

# KNSDI

- The Kenya National Spatial Data Infrastructure (KNSDI) is a national stakeholder's initiative that strives to provide better access for all Kenyans to spatial data.
- The main purpose of the initiative is to eliminate wastage of resources and duplication in data production.
- KNSDI's mission is to promote the production, sharing and use of geospatial information for sustainable development.
- Its vision is to be the leading national infrastructure for access and use of geospatial information in decision making for sustainable development.
- The need for KNSDI becomes apparent when Government agencies and other organizations need to respond quickly to natural disasters, industrial accidents, environmental crises, and other contemporary challenges

# KNSDI

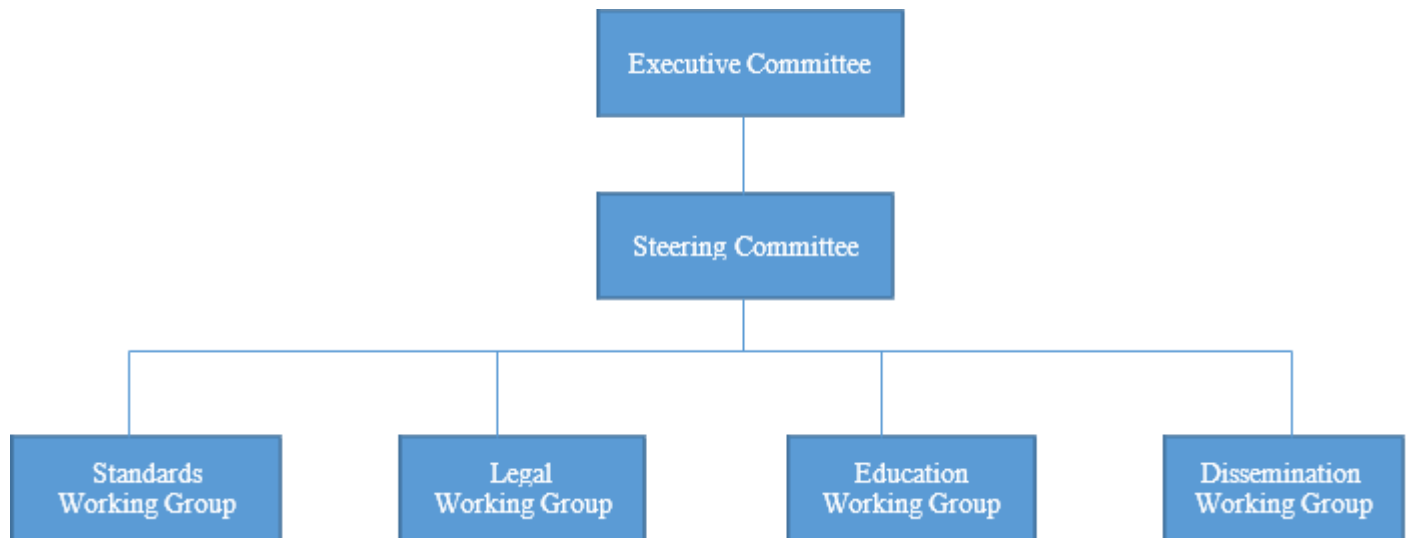
- Chronology of Major KNSDI Events
  - i. The international conference on spatial information for sustainable development, organised by the ISK, FIG and the UN Habitat, was held in Nairobi in October 2001. The conference came up with the 'Nairobi Statement on Spatial Information for Sustainable Development', outlining a raft of recommendations. One of the significant affirmations was that 'developing countries should form National Steering Groups which in turn would formulate appropriate policy and institutional frameworks'
  - ii. The first KNSDI workshop was held in November 2001. The aim of the workshop was to bring stakeholders together and emphasise the role of geoinformation. The workshop resulted in several recommendations:

# KNSDI

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  - ii. The workshop resulted in several recommendations:
    - a. KNSDI should be spearheaded by a government organization;
    - b. SoK should assume the responsibility of the KNSDI secretariat;
    - c. SoK should call the first NSDI meeting at which a steering committee would be formed;
    - d. an inventory of available datasets and projects in progress should be documented;
    - e. the necessary legal framework should be established;
    - f. SoK should provide up to date large scale and small scale basic datasets;
    - g. SoK should setup and control standards of spatial data and metadata; and
    - h. SoK should device a cost recovery mechanism for information being distributed

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  - iii. In April 2002, the second KNSDI workshop was held, primarily to take concrete steps towards the establishment of the KNSDI. A 3-tier organisational structure was proposed consisting of the executive and steering committees, and four working groups :



# KNSDI

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- iii. Their assigned Terms of References (ToRs):

1. Standards: framework data, coding, reference systems, exchange formats, and metadata
2. Legal: copyright, liability, privacy, data policy (access, restriction and pricing)
3. Education: training, curriculum, research, sensitization and liaison
4. Dissemination: clearinghouse, metadata and the KNSDI website

It is at this juncture that the Government of Kenya requested the Government of Japan (through JICA) for assistance in a number of programmes, of a technical and financial nature. The study for the establishment of Spatial Data Framework for the City of Nairobi was one of the programmes.

# KNSDI

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- iv. The third KNSDI workshop was held in September 2002, and focused on building consensus and cooperation amongst organisations. Key participants included the SoK, NCC and JICA. Deliberations resulted in the Large Scale Framework Spatial Data Infrastructure (LSFSDI) project, which had recognised the need for accurate and timely foundation data. Commencing in February 2003, LSFSDI was a 2-year project whose objectives were :
  1. preparation of digital spatial data for Nairobi at scales of 1:2,500 and 1:5,000;
  2. creation of a GIS model for the city of Nairobi as a case study; and
  3. pursue technology transfer and capacity building

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  - v. In March 2003, the SoK received financial assistance from JICA with which to establish an inventory of existing spatial datasets and their specifications. The study involved interviewing relevant personnel from selected organizations.
  - vi. In April 2005, the Office of the President issued a circular to all ministries and public institutions directing the development of fundamental spatial data to enhance e-government and support for the Land Use Policy, which had identified the need for a Land Information Management System
  - vii. The fourth KNSDI workshop was held in November 2005. The workshop reviewed achievements of workshops I, II and III, the ToRs and membership for the WGs. The KNSDI secretariat was also established.

# KNSDI

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- viii. The fifth KNSDI workshop was held In March 2006. Several progress reports were presented by the WGs. It was also reported that the first version of the KNSDI draft policy had been developed

*The primary purpose of the policy was to strengthen spatial data sharing. It was also expected to promote a common understanding and mechanism for the production, access and utilisation of geo-information from multi-sectoral agencies under the forestry, health, agriculture, education, energy, environment, fisheries, security, tourism and transport sectors*

- ix. Japan offered technical assistance through JICA for the implementation of KNSDI in three phases . Phase I of the project commenced in October 2006, and became known as the ‘Project for Strengthening Survey of Kenya for GIS promotion in the Republic of Kenya’

Phase	Description
I	Build capacity of the lead agency, SoK
II	Promote the use and application of GIS technology in Kenya
III	Construction of the KNSDI



# KNSDI

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  - x. In November 2006, the first standards seminar was held at AICAD under the theme 'Strengthening capacity and Promoting Geo-information sharing in Kenya' . The seminar attracted 55 participants from 18 organizations who were sensitized on the need for KNSDI standards, in effect promoting the KNSDI project and facilitating more collaboration.
  - xi. In July 2007, the second standards seminar was held at AICAD, attracting 79 participants who also reviewed development of metadata. The aim of the seminar was to disclose the Kenya Profile for Geographic Information Standards (KPGIS). KPGIS was adapted from the Kenya Standards (KSISO) 19100, which in turn was adapted from the ISO Standards 19100 . The six standards are:
    - a. KSISO 19101 GI – Reference model;
    - b. KSISO 19109 GI – Rules for application schema;
    - c. KSISO 19111 GI – Spatial referencing by coordinates;
    - d. KSISO 19113 GI – Quality principles;
    - e. KSISO 19114 GI – Quality evaluation procedures; and
    - f. KSISO 19115 GI – Metadata.

# KNSDI

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- xi. In addition to the six standards, three map digitizing manuals were also developed :
  - a. thematic map database;
  - b. national digital topographic map database (scale of 1:50,000)
  - c. topo-cadastral map database (scale of 1:10,000).
- xii. In February 2008, the third standards seminar was held at Ramada hotel, Nairobi. The theme of the seminar was 'Application of Standards for Spatial Data Building and Sharing'. During this seminar, the verification trials of the standards were presented. Other activities included launching of the KNSDI pilot clearinghouse portal.

# KNSDI

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xiii. Through JICA, Japan dispatched a technical team to Kenya in May 2008 to carry out an evaluation of the achievements of Phase I of the project . An evaluation report was prepared and presented to the Kenyan and Japanese Governments. The recommendations of the report highlighted:

*the status of data sharing, and the government fears about it. For instance, it cited instances where offering digital data on the internet would make it difficult for SoK to charge for its use. Furthermore, SoK would find it difficult to justify the cost of any data updates if the utility of the KNSDI was to be low. Consequently, the data to be offered free of charge included basic feature framework (water bodies, political boundaries, and traffic), while the rest would be offered through offline conventional media, such as CDs, subject to confirmation of use*

# KNSDI

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  - xiv. In October 2008, the fourth seminar was held at AICAD to review the KNSDI draft policy . It was during this seminar that a committee of experts was formed, consisting of the private sector, representatives from academia, Government, civil society, and members from the KNSDI secretariat . The committee held three consultative meetings. The committee reviewed a wide range of issues, including:
    - a. fundamental and thematic datasets, standards and metadata.
    - b. It was noted that the existing laws did not address emerging legal issues, and an enhanced legal framework would be needed to address data ownership, pricing, custodianship, confidentiality, copyright, privacy, liability, funding, access, and security.
    - c. The committee also proposed policy recommendations, and an implementation plan.

# KNSDI

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  - xv. In May 2009, the committee of experts produced the final version of the KNSDI draft policy. Generally, the policy establishes a strategy for the collection, integration, distribution, and sharing of geospatial information .
  - xvi. In August 2009, the KNSDI policy workshop was held at the Kenya School of Monetary Studies (KSMS). The final draft policy was presented to stakeholders , who adopted it with some amendments such as definitions and semantics of terms, standards, metadata, legal framework, copyright, pricing, data access and data security. The committee of experts was mandated to present the KNSDI policy to the MoL through the DoS.

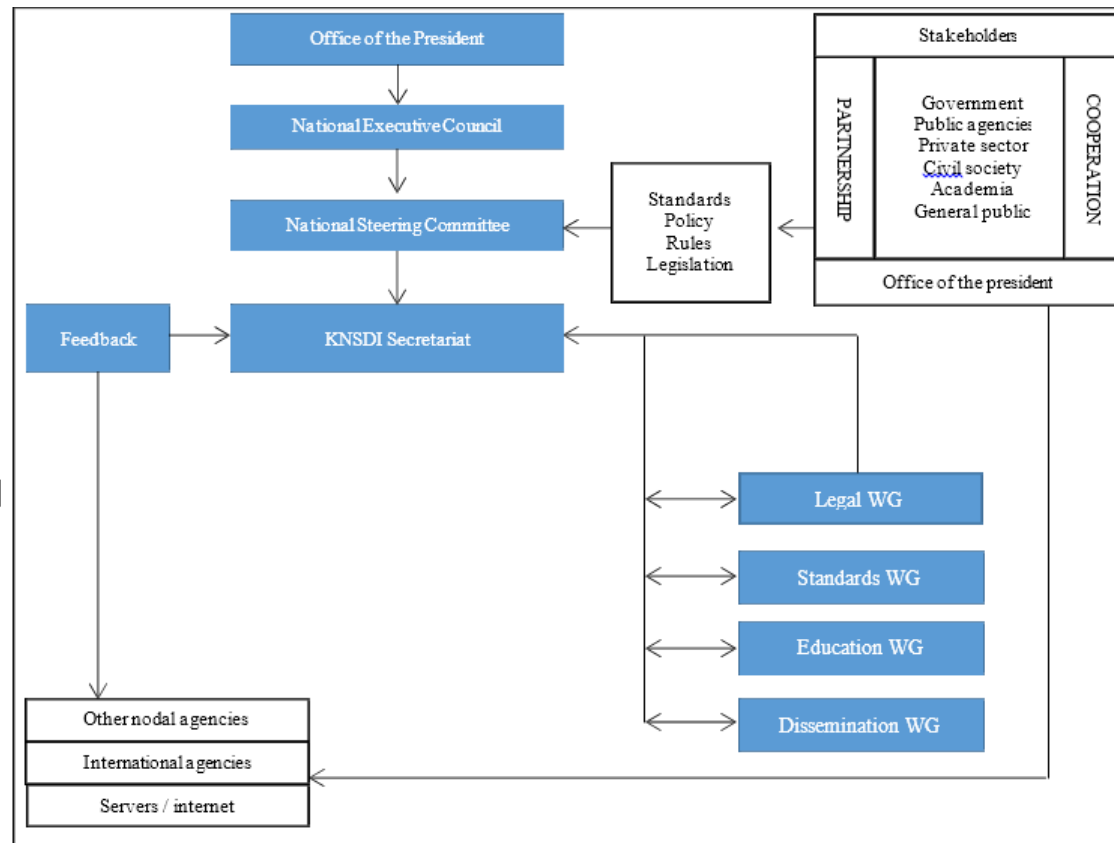
# KNSDI

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- xvii. The seventh KNSDI workshop was held in September 2009, at which JICA announced the end of funding.
- xviii. In July 2010, the committee of experts held a meeting and approved amendments to the policy. The secretariat was asked to finalise and submit the policy higher up in the hierarchy through the MoL. In addition, the KNSDI institutional framework was proposed.

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- xix. In July 2011, the Kenya Open Data Initiative (KODI) was launched, exposing a variety of data to the public, such as development, demographic, statistical, and expenditure. It was intended to improve service delivery, facilitate job creation, enable citizen feedback and better-informed decision making, and improved transparency and accountability . Most of the data is not essentially geospatial, although some have coordinates that can be spatially represented. Like other open data systems, the main concern is that the data is not well documented by metadata. However, KODI and KNSDI are expected to complement, but not replace, each other.

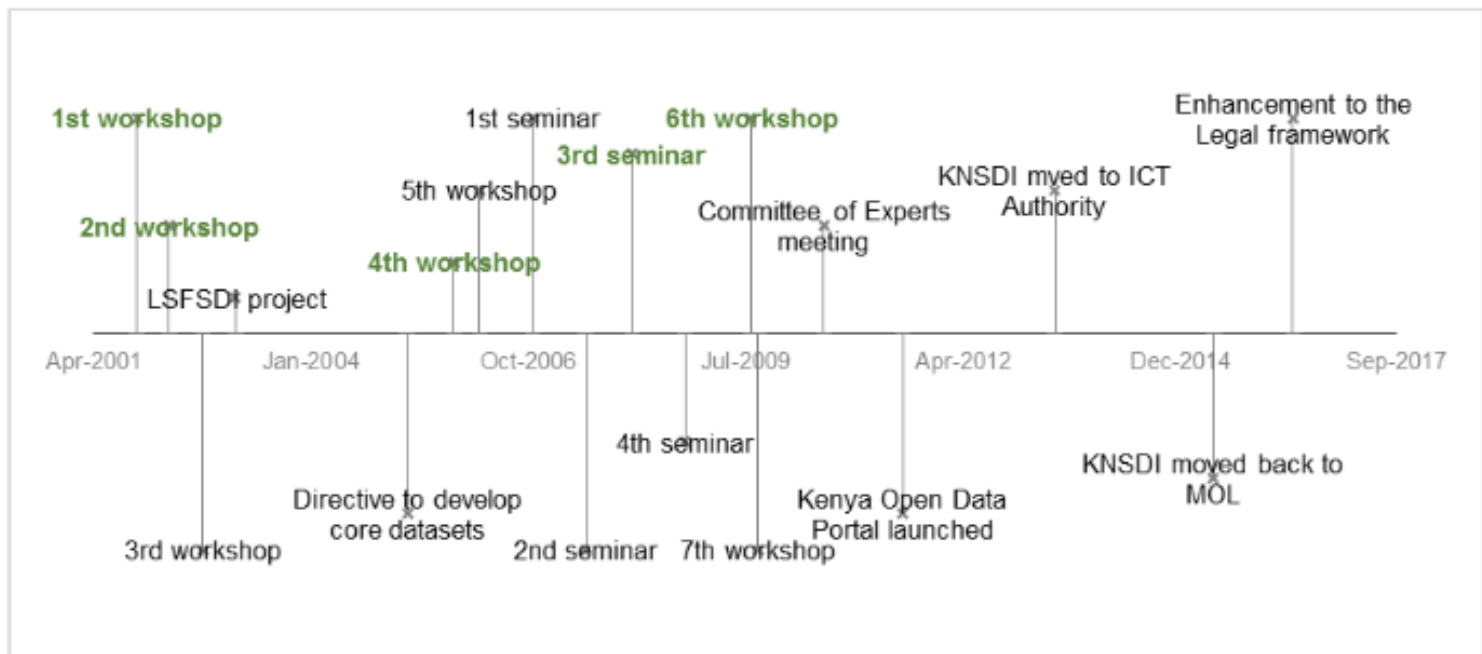


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  - xx. In 2013, a presidential directive was issued moving the KNSDI from the MoL to the ICT Authority. A review of the Kenya National ICT Masterplan (2014 – 2017) reveals that KNSDI is indeed one of the flagship projects to be implemented by 2018 . However, the MoL and SoK are conspicuously missing from the list of key institutions. In 2015, another directive from the Office of the Deputy President moved the KNSDI back to the MoL.
  - xxi. A significant development in 2016 was the anchoring of KNSDI into the Survey Act CAP 299.

# KNSDI

- Timeline of key events:



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- Timeline of key events :
  - Significant milestones are highlighted in bold green colour. They include the:
    - i. first workshop, which resulted in awareness creation and consensus building;
    - ii. the second workshop, which gave rise to an organizational structure;
    - iii. the fourth workshop, which established the KNSDI secretariat;
    - iv. the third seminar, where verification trials for the Kenya Profile for Geographic Information Standards (KPGIS) were carried out, including the launch of the pilot portal;
    - v. and the sixth workshop, during which the draft policy was adopted by the stakeholders.

# KNSDI

- Timeline of key events :
- Based on this chronology, three distinct phases of the KNSDI can be identified.
  - i. The first and second two phase (pre-2009) which were characterized by a high level of interest and activity in the KNSDI.
  - ii. The third phase, which apparently did not take off, would have actualized the KNSDI.

Financial support from the Government of Japan (GOJ) through JICA ended in 2009, signaling the end of the project. This concurs with the findings of Lance (2003), who argued that an SDI based on the project approach raises sustainability concerns.

Phase	Description	Duration
I	Building the capacity of the lead agency, SOK	2003–2009
II	Promotion of the use and application of GIS technology in Kenya	2003–2009
III	Construction of the KNSDI	After 2009

# KNSDI

- Achievements of KNSDI Events:

*KNSDI is listed as a priority project in Kenya's Vision 2030, and in the strategic plan of the MoL , underscoring recognition of its importance.*

- i. One of the major achievements of the KNSDI is the development of fundamental datasets . The datasets include:
  - a. establishment of large-scale spatial data framework (digital maps) for Nairobi city, Port of Lamu, city of Mombasa, municipality of Malindi, resort cities under the LAPSET2 Project;
  - b. digitization of 1.5 million parcels for titling; scanning and computerization of 66,000 survey records;
  - c. vectorization of 1:1M and 1:250,000 topographic maps covering the entire country; vectorization and updating of topographic maps at 1:50,000;
  - d. and preparation of base map series at 1:25,000.

# KNSDI

- Achievements of KNSDI Events:
  - ii. Formulation of KPGIS standards for data production; including technical competence in map digitisation, guidelines facilitating data sharing, training, and capacity building, and a setup of an organisational structure
  - iii. Stakeholders have agreed on the core spatial datasets: geodetic control, elevation, hydrology, vegetation, utilities, geographic names, transportation, parcel and administrative boundaries, and digital imagery
  - iv. technical competence in map digitization and specifications;
  - v. development of guidelines (copyright, pricing and security) to facilitate data sharing;
  - vi. Training and capacity building in GIS;
  - vii. organizational setup (the lead agency, the secretariat and WGs have been established);
  - viii. draft KNSDI policy which is awaiting approval by the authorities; and
  - ix. prototype clearinghouse portal has been developed, although it was inaccessible at the time of review.

# KNSDI

- Assignment: Based on the case studies of the countries SDI that you have reviewed as a group what is your opinion on Way Forward for KNSDI :