LAND INFORMATION SYSTEM FOR LAND MANAGEMENT IN KENYA.
CASE STUDY: NAIROBI COUNTY, BURUBURU PHASE I ESTATE

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INTRODUCTION

- Land administration is the process whereby land and information about its ownership is effectively in the control of a central authority that regulates the structure and patterns of land ownerships, land use, and access of the public to land resources in such a way that it is used in a sustainable manner from both environmental and economic perspectives.

- Benefits of a good LIS time saving during information retrieval, transparent land dealings, better functioning land market, ability to access the collated records at State level, ability to use with other datasets and reduction in times to get loans, get utilities, change ownerships, subdivide parcels.
INTRODUCTION

• In Kenya, land administration is devoid of the efficiency attributes indicated mentioned.

• A number of problems are encountered in the current system.

• Prominent among these is the lack of a centralized database that is easily accessible.
OBJECTIVES

• Main objective
The main objective of this project is to create a prototype Land Information System towards a good land management in Kenya.

• Specific objectives
To create large-scale maps showing property boundaries major features such as roads, sewer and water networks
OBJECTIVES

Specific Objectives
- To create a register containing information on ownership, valuation, land use for every land parcel.
- To perform analysis that will demonstrate the database functioning.
METHODOLOGY

REQUIREMENTS ANALYSIS AND DATA COLLECTION
- Survey plans
- Attribute data (parcel No., Area, etc.)
- Land use
- Valuation
- Land rate
- Land rent
- Utilities (Water, etc.)

DATABASE DESIGN
- Create LIS relational database for attribute data in Microsoft Access

DATA PRE-PROCESSING
- Creating digital file in ArcGIS software
  - Scanning Survey plans
  - Data transformations into a common coordinate system
  - Georeferencing data
  - Data digitization

DATA INTEGRATION AND ANALYSIS
- Linking the Access database and database in ArcGIS

OUTPUT OF THE ANALYSIS
- Maps
- LIS relational database
- Access of database
<table>
<thead>
<tr>
<th>Data type</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shapefiles for parcels</td>
<td>Survey of Kenya</td>
</tr>
<tr>
<td>Attributes for parcels eg. Area, parcel number, name of surveyor</td>
<td>Survey of Kenya</td>
</tr>
<tr>
<td>Water network</td>
<td>Nairobi City Water and Sewerage Company</td>
</tr>
<tr>
<td>Sewer network</td>
<td>Nairobi City Water and Sewerage Company</td>
</tr>
<tr>
<td>Land rate</td>
<td>City Council of Nairobi</td>
</tr>
<tr>
<td>Land rent</td>
<td>Ministry of Lands Housing and Urban Development</td>
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<tr>
<td>Land use data</td>
<td>Ministry of Lands Housing and Urban Development</td>
</tr>
<tr>
<td>Valuation data</td>
<td>City Council of Nairobi</td>
</tr>
<tr>
<td>Ownership data</td>
<td>Ministry of Lands Housing and Urban Development</td>
</tr>
</tbody>
</table>
RESULTS AND ANALYSIS

- Various maps were produced from this study.
  - Cadastral map
  - Land use map
  - Cadastral overlay with sewer, roads and water networks
- Data retrieval using SQL
Cadastral map of the study area. The map was digitized from Survey Plans obtained from survey of Kenya.
LANDUSE MAP

Land use map of the study area. The map was created using the data collected from Ministry of lands
The area was originally a residential estate but it is evident that some parcels are being converted to commercial plots by change of user.
Cadastral overlay map of the study area. Cadastral parcels overlaid with sewer, water and road network.
With the newly developed LIS system, data and information can be retrieved easily and faster.

- SQL
- Identifier tool
SQL to show parcels Valued between 1.8 to 7.2 million Shillings

SELECT: Valuation
FROM: Parcels
WHERE: "Valuation_" >= 0.18 AND "Valuation_" <= 0.72
SQL to show parcels that have faulty water networks

**SELECT:** Water

**FROM:** Parcels

**WHERE:** “Water” = “faulty”
Information retrieval by identifier tool
CONCLUSION AND RECOMMENDATIONS

• Conclusion

The design of the prototype Land Information System database of Buruburu Phase I was achieved.

The Land Information database was validated by running some test queries.

The LIS has provided a permanent link between land and office records and can facilitate in easy and faster information retrieval.
Conclusion

- Geographical information systems have proven to be power tools in creation of geographically referenced databases which no other software can perform.
- The developed system can be used to maintain county land records information and therefore subsequently help manage land title information.
Recommendations

- The project should be extended to other counties in Kenya to be used to digitize and manage large datasets. This will ensure efficient land information management.

- The project should be improved to enable track the land rate and rent defaulters. This will improve in revenue collection and help bring justice to those who evade paying land rates and rent.
Recommendations

• The LIS across counties should be networked to enable sharing of data and reduce redundancy.
THANK YOU