO	Zambia Electricity Supply Corporation Limited
ZILAS	Zambian Integrated Land Administration System
ZILMIS	Zambia Integrated Land Management Information System

1.0 INTRODUCTION

Geospatial information is a key resource in programmes and projects across all economies and social and environmental development sectors, including health, education, agriculture, infrastructure planning and management, urban centres, utilities, natural resources, environmental protection, and land use. It plays an important role in supporting effective location-based decision-making to address issues related to the three pillars of sustainable development: economic, social, and environmental development.

To promote effective collection, use, management, sharing, and improved access to geospatial data, a NSDI is required. The NSDI is a framework comprising people, data, institutions, and technology that promotes a reliable and supportive environment for geospatial data. It facilitates the availability of and access to geospatial data and provides a basis for data discovery, evaluation, sharing, and application by users and providers at all levels of government, the private sector, non-governmental organizations, academia, and the general public.

Zambia has made strides in developing a National Spatial Data Infrastructure. However, progress in improving the quality and standardisation of geospatial data across sectors has been limited. Although a digital infrastructure framework has been developed, access to geospatial data remains constrained. The country has had inadequate skilled human resources. Further, governance and coordination of the NSDI have been weak, characterised by most institutions operating in silos. In addition, the policy and legal framework has been inadequate resulting in weak coordination among institutions participating in the NSDI.

The 2025 National Spatial Data Infrastructure Policy therefore seeks to improve the quality of geospatial data, enhance access to geospatial data, strengthen digital infrastructure for geospatial information, improve governance and coordination in the management of the national spatial data infrastructure, build human capacity for the NSDI and strengthen the legal framework for geospatial data management.

The Policy document is divided into five sections. Section one introduces the Policy. Section two presents an analysis of geospatial data, digital infrastructure and platforms, governance and coordination, human capital and the legal framework for the National Spatial Data Infrastructure. Section three outlines the vision, rationale and guiding principles of the Policy. Section four presents the objectives and corresponding measures. Section five provides the Implementation Framework, which outlines the institutional arrangements, legal framework, resource mobilisation and monitoring and evaluation mechanisms to support implementation of the Policy. A detailed Implementation Plan is annexed to this Policy.

2.0 SITUATION ANALYSIS

2.1 Geo-spatial Data

Geospatial data plays a crucial role in the provision of information that is intricately tied to specific locations on earth. It is a valuable resource for urban planning, environmental management and transportation, among others. To effectively contribute to the socio-economic development of the country, geospatial data should be available, accessible, secure, reliable, affordable and meet set standards.

Since 2014, Government has been undertaking various initiatives aimed at enhancing access to and the utilisation of geospatial data in development planning, disaster management and socio-economic development programme, among others. These initiatives have been designed to create a more cohesive and comprehensive approach to managing geospatial information. Some initiative include the creation of Geoportal and integration of data sets from different data custodians such as the Zambia Electricity Supply Corporation (ZESCO) and Road Development Agency (RDA).

However, there has been some challenges that have negatively affected Zambia's geospatial data ecosystem. Some of the challenges include fragmented and silo management of geospatial data, inadequate data quality and weak integration of sensitive information.

There has also been challenges of inadequate spatial data standards and inconsistent metadata practices. This has resulted in different public and private institutions developing and managing their datasets using different formats, standards and base maps. This has been made difficult to obtain a consistent and reliable understanding of existing resources within a given geospatial area. There has also been variations in how datasets are structured and described by limiting reuse and integration. Further, incomplete metadata has made it difficult to assess data quality and suitability.

Limited adoption of standardized APIs further restricts the ability of infrastructure planning, asset management, and monitoring systems to connect directly to spatial data services.

As of 2025, Government through the Zambia Bureau of Standards and the Electronic Government Division on standards identified and adopted ISO 19115 for geospatial data. It enables efficient, standardised and machine-readable data discovery.

Since 2014, a total number of 58 layers of data sets have been published. These include the road network, power utility networks, Continuous Operation Reference System (CORS) network among others. The country has established a platform, through the NSDI Portal, to facilitate access to geospatial data. However, GIS data has been inaccessible and unavailable to many GIS users. This has been due to storage of data in silos. Most times data has been outdated and unrelied upon for decision-making. This has limited the effectiveness of geospatial data in supporting various initiatives. There has been inadequate user awareness about the availability of geospatial data.

2.2 Digital Infrastructure and Platforms

Zambia has made significant progress in establishing a NSDI platform to support national development, infrastructure development, coordination, and evidence-based decision making. In 2014, an NSDI platform was deployed at the e-Government Division Data Centre. The production system has been hosted on Government servers in compliance with the Data Protection Act, No. 3 of 2021 to ensure that spatial data is managed within Zambia. The platform is designed as a federated system in which data ownership remains with the original custodians. Public institutions and stakeholders retain responsibility for maintaining their datasets, while the NSDI provides a centralised platform for referencing and accessing information.

The platform has been supported by replicated servers and virtual machines running GeoServer and the NSDI application, thereby providing redundancy and operational stability. It has been functioning as a central spatial reference platform that enables government institutions, utilities and various stakeholders to share, access and use spatial data.

The deployed NSDI platform is operational and comprises key technical components that together form a functional spatial data ecosystem. These include a map server, a national map viewer, and a spatial data catalogue. The spatial data catalogue, implemented using the open-source GeoNetwork platform, is a central component of the architecture. It publishes metadata records describing available spatial datasets, their custodians, access conditions, and service links. The map viewer complements the catalogue by enabling users to visualise multiple spatial layers simultaneously. This capability supports more effective decision-making by allowing users to identify spatial relationships between datasets such as land parcels, roads, settlements, utilities, and environmental features.

The Zambia National Spatial Data Infrastructure (ZNSDI) platform directly addresses a long-standing challenge in Zambia's development landscape that includes the absence of shared spatial data. Historically, information on land boundaries, infrastructure routes, utility networks, and facility locations was maintained independently by individual institutions.

However, access to the ZNSDI platform has been limited in rural and remote districts due to limited power availability of electricity and lastmile internet connectivity constraints as well as inadequate stakeholder participation.

Further, the country still has several sectorspecific platforms that manage spatial data, including systems for land administration, energy, transport, mining, and telecommunications. While these platforms represent important investments, most operate independently with limited interoperability. Differences in data models, formats, coordinate systems, and update cycles make crosssector integration difficult. Many systems have been relying on static datasets or privately sourced base maps rather than authoritative national reference layers.

2.3 Governance and Coordination

Effective governance of geospatial data and coordination is important for the effective implementation of the ZNSDI. This requires a clear institutional framework that defines leadership, roles of stakeholders and accountability.

Governance and coordination of the NSDI has been composed of the Ministry of Lands and Natural Resources (MLNR), E-Government Division, the NSDI Steering and Technical Committees and Zambia Statistics Agency. However, there has been inadequate governance and coordination. The NSDI Steering and Technical Committees has been inactive due to lack of dedicated leadership, resulting in oversight gaps that led delays and ineffective implementation of activities. Additionally, the absence of a dedicated full-time coordinator and technical team has led to inadequate stakeholder engagement.

Collaboration among stakeholders, including various ministries and data custodians has been limited, resulting in many organizations being reluctant to share their data.

2.4 Human Resources Capacity

Human resources capacity is important for the effective management, use and sustainability of geospatial data and digital public infrastructure in the country. Adequate skills and staff, equitable distribution and retention are essential to unlock the value of ongoing investments in digital public infrastructure. A coordinated, nationally driven approach to human capital development is essential in positioning geospatial data as a trusted, secure and actionable national asset for sustainable development.

Availability of skilled human capital in the geospatial field has not kept pace with growing demands. Some sectors have been experiencing shortage of specialized skills in basic and advanced geospatial digital domains, including spatial analysis, remote sensing, spatial data modelling, metadata standards, software development, system integration, cybersecurity and data analytics. Most institutions have been relying on officers with general ICT qualifications and limited exposure to geospatial data management aligned to international standards such as ISO/OGC.

There have been few institutions providing geospatial training at a limited scale. These include the University of Zambia (UNZA), the Copperbelt University (CBU) and Mulungushi University. As a result, skills development has been dependent on short-term, donor-funded training programmes, which have been inconsistent. This has been due to limited investment in human capital development.

Human resource inadequacy is evident both in staffing numbers and deployment. Most skilled geospatial and digital personnel have largely been concentrated at head offices. The public sector, where data collection, land administration, infrastructure planning, disaster risk management and service delivery takes place, has been significantly under resourced. Most institutions have single officers performing multiple roles spanning ICT support, data collection, system administration, and reporting. This has been affecting data quality, system reliability and timely decision-making. Most organisational structures have been lacking emerging digital roles such as data stewards, geospatial analysts, platform administrators and information security officers.

Retention of skilled personnel has been a persistent challenge in the public sector. This

has been due to officers with GIS, software development, and data analytics skills leaving the public sector for the private sector, regional organizations and international agencies. Non-competitive remuneration and limited career progression pathways have been contributing to high turnover resulting in weak knowledge transfer.

2.5 Legal and Regulatory Framework

Since independence in 1964, Zambia's legal framework for geospatial data has been focused on land administration, cadastral surveying and physical mapping thus laying the foundation for later digital initiatives.

The Constitution of the Republic of Zambia (Amendment Act No. 2 of 2016) provides overarching principles such as property rights, transparency, environmental protection, and access to information, which are relevant to geospatial governance.

Other pieces of legislation that facilitate the management of geospatial data include the Statistics Act, No. 13 of 2018, which established the Zambia Statistics Agency (ZAMSTATS) as the central authority for coordinating the National Statistical System which include geospatial and statistical data and; the National Lands Policy of 2019; the Lands Act of 1995; Land Survey Act of 1960, as well as the Urban and Regional Planning Act of 2015 which provides for the administration, spatial planning, and management of land-related geospatial datasets.-

The Electronic Government Act 41 of 2021 established the Electronic Government Division to coordinate ICT and data governance across Government. This includes setting standards for data storage, security, sharing, and audits. The regulator of the creation, storage, protection, sharing and use of spatial and non-spatial data that support data governance and accessibility across sectors is provided for in the National Archives Act of 2016, Standards Act of 2017, Science and Technology Act of 1997, Environmental Management Act of 2011), Urban and Regional Planning Act of 2015, ICT Act of 2009, Postal Services Act of 2009, Data Protection Act of 2021, Access to Information Act of 2023, Cyber Security Act of 2025, and Copyright and Performance Rights Act of 1994. .

However, some pieces of legislation such as the Land Survey Act of 1960 do not support modern data-sharing practices. Further, the legal framework has been inadequate to facilitate interoperability of datasets with adequate use of open or compatible application programming interfaces (APIs). Regulations have also been inadequate to facilitate cross-sector data integration for inter-agency collaboration and adoption of emerging technologies such as artificial intelligence.

3.0 VISION, RATIONALE AND GUIDING PRINCIPLES

3.1 Vision

A smart-connected Zambia where reliable quality spatial data is available and accessible for informed decision making and sustainable development.

3.2 Rationale

Over the years, Zambia has made strides in developing a strong National Spatial Data Infrastructure (NSDI). Some progress has been made in improving the quality of geospatial data and standardization of data across sector. The country has developed digital infrastructure and platforms.

However, access to geospatial data has been limited. The country has inadequate skilled human resources. The coordination of the NSDI has been inadequate. Most institutions have been operating as silos. The legal framework has also been inadequate resulting in weak coordination among institutions in the NSDI.

The NSDI Policy seeks to improve the management and sharing of spatial data. It aims to foster collaboration among organisations, enhance decision-making processes, support national development, and enable the efficient use of resources. The provision of accurate and standardized geospatial information is important in ensuring that all stakeholders can access the data they need to make informed decisions and contribute to sustainable development.

This NSDI Policy seeks to foster ownership, improve coordination, enhance commitment among stakeholders, and increase data availability. The policy will promote collaboration among government, businesses, and communities, prioritizes funding, and enhances accountability through oversight and transparency, ultimately creating a supportive environment for innovative solutions.

3.3 Guiding Principles

The implementation of this Policy will be guided by the following principles:

a). **Transparency and Accountability:**	b). Stakeholders shall be accountable and transparent in the implementation of this Policy.
c). **Sustainable Development:**	d). Stakeholders shall ensure that this policy is implemented in a manner that ensures that it mitigates the effects of climate changes and environmental protection.
e). **Partnerships and Coordination:**	f). Stakeholders shall ensure that strong partnerships and coordination is promoted in the implementation of this Policy.
g). **Participation:**	h). Stakeholders shall be encouraged to have active participation in the implementation of this Policy.
i). **Data Sharing:**	j). Stakeholders shall ensure that geospatial data produced using public resources shall be shared across government institutions and, where appropriate, made accessible to the public to promote transparency, efficiency, and innovation.

k). **Custodianship:**	l). Stakeholders shall ensure that each fundamental geospatial dataset including geodetic control, topographic data, administrative boundaries, land parcels, imagery shall have a designated custodian institution responsible for data maintenance, quality, and updates.
m). **Non-Duplication:**	n). Stakeholders shall ensure that spatial data shall be collected once and used many times, reducing duplication of data collection across ministries, provinces, districts, and projects, and optimizing use of national resources.
o). **Interoperability:**	p). Stakeholders shall adopt national and international geospatial standards to ensure interoperability between systems, institutions, and sectors, and to enable regional and global data integration.
q). **Data Protection:**	r). Stakeholders shall ensure that sensitive data shall be protected to ensure national security, privacy, and security of critical infrastructure and adherence to national laws and safeguarding Zambia's data sovereignty.

4.0 POLICY OBJECTIVES AND MEASURES

4.1 Policy Objectives

This policy seeks to achieve the following objectives:

To improve the quality of Geospatial Data

To improve access to geospatial data

To strengthen Digital Infrastructure for geospatial data

To strengthen governance and coordination in the management of geospatial national spatial data infrastructure

To improve human resources for geospatial data infrastructure

To improve awareness on availability and utilisation of geospatial data

To strengthen the legal framework for geospatial data management

4.2 Policy Measures

The following measures will be implemented under each objective.

Objective 1: To improve the quality of Geospatial Data

Measures

Develop National Fundamental Datasets

Enhance National Geospatial Data Quality Standards

Enhance National Geospatial Data Audit

Strengthen the National Geospatial Data Acquisition Framework

Promote use of drones and crowd-sourced mapping for rapid updates.

Improve Continuous Data Update Mechanism

Objective 2: To improve access to geospatial data

Measures

a). Enhance a NSDI Geoportal
b). Adopt Open Data and FAIR Principles
c). Enhance capacity of geospatial data users
d). Enhance the provision of support services
e). Promote Cost-Effective and Sustainable Geospatial Data Management

Objective 3: To strengthen Digital Infrastructure for geospatial data

Measures

a). Enhance Geospatial Data Security
b). Improve systems for sharing of geospatial data
c). Expand the Government Wide Area Network (GWAN)

d). Enhance System Interoperability

e). Increase availability of High-Performance Computing (HPC) resources

f). Operationalize a unified National Spatial Reference System (NSRS) to enhance data integration and interoperability.

Objective 4: To strengthen governance and coordination in the management of NSDI.

Measures

a). Enhance coordination of the national spatial data infrastructure

b). Strengthen coordination structures

c). Enhance monitoring, evaluation and report systems

d). Strengthen public-private partnerships in geospatial infrastructure development and management

Objective 5: To improve human resources for the NSDI.

Measures

a). Increase Human Resources for geospatial and digital services

b). Strengthen National Geospatial Human Capital Development

c). Enhance public sector staffing levels

d). Improve Quality, Standards, and Professional Practice

e). Development of accredited geospatial science programmes.

f). Establish structured internships, apprenticeship, and trainee programmes in government institutions.

g). Enhance financing for Human Resources

Objective 6: To improve awareness on availability and utilisation of geospatial data

Measures

h). Enhance User Capacity and Demand for Geospatial Data

i). Increase awareness on geospatial data

j). Increase awareness on the uses of geospatial data

Objective 7: To strengthen the legal framework for geospatial data management

Measures

k). Review of legislation and regulations for the NSDI

l). Develop Service Level Agreements (SLAs) between the E-Government Division and data Custodians

m). Enhance Geospatial Cybersecurity Framework

n). Strengthening Spatial Data Ethics and Security

o). Enhance adherence to data protection legislation

p). Establish a Public-Private Data Exchange Framework

5.0 IMPLEMENTATION FRAMEWORK

The successful implementation of the NSDI is dependent upon the establishment of a suitable institutional framework, a comprehensive legal and regulatory structure, effective resource mobilization and financing, as well as rigorous monitoring and evaluation.

5.1 Institutional Arrangements

The following institutional arrangement shall facilitate the effective implementation of this Policy.

5.1.1 Electronic Government Division (EGD)

Government hereby designates the EGD as the National NSDI Lead Authority, responsible for overall policy oversight, compliance monitoring, inter-agency coordination and annual reporting to Cabinet Office.

5.1.2 Zambia Statistics Agency (ZAMSTATS)

Shall be responsible for ensuring that geospatial datasets used in official statistics and national indicators comply with statistical standards, classifications, confidentiality requirements and dissemination protocols under the Statistics Act No. 13 of 2018.

Statistics Act No. 13 of 2018, establishes ZAMSTATS as the statutory authority responsible for the coordination of the National Statistical System (NSS), including the setting of standards, approval of methodologies, assurance of data quality and coordination of official statistical data producers.

For purpose of the NSDI, this Act provides a critical legal foundation for the integration of geospatial and statistical data, particularly where spatial datasets are used in the production of official statistics, national indicators, census cartography, sampling frames, administrative data integration and evidence-based planning.

All geospatial datasets designated as official statistics or used in official statistics production shall comply with the provisions of the Statistics Act, including quality assurance, confidentiality, dissemination protocols and coordination requirements.

5.1.3 Zambia National Spatial Data Infrastructure Steering Committee

The ZNSDI Committee shall meet at least quarterly and the NSDI Technical Committee meet atleast monthly. The NSDI Secretariat shall circulate agendas and papers at least (7) days prior to meetings, record decisions and actions and track implementation. Unresolved matters and non-compliance shall be escalated through the agree governance chain within fourteen (14) days.

The Committee is chaired by the Electronic Government Division and members will include the Ministry of Finance and National Planning (MFNP), Ministry responsible for agriculture, Ministry of Local Government and Rural Development (MLGRD), Ministry of Mines and Minerals Development (MMMD), Ministry of Green Economy and Environment (MGEE), Ministry of Lands and Natural Resources (MLNR), Ministry of Science and Technology (MoST), and Zambia Information Communication Technology Authority (ZICTA). It shall have the ZNSDI Technical Unit as Secretariat.

5.1.4 Zambia National Spatial Data Infrastructure Technical Committee

The ZNSDI Technical Committee shall support the work of the ZNSDI Coordinating Committee and shall be responsible for technical support and supervision of the implementation and operations of the ZNSDI. The Committee is co-chaired by the MLNR and ZAMSTATS and members shall include EGD, MoA, MMMD, MLGRD, MGEE, MOD, MOST and the Academia. NSDI Technical Unit will provide secretariat duties to the NSDI Technical Committee.

5.1.5 Technical Working Groups

The Technical Working Groups (TWGs) are established to focus on various specialty areas, ensuring effective collaboration and coordination across relevant sectors.

5.1.6 Geospatial Data TWG

The Geospatial Data TWG is chaired by the Ministry of Land and Natural Resources (MLNR) and includes members from key ministries and institutions such as ZAMSTAT, the Ministry of Local Government and Rural Development (MLGRD), the Ministry of Green Economy and Environment (MGEE), the Ministry of Transport, the Ministry of Infrastructure, Housing and Urban Development, the Ministry of Energy, the Ministry of Justice, the Office of the Vice President's Department of Resettlement, the University of Zambia, the National Remote Sensing Centre (NRSC), Zambia Information and Communications Technology Authority (ZICTA), the Road Development Agency, Zambia Environmental Management Agency (ZEMA), Lusaka Water and Sewerage Company, Water Resources Management Authority (WARMA), the Disaster Management Unit, Lusaka City Council, ZESCO, the Zambia Institute of Surveyors, the Zambia Institute of Planners, and the Geospatial Information Association of Zambia.

5.1.7 Standards TWG

The Standards TWG is co-chaired by the Smart Zambia Institute and another designated partner. Its membership comprises representatives from ZAMSTAT, the Smart Zambia Institute, MLNR, MLGRD, MGEE, the Office of Data Protection (ODP), the University of Zambia, NRSC, and ZICTA. This group is responsible for establishing and maintaining standards across relevant sectors.

5.1.8 IT and Clearinghouse TWG

The IT and Clearinghouse TWG is also co-chaired by the Smart Zambia Institute. Its members include key institutions such as MLNR, ZAMSTAT, the Ministry of Mines and Mineral Development (MMMD), ZICTA, and the University of Zambia. This group focuses on ICT infrastructure, data sharing, and establishing a central clearinghouse for information exchange.

These TWGs are vital for fostering collaboration, setting standards, and ensuring the successful implementation of initiatives within their respective domains.

5.2 National Spatial Data Infrastructure Technical Unit

The NSDI Technical Unit established under the e-Government Division, shall be responsible for supporting the Committees and Working Groups, and it shall be responsible for the maintenance of the NSDI operating and equipment environment. It shall ensure a fully operational NSDI system and geospatial services.

5.2.1 Ministry responsible for finance

The Ministry shall be responsible for resource mobilisation for successful implementation of the Policy.

5.2.2 Ministry responsible for agriculture

The Ministry shall be responsible for the provision of geospatial data related to agriculture.

5.2.3 Ministry responsible for mines and minerals development

The Ministry shall be responsible for updating and sharing of geological and cadastre data.

5.2.4 Ministry responsible for mines and minerals development

The Ministry shall be responsible for updating and sharing geological and cadastre data.

5.2.5 Ministry responsible for energy

The Ministry shall be responsible for updating and provision of geospatial information related to energy infrastructure such as locations of power plants, transmission lines and substations.

5.2.6 Ministry responsible for tourism

The Ministry shall be responsible for provision of geospatial information related to tourism, such as maps of national parks, wildlife reserves, and tourist attractions. As well as details on accommodation, safari camps, lodges, and hotels.

5.2.7 Ministry responsible for transport

The Ministry shall be responsible for provision of geospatial information related to transport infrastructure such as airports, railways, ports and roads as well as information on traffic management.

5.2.8 Ministry responsible for water development

The Ministry shall be responsible for updating and provision of geospatial information related to water infrastructure such as aquifer, boreholes, hydrology, water sanitation and other related geospatial data.

5.2.9 Ministry responsible for environment

The Ministry shall be responsible for provision and updating of geospatial information related to environment monitoring, protection and conservation as well as temporal data related to the environment.

5.2.10 Ministry responsible for health

The Ministry shall be responsible for provision and updating geospatial information of health infrastructure such as health facilities services, disease incidence to leverage the NSDI for integrated disease surveillance, health resource allocation, and epidemiology.

5.2.11 Ministry responsible for education

The Ministry shall be responsible for integrating geospatial data and GIS into curricula, promoting research and training, supporting data collection in educational institutions,

developing geospatial skills among students, fostering partnerships, and encouraging the use of geospatial technologies in education and research.

5.2.12 Ministry responsible for technology and science

The Ministry of Technology and Science shall be responsible for capacity building, research developing in geospatial technologies, supporting research, managing data infrastructure, setting standards, integrating geospatial data into various sectors, promoting technology adoption, and leading digital transformation efforts related to geospatial data under its mandate.

5.2.13 Ministry responsible for local government and rural development

The Ministry shall be responsible for provision of geospatial information related to local boundaries, land use, and public services, and leverage the infrastructure for integrated local planning, equitable resource distribution, and sustainable rural and urban development.

5.2.14 Private Sector

The Private Sector shall provide specialised technology, value-added services, and infrastructure; to develop commercial applications using NSDI data; and to collaborate in setting market-relevant standards, thereby driving the growth of a sustainable geospatial economy and enhancing the overall utility of the national spatial data ecosystem through Public Private Partnerships.

5.2.15 Civil Society Organizations (CSOs)

The Civil Society shall serve as essential intermediaries and advocates in the NSDI ecosystem. They shall bridge the gap between technical data and public need by promoting inclusive access, building community capacity, advocating for transparent and equitable data policies, and leveraging spatial data to support social accountability, environmental stewardship, and participatory governance for the public good.

5.2.16 Cooperating Partners

They shall provide both technical and financial support to the successful implementation.

5.2.17 Academia and Research Institutions

They shall provide capacity building, research and development to the NSDI. The shall further develop targeted training programs that focus on skill enhancement and knowledge transfer across various sectors. Furthermore, they shall foster innovation by creating platforms for collaboration, allowing stakeholders to share best practices and integrate new technologies effectively.

6.0 LEGAL FRAMEWORK

Government shall operationalize NSDI coordination and standards through Electronic Government Act 2021 and shall pursue targeted amendments to harmonise mandates and remove overlaps within twenty-four (24) months of adoption of this Policy.

There are also a number of pieces of legislation that facilitate the smooth implementation of the Policy. Some of the pieces of legislation that need to be reviewed and harmonized include:

a). Land Survey Act (1963)

b). Statistics Act No. 13 of 2018:

c). Standards Act, (2018)

d). Information and Communications Technology Act (2009)

e). The Electronic Communications and Transactions Act (2009)

f). Access to Information Act (2023)

g). Environmental Management Act (2011)

h). The Urban and Regional Planning Act (2015)

i). Lands Act (1995)

j). National Archives Act (2016)

k). The Science and Technology Act (2016)

7.0 DATA POLICY AND STANDARDS

Non-sensitive NSDI datasets shall be open by default, subject to dataset classification, lawful exemptions and requirements under the Data Protection Act and other applicable laws. All designated Data Custodians shall:

a). Publish minimum metadata compliant with adopted standards;

b). Declare and comply with dataset update cycles;

c). Publish datasets and/or services via the NSDI platform where feasible; and

d). Submit annual compliance updates to the NSDI updates to the NSDI Secretariat.

Government shall adopt a standard NSDI licensing framework for open dataset (e.g. Government Open License/CC BY) with approval exceptions). Fees shall apply only to value-added services and approved exceptions and shall be transparent and published.

7.1 Geospatial-Statistical Integration

7.1.1 Purpose and Scope

In accordance with Act No. 13 of 2018, the National Spatial Data Infrastructure (NSDI) shall explicitly support the integration of geospatial data with official statistics. This integration is designed to enhance the visual, analytical, and spatial capabilities of national statistical outputs.

7.1.2 Core Functional Requirements

The scope of geospatial-statistical integration includes, but is not limited to:

a). **Geocoding:** Mapping administrative, registry, and survey data to precise geographic

coordinates.

b). **Spatial Frame Maintenance:** Continuous updating and management of census and demographic survey spatial frames.

c). **Boundary Harmonisation:** Aligning statistical zones and reporting boundaries with official national administrative boundaries.

d). **Registry Integration:** Linking institutional administrative registers with standard national spatial reference systems.

e). **Spatial Disaggregation:** Producing and publishing spatially disaggregated official statistics to support localized decision-making.

7.2 Data Principles and Security Protocols

All stakeholders participating in the NSDI shall adhere to the following operational pillars:

a). **Accessibility & Open Data:** Data sharing is governed by open data principles, mandating stakeholder accountability and proactive data dissemination to the public.

b). **Privacy & Security:** Robust security and privacy protocols must be implemented. Sensitive information shall be protected via rigorous redaction and access controls, while simultaneously maintaining public access to non-sensitive information.

c). **Intellectual Property & Licensing:** All data usage, sharing agreements, and distributions shall be governed by clear licensing policies and respect for Intellectual Property Rights (IPR).

d). **Lifecycle & Quality Management**: Data custodians must implement strict quality assurance processes, including regular dataset maintenance, timely updates, and the generation of accurate metadata to ensure long-term usability and retrieval.

7.3 Technical Infrastructure and Platforms

The Smart Zambia Institute will be responsible for hosting the foundational elements of the NSDI. It will provide the necessary administrative and support services to ensure that the NSDI components are both accessible online and functioning effectively. Furthermore, Smart Zambia will proactively address issues related to data protection and the information security of the NSDI.

The core components of the NSDI include an information portal that serves as an entry point containing various information related to the NSDI, as well as a data catalog that functions as a database for publishing metadata records that describe different spatial datasets, allowing users to search and query these records. Additionally, there is an interactive map viewer that enables users to view and navigate various spatial layers, search for specific data, and add layers from the data catalog, while also selecting features to view their attributes. Lastly, a map server will be utilised to publish and provide access to various spatial datasets through OGC-compliant map services.

7.4 Resource Mobilisation and Financing

The effective implementation and sustainability of the NSDI Policy hinge on the strategic mobilisation of both domestic and international resources aligned with its core objectives. Institutions are tasked with nominating representatives to the NSDI Steering Committee, Technical Committee, and three Working Groups, ensuring broad stakeholder engagement. The Smart Zambia Institute plays a crucial role in staffing and supporting the NSDI Technical Unit; maintaining a fully staffed, well-trained team is vital for sustained operational excellence.

Furthermore, the Smart Zambia Institute is responsible for providing essential equipment to facilitate NSDI activities. Securing sustainable, long-term funding is critical to enable ongoing technology upgrades, capacity building, and infrastructure development. Budget allocations should be tailored to prioritise key projects that drive the NSDI's growth and resilience. Exploring innovative financing mechanisms, such as public-private partnerships, can stimulate investment, promote innovation, and foster robust collaboration between government and the private sector, ensuring the NSDI's long-term success.

7.5 Resource Development

To foster a culture of innovation and excellence in spatial data management, the NSDI Technical Committee shall lead comprehensive training initiatives for government agencies and key stakeholders. These programmes, delivered through a combination of workshops, webinars, and hands-on exercises, emphasize best practices in data collection, sharing, and usage. By equipping participants with the skills and knowledge needed to effectively manage and utilize spatial data, these initiatives aim to develop a highly skilled and informed workforce capable of making data-driven decisions that drive improved service delivery and informed policymaking.

Capacity development for technical experts and data managers within the NSDI Technical Unit is also a priority. Customized training programs are designed to equip these specialists with the cutting-edge skills and expertise needed to implement spatial data management solutions effectively, ensuring the successful realisation of the NSDI's strategic objectives.

7.6 Monitoring and Evaluation

The NSDI Secretariat shall provide quarterly, and annual reports based on a defined set of Key Performance Indicators (KPIs) that encompass governance, dataset availability, metadata compliance, update timeliness, platform uptime, user engagement, data-sharing turnaround times, dispute resolution, capacity building, and custodian compliance (refer to Annex X).

The Monitoring and Evaluation (M&E) of the NSDI is led by the NSDI Coordinating Committee, which directs M&E activities to the Technical Committee, Working Groups, and Technical Unit. These entities are responsible for regularly reviewing their respective metrics and reporting findings to the Steering Committee. To ensure impartiality and comprehensive assessment, the Steering Committee may also commission annual external evaluations of the NSDI.

The Coordinating Committee plays a pivotal role in ensuring the achievement of the NSDI's strategic objectives. This includes monitoring progress in improving spatial data availability, quality, and accessibility, as well as evaluating the efficient use of resources

and stakeholder engagement. The M&E process further examines the broader societal, economic, and environmental impacts of NSDI deployment.

Risk management is a critical function of the Coordinating Committee. It involves proactively identifying potential challenges related to data security, compliance, and resource limitations, and implementing strategies to mitigate these risks. The Committee also establishes contingency plans to address unforeseen events, thereby enhancing the resilience, security, and overall effectiveness of the NSDI framework.


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