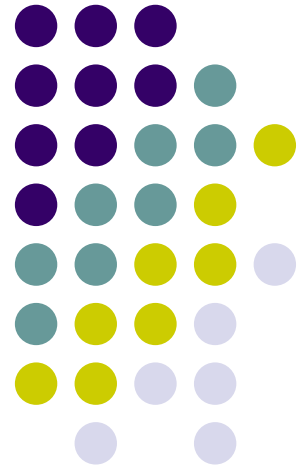


# THE KENYA NATIONAL SPATIAL DATA INFRASTRUCTURE WORKSHOP (KNSDI IV)

PRESENTATION ON  
NATIONAL LAND POLICY FORMULATION PROCESS (NLPFP)  
LAND INFORMATION MANAGEMENT SYSTEM

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30TH NOVEMBER 2005

SILVER SPRINGS HOTEL, NAIROBI



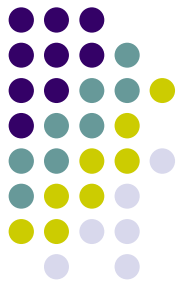
An INTEGRATED NSDI should provide information on services, infrastructure and socio-economic activities

# INTRODUCTION



- The **National Land Policy Formulation** has been going on for the last two years.
- An **Issues and Recommendations Report** has been finalised. The report is currently being converted into a **Draft National Land Policy**.
- Once the Draft Policy is ready, a **Cabinet Paper** will be prepared for cabinet deliberation, and if adopted by the cabinet, a **Sessional Paper** will be written for presentation to Parliament.
- When it is passed by Parliament, it will become the **Kenya National Land Policy**

# RELATIONSHIP BETWEEN LIMS AND NSDI



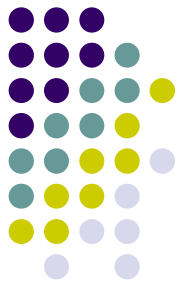
- The National Land Policy Formulation Process recognizes the role of **National Spatial Data Infrastructure (NSDI)** as that of **facilitating data dissemination and sharing**
- This role is further clarified as follows: “The modern approach to land information sharing and dissemination is the creation of a **Spatial Data Infrastructure (SDI)**, which at the national level becomes a National Spatial Data Infrastructure (NSDI). It consists of **technology, data, institutional arrangements** and **people** that enable the discovery, evaluation and application of **geospatial data** for users for all sectors of the economy, plus the general citizenry”. The proposed **LIMS** must therefore be seen as a major node in such an infrastructure.

# RELATIONSHIP BETWEEN LIMS AND NSDI

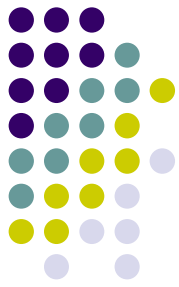


- According to the NLPFP, the envisaged essential datasets to be included in LIMS are those that are ordinarily resident in the Ministry of Lands and Housing. These are:
  - i. Land ownership and rights – **land registers** and **survey plans** including **parcels** defined under precise and general boundaries
  - ii. Land use planning
  - iii. Land valuation roll
  - iv. Inventory of public and community land – currently not existing

# RELATIONSHIP BETWEEN LIMS AND NSDI



- Georeferencing and basic mapping datasets will form part of NSDI. Other data producers (services and utilities infrastructure, socio-economic information, etc.) will post their data onto the NSDI so that it is accessible to other data producers and users. The NSDI will provide:
  - i. An institutional framework
  - ii. Inventory of datasets and systems
  - iii. Metadata catalogs
  - iv. A clearing house



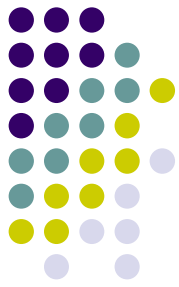
# WHAT IS A LIMS?

- A computer based information system that enables the capture, management and analysis of geo-referenced, land-related data in order to produce land information for decision making in land management.



# LIMS ISSUES

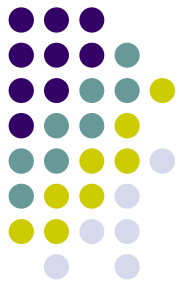
- Standards
- Geo referencing systems
- Alternative LIMS
- Requirements for establishing a LIMS
- Impact of existing legal and institutional framework
- Security issues for LIMS
- Ownership and intellectual property rights
- Land information dissemination and sharing
- Data and information pricing



# 1 STANDARDS

- **National ICT Policy** (which is under development) should provide for **standardized hardware, software and communications infrastructure** and should also address geoinformation issues.
- Data standards should be developed for geoinformation, to provide especially for standardized **feature definitions, data content, data coding, spatial referencing, data accuracies and metadata**, through the coordinated effort of all data producers.

# STANDARDS



- Every producer of geoinformation to be required to produce metadata and to conform to standards.
- In the short term, hardware, software and data standards should be developed mainly by adopting and customizing standards already developed by major bodies such as the [ISO/TC 211](#), [FGDC](#), [OGC](#) and also de facto standards developed by industry.

# STANDARDS



- A strong **GIS professional association** should be formed. Such an association will not only generate the synergies needed for the development of standards, but will also enable the development of a code of ethics for geoinformation professionals plus the standardization of the relevant training through certification of professionals and accreditation of academic programmes.

# STANDARDS



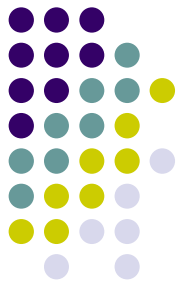
- The **Kenya Bureau of Standards** should be involved in the work of ISO/TC 211 as a participating national body rather than a mere observer national body. It should start by forming a subcommittee to coordinate the formation of geo-information standards.
- **GIS installations** should be encouraged to adopt and use some of the “open source” software that is available free over the internet and makes available the source code.

## 2 GEOREFERENCING SYSTEMS

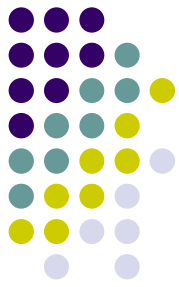


- A unitary and homogeneous network of **control points** of adequate density should be established, preferably using dynamic technology such as GPS.
- The **Survey Act** should be amended to allow for the use of modern technology such as GPS, GIS etc.
- Re-determination of **sea level** and a systematic observation of the gravity should be undertaken to enable redefinition of the geodetic datum.

# GEOREFERENCING SYSTEMS



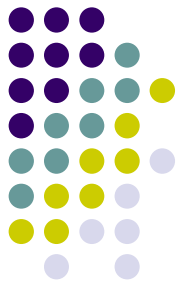
- Kenya should be an active participant in regional and **global geo-referencing** initiatives such as AFREF and ITRF.
- The Survey of Kenya should be required to develop and maintain a **nationwide DTM dataset** at appropriate scales



## 3 ALTERNATIVE LIMS

- Existing **paper based land records** should be re-organized, updated and authenticated in terms of accuracy in preparation for computerization.
- A **computer based LIMS** should be set up urgently, and be interfaced with **MIS** in the public and private sectors.
- The preferable **database model** should be relational or object-relational

# ALTERNATIVE LIMS



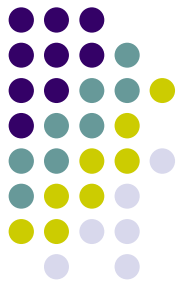
- In order to avoid a lot of data politics that could derail the LIMS, distributed or federated **database architectures** may be preferable.
- The national LIMS should be configured to fit in with similar **regional initiatives**

# 4 REQUIREMENTS FOR LIMS



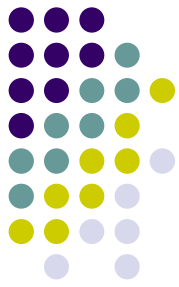
- The LIMS to be set up in a systematic manner by ensuring that **prerequisites** such as awareness creation, feasibility study, user needs assessment, authentication and updating of existing records are carried out.
- Unnecessary **controls** on availability of land information to be removed in order to allow the growth of a viable information market to sustain the LIMS.

# REQUIREMENTS FOR LIMS



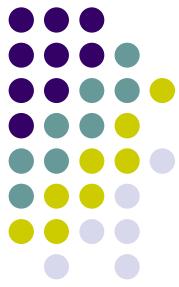
- A Land Authority with a **land information management division** and preferably with a parastatal status be set up to manage land matters including the LIMS.
- The **private sector** to be involved in the setting up of the LIMS.
- A continuous **budget** to be provided for sustainability of the LIMS.
- A **Research & Development** unit to be established to facilitate continuous research on LIMS technology.

# REQUIREMENTS FOR LIMS



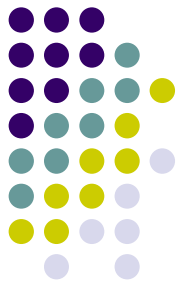
- A way to be found to incorporate **unregistered lands**, especially slum areas into the LIMS, even for visualization purposes only before they are mapped and registered.

# 5 LEGAL AND INSTITUTIONAL ARRANGEMENTS



- The many laws that touch on land should be **reviewed and harmonized** and for land registration, there should preferably be just one law.
- A **land information law** should be enacted to provide for all aspects of land information access and management.
- There should be established a **Land Information Management Division (LIMD)** within the proposed Land Authority, which agency would be responsible for coordinating land information management activities nationwide.

# LEGAL AND INSTITUTIONAL ARRANGEMENTS



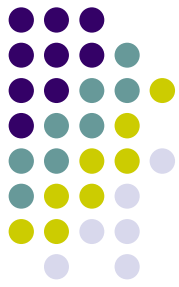
- A mechanism should be defined for incorporation of **traditional land information** in the LIMS.
- Existing institutions to be **re-structured** in order to be receptive to the LIMS.
- **Offices** offering land transaction services to be as close together as possible at any station.



## 6 SECURITY ISSUES FOR LIMS

- **Security** of the present LIMS to be improved through better data storage and handling and stricter access protocols.
- Every LIMS installation to be required to have viable **privacy**, **access**, **accountability** and **authentication** policies.
- Laws to be enacted against **cyber crime** and other **IT-related crimes**.

# SECURITY ISSUES FOR LIMS



- The police department and other security organs to urgently develop **capacity** to fight cyber crime in partnership with other public and private institutions.
- **Legal deterrents** to be developed to facilitate LIMS data security.
- All LIMS installations to be required to have **data backup systems**

# 7 OWNERSHIP AND INTELLECTUAL PROPERTY RIGHTS



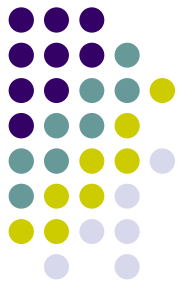
- A trade off be struck between the need to protect investment in LIMS for the purpose of **sustainability**, and the **right of citizens** to a publicly funded information resource.
- Relevant **intellectual property protection** laws such as Copyright, patent etc. to be strengthened and others developed to adequately cater for fair commerce in land information.

# 8 LAND INFO DISSEMINATION AND SHARING



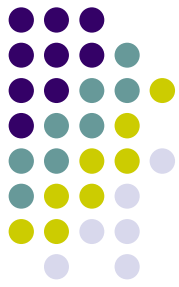
- Land information to be made available to at least the divisional level.
- Land information to be made available in a **form** and **language** that can be understood by most citizens.
- There should be a commitment to general **automation** in the country, with deliberate policies to promote **computer availability** and **internet connectivity**
- Priority to be given to further development of the **NSDI initiative**

# 9 DATA AND INFORMATION PRICING



- There should be appropriate **amendments** to all laws and regulations that restrict the availability of land information products to the market.
- **Mechanisms** should be put in place to minimize the cost of land information such as the sharing of facilities, hiring (instead of buying), equipment, etc.
- A comprehensive **metadata catalogue** should be produced and maintained in respect of all LIMS products, and an appropriate marketing strategy put in place.

# DATA AND INFORMATION PRICING



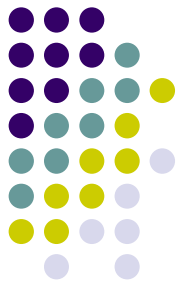
- The management of the LIMS to put in place an appropriate **pricing strategy** that will take cognizance of the following:
  - (i) The need to generate **sufficient revenues** to sustain the LIMS.
  - (ii) The need to apply **differential pricing** for different categories of citizens such as sister government bodies, private citizens, private corporations, the poor etc.

# WAY FORWARD



- An initial **feasibility study** of the LIMS component of the NLPFP has been carried out to assess the practical aspects for **implementation** of the proposed LIMS
- Due to the short duration of the study it was not possible to provide a clear way forward for the implementation of LIMS. This is particularly on the **scope of datasets** which have been very generalised.
- The study has recommended a **follow-up research** to fill the gaps left by the research on datasets and systems.

# WAY FORWARD



- It is suggested that a distinction between the roles of NSDI and LIMS should be **clarified and harmonised** to avoid complications during the implementation phase. A clear **definition of the datasets** that will form the LIMS is mandatory as it will have a bearing on the whole implementation plan.



END.