



UNIVERSITY OF NAIROBI

School of Computing and Informatics

M.Sc. Information Systems

ELECTRONIC LAND REGISTRY FOR KENYA

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Submitted in partial fulfillment of the requirements for M.Sc Information Systems


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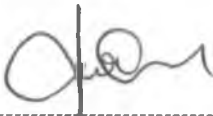
DECLARATION

All the work contained in this project paper is the result of my sole efforts. It has no prior publication, a degree award or any other award.

Signed -----
Collins C. Ngeno

-----20/04/2010-----
Date

This project has been presented for examination with my approval as a University of Nairobi supervisor.

Signed -----
Mr. Andrew Mwaura

-----23/07/10-----
Date

DEDICATION

Dedicated to my lovely wife Gladys Ngeno and daughter Leanne Cheron.

God bless you for your support.

ACKNOWLEDGEMENT

First and foremost, I thank God for seeing me through to the end of the project. My Supervisor Mr. Mwaura has been a great source of inspiration and has guided and corrected me whenever I deviated.

Thanks to Onsando, Ogonji & Tiego and Sichangi & Company advocates, for generously volunteering vital information which helped me in various aspects of the project. To the above and also those who worked behind the scenes to ensure that my project is completed successfully, thank you all.

ABSTRACT

Land in most Kenyan societies is the most important of the natural resources, representing the foundation of much of the country's economic activity. For most individual Kenyans, the purchase of a parcel of land represents the largest financial and legal transaction of their lifetime. Hence the buying, selling, and refinancing of land is a significant component of the Kenyan economy. Therefore the ability to firmly and quickly establish ownership and to allow secure and effective transfers is essential to the economic competitiveness of Kenya in the modern world. The ever-increasing growth in population has led to the ownership of land changing hands frequently. This has led to an increase in the number of transactions carried out daily in the land registries, and corroborated with the independent decentralized land registries units, makes the present manual registration system slow, cumbersome, costly to run, manage and maintain.

The idea was conceptualized after a study of land registration in England, Wales and the province of Ontario, who have successfully managed to fully implement Electronic Land Registration. From this study, ways in which Kenyan land registration system could be improved.

The current land law recognizes paper based transactions only. For Electronic registration system to be actualized, reference was made to the land laws of Kenya, consultation with land law experts was also done so as to formulate a suitable legal framework. Electronic land registration system for Kenya, has been designed with the end user in mind, the system supports the current workflow of documents from one office to the next in a typical land registry. The language used on the interface is simplified and the system generated messages uses jargon that the end users are used to. This makes it easier for them to adapt to the new system and also reduces training time.

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1.7 List of Abbreviations

- **LARIS-** Land Registry Information System
- **CAP-** a chapter in the constitution of Kenya
- **ICT-** Information and Communication Technology
- **GIS-** Geographical Information System.
- **Registry:** Land office where land register is kept
- **Land register:** public record kept for registration purposes.
- **Customary law:** a form of land law where the collective memory of the particular community, clan or family is concerned in guidance of the communal usage of land. Has no system of registration.
- **Land certificate:** a prima facie evidence that a person named on it is a holder of freehold estate.
- **Mortgaging:** using the parcel of land as a security against a loan.
- **Clients:** land owners and other interested parties who wish to effect transactions on land.
- **Distributed system:** application design paradigm in which programs, the data they process, and the actual computations are spread over a network, either to leverage the processing power of multiple computers or due to the inherent nature of an application comprising different modules.
- **Land search:** the process of verifying the title deed by going back to the register.
- **Title deed:** a reproduction of what is noted on the register.
- **Registry/index map:** a map that reflects the physical/geographical positions of the parcels of land prepared for each land registry by the director of survey.
- **PIN:** Personal Identification Number. In this context it refers to the number given by Kenya Revenue Authority to identify ones self when remitting tax to the government.

1.1 Problem Definition

The Registered Land Act (Cap 300 of Kenyan Laws) requires that all land records should not be destroyed, rather stored for future reference and/or settlement of disputes. Hence all land transaction records kept since the establishment of the current paper system in 1967, represents a substantial amount of paper documents. It is therefore time consuming to manually search for a specific record through numerous cabinets of the existing documents.

The decentralization of the land registries to provincial and district levels alienated the registries from one another making them virtually independent. Any transaction carried out on a parcel of land has to be conducted in its respective land registry raising client costs. This alienation also reduces the processing power and analysis of collected data of decentralized registries with the central registry since exchange of information is mainly through registered mail which takes time for the message to be delivered. This, despite the high potential in the districts to process and use the available data, the capacity for processing and use of data, remains substantially limited, particularly in terms of enabling technology.

The Ministry of Lands and Settlement uses a wide range of instruments to collect and maintain data on land interests, leading to substantial duplication and repetition. In addition, as a result of high data capture, processing and analysis at the headquarters, and the large volume of paper data, as well as inability to handle such volumes, processing and analysis are substantially delayed, and/or never carried out, leading to adhoc decision making, planning and resource allocation. This has also created avenues through which corrupt officials liaise with landowners to defraud the government. An example is the case with land rate payers who collude with land officials in various councils in the country resulting in much lower rates and interests paid and penalties charged (to defaulters) avoided.

1.2 Project Objectives

1. To study land registration and related laws, with the aim of improving the process by introducing Information Systems. The manual system currently in use was adopted in 1963 and up to date 45 years later no improvements have been made to it despite the fact times have changed.
2. To review related land registration systems in other countries, who have successfully converted form manual paper based registration system to electronic land registration.
3. To recommend the required amendment to the land law so as to support electronic land registration.
4. To develop a system to that will automate the management of land records, with the of:-
 - Improving Management of land records through enhanced security, accuracy and integrity of land records.
 - Improving Administration of Loan system by supporting the use of one parcel land to secure a credit facility in more than one financial institution
 - Enabling easy and effective conveyance, through a simplified workflow. The current system is long and usually complicated for an average Kenyan.

1.3 Background to the Problem

Land registration was officially adopted in 1902, through the enactment of The Registration of documents Act (R.D.A) Cap.285 Laws of Kenya (1902). The system was later revised four times before independence in order to effectively meet the goals of registration. In 1963 The Registered Lands Act Cap.300 Laws of Kenya was enacted with the aim of establishing land registries in every district. The government had intended to convert all parcels of land to the new registration system, however up to date 45 years later, this has not been achieved and the registration system, is no longer able to effectively meet the following goals of registration system:-

1. Reduction of unnecessary litigation
2. Facilitation of Government property tax administration
3. Administration of Loan system
4. Enabling easy and effective conveyance.

The biggest challenge has been due to the legal requirement that all records should not be destroyed, whereas this was not a problem in the past; the growing population has led to an increase in land transactions.

1.4 Project Justification

Unnecessary litigation

The current system is long and complicated for the average Kenyan to understand, this creates a major loophole normally exploited by unscrupulous individuals to illegally acquire interests in land without the real owner realizing. After making money they disappear leaving the original owner and the new owner engaged in fierce court battles.

Access to Credit facilities

Should a land owner wish to take a bank loan against the land, the bank will hold the whole piece of land in lien irrespective of the amount advanced. In the unfortunate situation that the land owner is unable to service the loan the bank will sell the whole piece of land even if the loan balance is equivalent to 10% of the total value of the whole land.

Efficient Search:

It is impossible to exhaustively get information about a piece of land when a search is performed as highlighted above and hence calls for the implementation of a more efficient registry, so as to avoid being inconvenienced by third parties with overriding interests after acquiring the property.

Time consuming:

The Registered Land Act (Cap 300 of Kenyan Laws) requires that all land records should not be destroyed, rather stored for future reference and/or settlement of disputes. Hence all land transaction records kept since the establishment of the current paper system in 1967, represents a substantial amount of paper documents. It is therefore time consuming to manually search for a specific record through numerous cabinets of the existing documents.

Data Integrity:

Since multiple copies of land documents exist in different locations there are times when changes made on one document are not cascaded to reflect in all the copies, and there is no mechanism of keeping track of these changes hence causing inconsistency.

CHAPTER 2: LITERATURE RIVEW

History of land law in Kenya

Land law is in the main statutory in Kenya, contained in various enactments of parliament. Act No. 16 of 1967 (Cap 8 Laws of Kenya) stipulates that the native law applies so far as it is applicable and is not inconsistent with any written law.

Land law in Kenya is not a direct development from customary law to statute law. It's intertwined with European settlement in Kenya from the end of 19th Century. It's also connected with the Arab settlement at the coast from early historical times.

As a result the written law or received law relating to land has until very recently been concerned with serving interests of a small section of the community. For the greater of the colonial period, land law was designed to serve the interests of the white settlers.

2.1 Comprehensive Code of land Law

This was the objective in enacting Registration of Titles Act Cap. 281 Laws of Kenya and later registered land act cap.300 laws of Kenya. What has happened instead is that proper steps have not been taken to ensure that the administration of the earlier statues has been terminated on the introduction of the later one.

Multiplicity of Codes

This has resulted in an application of multiplicity of codes to different pieces of land in Kenya. There are two systems of substantive land law, three systems of convincing and five systems of registration. The two systems of substantive land law are under the Indian Transfer of Property Act 1882 as amended by 1959 amendment act and under the registered land act. The three systems of convincing are those applicable to land registered under government Lands act Cap 280, part X of Laws of Kenya and Land Titles act Cap 282, part III laws of Kenya as one, registration of titles act as two and registered Land Act as three.

2.2 Registration Systems

The five registration systems are those under:-

2.2.1 The Government Lands Act (G.L.A) - 1915

In 1902 the crown Lands Act was introduced to enable alienation of crown lands. In 1915, the 1915 statute was passed and adopted as its model the registration machinery of Land Titles Act (L.T.A). It brought with it a fairly advanced system of registration of deeds and the provision for accurate survey and deed plans.

The Act introduced the English form of conveyance.

2.2.2 The Registration of Titles Act (R.T.A) -1919

The purpose of this statute was to introduce a form of title registration based on the Torrens system of title. The registration of the title system was pioneered by Sir Robert Torrens in Australia. Whenever reference is made to the Torrens system, it's a reference to the title registration system as pioneered by Sir Robert Torrens. The R.T.A was modeled on the Registration of Titles Enactment Act 1897 of the Federal Malay states and the Transfer of Land Act 1890 of Victoria.

2.2.3 The Land Titles Act (L.T.A) - 1908

The precise background to introduction of L.T.A lies in the fact that the Sultan of Zanzibar owned ten miles of the Coastal strip, but subject to the rights of the inhabitants. These rights had to be adjudicated. It, therefore, became important to ascertain who had the individual titles. A recorder of titles was set up and a land titles register. The unclaimed land was leased to the British Government but this was brought to an end and the land was at independence in 1963 vested in the Kenya Government as freehold. The sultan was instead paid compensation.

The procedure under L.T.A of adjudicating private rights was copied from an Act of Ceylon, Act No. 3 of 1907 Ceylon. The title of recorder of Titles under the L.T.A was borrowed from Tanzania.

2.2.4 The Registration of documents Act (R.D.A) Cap. 285 Laws of Kenya (1902)

In 1986 a simple system of registration of documents was recommended. A similar system of registration had earlier worked in Zanzibar. As a matter of fact its introduction in Kenya was consonant with the normal practice of the colonialists in the discovered lands which were being settled. R.D.A was

preceded by registered regulations. The system is a simple registration of deeds. Under it isolated transactions are recorded. The record is evidence of the transaction having taken place.

2.2.5 The Registered Land Act (R.L.A) - 1963

Prior to the introduction of the RLA examination of the current law and the procedure relating to the registration of land was done. The committee tasked was to examine the creation of transfer of interests and to make recommendations for the coordination and, in so far as it was possible, the unification of existing systems. RLA was the product of the labour of this committee; it is a code of substantive law, registration law and conveyance law. The following sources were used.

- Land Registration Ordinance of Tanganyika (1954)
- The Singapore Land Titles Ordinance (1956)
- The Sarawak Land code (1957)
- The Victoria Transfer of land Act (1954)
- The Lagos Registration Land Act (1960)
- The British Solomon isles Land & Titles regulations
- The British Guiana land registration Ordinance (1959)
- Land Regulation (Special Areas) Act 1959 of Kenya. - L.R of (S.A)

Conversion to Registered Land Act (RLA)

The registers kept under S 33 of L.R of (S.A) Act automatically became converted into registers under the RLA S11(1) of the L.R (S.A) Act had already in operation a system of index maps, divided into districts comprising registration sections similar to the system contained in R..L.A. Although S12(1) a(i) of RLA provides that the titles to the parcel of land comprised under a certificate of title or grant under Registered Titles Act, shall be registered under the R.L.A of the land registries in Mombasa and Nairobi have to search and sort out the existing registers in preparation for RLA. Many blocks in Mombasa have so far been converted and are now registered under RLA.

2.3 The Goals of Registration

A good system of registration will aim at:-

2.3.1 Achieving security of Tenure

This is the security which gives one the right to indemnity from the government. The purchaser of a peace of land from a proprietor on the register should have the commercial confidence in the transactions unbothered by the deficiency in the title not revealed on the register.

2.3.2 Reduction of unnecessary litigation

This is achieved through registration in that, size and the owner is determined. This is an important goal of registration. The reduction in litigation is exactly why under a good registration system, survey is an indispensable prerequisite and it's also precisely why under adjudication act no. 35 of 1968 titles, estates or any other interests are exhaustively arbitrated. Once registration has taken place one may transact or settle on his land without the fear of being sued. As stated above the registered owner cherishes an indefeasible title against the whole world.

2.3.3 Prevention of fragmentation of land into small valueless pieces.

One needs permission under the land Control Act No. 34 of 1967 in case of agricultural land. A land control board has the discretion to refuse consent because a land deal can lead to sub-division which may result in unnecessary fragmentations, which are uneconomically viable.

2.3.4 Facilitation of Government property tax administration

The facilitation of tax administration is achieved as an objective of registration because registration enables the government to identify the person against whom to levy the tax or a rate regarding a parcel of land. As the land transactions have to be registered one can follow up a sale of land and tax it.

2.3.5 Administration of the Loan system

Backed with the registered titles, the proprietors of land have better chances of persuading the banks to grant them loans. The banker will want to be sure that he will have a proper title which can be easily transferred to a new owner should the borrower default.

2.3.6 Enabling easy and effective conveyance.

A good registration system should enable easy and systematic transfer of land ownership. One should also be able to trace backwards all transaction involving the land, in case of disputes.

2.4 Ministry of Lands and Settlement

This ministry was set up in Connection with the government's efforts to rationalize a complex and apparently confused state of land law.

In order for the government to deal executively with the powers of regulation, alienation and forfeiture given it by statute, a lands office was set up under the ministry.

2.4.1 Land Registry and Department of Survey

One of the sections of the Lands Office is the Land registry and is a vital organ in connection with registration of interests in land. The chief officer is termed the Principal registrar of Titles under the Registered Titles Act and Chief Land Officer under the Registered Lands Act (R.L.A). The principal registrar of titles is in charge of the only two registries at Nairobi and Mombasa. Under R.L.A there are established district registries in each district.

2.4.2 Registration in Perspective

A look at each registration system will show clearly how other registration systems culminate in the latest system under RLA. Coupled with this will be a summary of the goals of registration, an analysis which should provide a basis for evaluating a given individual system. A brief description of process of registration should be able to acquaint one generally with the procedure involved in the arduous but no doubt useful task of registration and at the same time an analysis of the registration systems is a study of a very important mechanic of conveyance law.

Land registration is part of and parcel of both land law conveyance, it forms a bridge between the two.

2.5 Conveyance

The term refers to the transfer of estate and interests in land once subsisting may be transferred and dealt with generally and how they may be extinguished.

2.5.1 Conveyance Systems

The instrument effecting transfer differs with the interest being transferred and with the conveyance system that is applicable. In Kenya there are three conveyance systems:-

- The deeds system applicable to Government Lands Act (G.L.A) and Land Titles act
- System applicable to Registered Land Act (R.L.A)
- System applicable to Registered Titles Act (R.T.S)

Substantively these three can be further classified into two broad systems

- Deeds System
- Titles Registration system

2.5.2 The Deeds system

The conveyance under L.T.A and G.L.A is done in accordance with the real property Act, 1845 of England and Conveyance Act 1881 which were statute of general application as at 12th August 1897. In

England, accordance with the said act, conveyance was by deeds characterized with thorough investigation of title as to its appropriateness and validity.

Therefore, under L.T.A and G.L.A conveyance is by deed and titles have to be investigated back to the government grant and all instruments nationally require verification. By this system

2.5.3 Titles Registration Systems

In this system the transfer is effectual upon registration of the interest. Although the R.L.A and R.T.A conveyance systems have a common peculiarity of emphasis on registration to confer an interest, they are sometimes treated as different conveyance systems. Their interim mechanics before registration consist use of statutory forms, however the other mechanics an legal incidents vary.

2.6 Leases

This refers to a type of land interest, created when the proprietor of land lets out his land to another person under such circumstances that the party obtains a right to exclusive possession.

Registration of Leases

Long leases are supposed to be registered, however the period varies between the different legislation governing land registration as follows:-

- Government Land Act stipulates leases from 1 year onwards.
- Registered Titles act require leases extending beyond a year, and leases that have an option of renewal.
- Registered Lands Act requires registration for leases beyond 2 years.

2.7 Restraints

A person other than the proprietor may protect his land interest in the land of the proprietor by means of a restraint on disposition of land. A restraint either stops or delays dealings on the proprietor's land.

2.7.1 Caution

Section 132(2) of Registered lands act states that as long as a caution remains in registered, no disposition which is inconsistent with it shall be registered except with the consent of the cautioner or by order of the court. It is imposed be a person other than the registered proprietor. It is in the nature of a temporary injunction and whilst it subsists it entitles the cautioner to a notice of any proposed fresh transaction requiring registration.

2.7.2 Inhibition

Under section 128(1) of R.L.A the court may make an order inhibiting for a particular time or until occurrence of a particular event, or generally until a further order, the registration of any dealing with any land lease or charge.

Inhibitions can only be removed under the following conditions:-

- Expiry of the time specified.
- Occurrence of the specified event.
- On the land, lease or charge being sold by a chargee unless such a sale is itself inhibited.
- Order of the court.

2.7.3 Restriction

Section 136 empowers the registrar with or without application of any person interested in the land, lease or charge, after directing such inquiries to be made and notices issued and hearing such persons as he thinks fit, may direct an order prohibiting or restricting dealings with any particular land lease or charge.

Removal of restriction as stipulated under section 138 of R.L.A the registrar may at any time upon application by any person interested or of his own motion, and after giving the parties affected an opportunity of being heard, order the removal or variation of a restriction. The court may also order a restriction to be removed or varied or make such orders in its discretion and may thereby award costs.

2.7.4 Caveats

The equivalent of caution is the statutory caveats under the G.L.A and R.T.A. The word statutory caveat is normally used to differentiate it from registrar's caveat which is equivalent to a restriction under R.L.A. Prohibitory orders are the

- Registrar's caveat

The law provides for the registrar to place a caveat on behalf of the Government to prevent the transfer or any transaction in land belonging to or supposed to belong to the government and also to prevent any transaction in which the registrar becomes aware that there has been an error in the description of the land or in the certificate of title or any instrument. The registrar can also place a caveat to prevent fraud or improper dealing.

- Statutory Caveat

This is where a third party registers a caveat verified by a caveator's oath. The third party must be one entitled to a claim as a right whether contractual or otherwise to obtain an interest in land capable of creation by a registered instrument.

- Removal of caveat

A court of law may order the registrar to withdraw the caveat. Upon receipt of the order the registrar will give 28 days notice requiring the caveator to remove the caveat.

A caveat may also be removed if it was lodged wrongfully and without reasonable cause. If this resulted in financial loss, the person responsible will be required by law to refund the money lost.

2.8 Related Research

I studied similar registries that have been set up in other countries

2.8.1 Province of Ontario

The Province of Ontario is the first jurisdiction in the world to provide electronic registration of land-related documents. Since 1999 when the Land Registry Office in London, Ontario made the first transition from the old paper-based system, the province, together with its private sector electronic service delivery provider, Teranet Inc., has offered consumers and businesses a secure and technologically efficient online system for searching land records as well as for transmitting electronic, paperless land titles documents.

Lodging of Documents

Any person may lodge electronic documents for registration in the Land Registry provided they have an account with a third party licensed operator, Teranet. A Personal Security Package (PSP) consisting of a personal security disk (floppy diskette with encrypted information) and a pass phrase is also required to access the system. A detailed subscriber agreement is entered into between the user and Teranet. There is no direct agreement with the Ontario Land Registry department

Land Titles Assurance Fund

The Land Titles Assurance Fund (LTAF) was created under the Land Titles Act to compensate people for certain financial losses due to real estate fraud, omissions and errors of the land registration system.

Claims that qualifies for compensation

Claims arising out of the following may qualify for compensation from the Fund:

- Fraud, in certain circumstances
- Errors or omissions of the land registration system
- Errors in recording by land being brought under the act
- Errors in recording an instrument in the automated land registration system

The Fund may award compensation for the following losses:

- Financial losses as a result of a fraud or error
- Reasonable legal costs related to the claim
- Other reasonable costs related to the claim.

2.8.2 Electronic Registry in England and Wales

The electronic registry system was adopted so as to register title to land in England and Wales, and record dealings (for example, sales and mortgages) with registered land.

The principal aim of forming the registry was:-

- Maintain and develop a stable, effective land registration system.
- Guarantee title to registered estates and interests in land.
- Enable confident dealings in property and security of title by providing ready access to up-to-date and guaranteed land information

Match the ever more ambitious performance targets set by the Lord Chancellor.

Electronic Conveyance

E-conveyance has its origins in a joint Law Commission/Land Registry report: “Land Registration for the twenty-first century, a conveyance revolution”, which was published in 2001.

The report set out a vision in which:

- Users of the e-conveyance network could transact with each other securely;
- Users could share information electronically;
- Errors and discrepancies would be identified and rectified at the earliest possible stage;
- Electronic deeds and documents would be signed with electronic signatures;
- Registration would happen much more quickly than in the paper world, so protecting the interests of landowners at an earlier stage.

Digital Signing of documents

1. Once the parties have agreed, a conveyancer is appointed to proceed with the legal process.
2. The conveyancer will login to the registry website and create an electronic mortgage deed for the proprietor to sign. They will also supply the proprietor’s contact details.

3. An initial login instructions and security credentials will be sent to enable one to sign electronic mortgage deed online. The proprietor will receive a username, temporary password and an authentication grid.

The authentication grid is used in the electronic signing process. It is a chessboard-type grid with a unique combination of letters and numbers in the squares.

4. Once the proprietor receives all security credentials and are ready to sign electronic mortgage deed, the proprietor will need to login to the registry website.
5. Upon login for the first time, the proprietor will be asked to change the temporary password and answer some shared secret questions. These are questions and answers stored on the system for security purposes. They are known only to the user and can be used to allow one to reset his/her password should he/she forget it.
6. The proprietor will then be presented with the registry Signature Network Access Agreement. He/she will be asked to view and then accept this agreement.

CHAPTER 3

SYSTEM ANALYSIS AND DESIGN

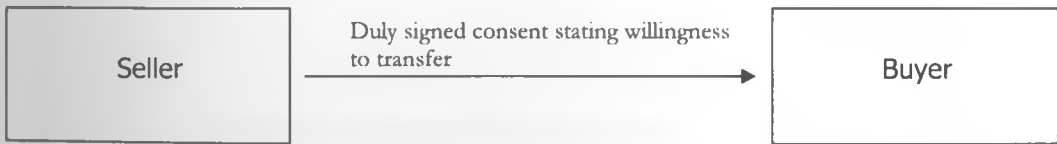
3.1 Initial Investigation and user requirements survey

According to Cap 300 of the Registered Land Act, the law requires that all land records are stored for future reference incase of a dispute. This has led to huge volumes of paper documents that have accumulated over the years since 1967.

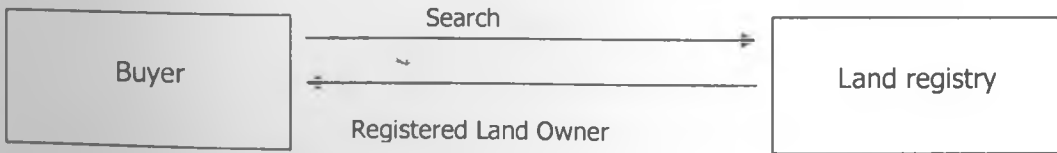
It is therefore time consuming to manually search for a specific record through numerous cabinets of the existing documents.

3.1.1 Current Land Ownership Transfer Process (As per Registered Land Act Cap 300)

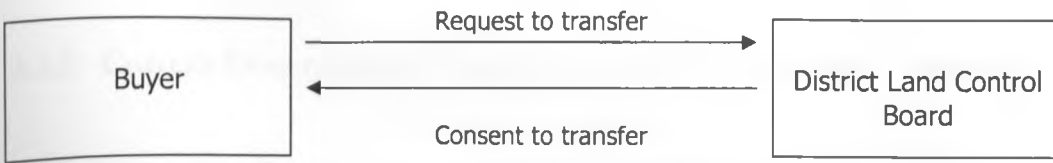
- i) For the process to begin the following documents are required from both parties:-
 - A written agreement confirming that both parties have agreed to the transfer of the parcel of land in question.
 - 1 copy each of PIN(Personal Identification Number) certificate from Kenya Revenue Authority
 - 1 passport size photographs
 - 1 Copy each of national Identification Card
 - Copy of the original Title



ii) In order to ascertain the authenticity of the title, a copy is submitted to the district land registry.



iii). Consent is then sought from the district lands control board, who consider the intended purpose of the land and confirming that it's not sitting on a portion that has been earmarked for public amenities like road.



iv)

- The original title deed is surrendered together with a signed transfer form, are forwarded to the Lands Registry.
- The Land Register will then be amended and the Commissioner of lands advised.
- A new title deed will then be issued in the name of the new owner

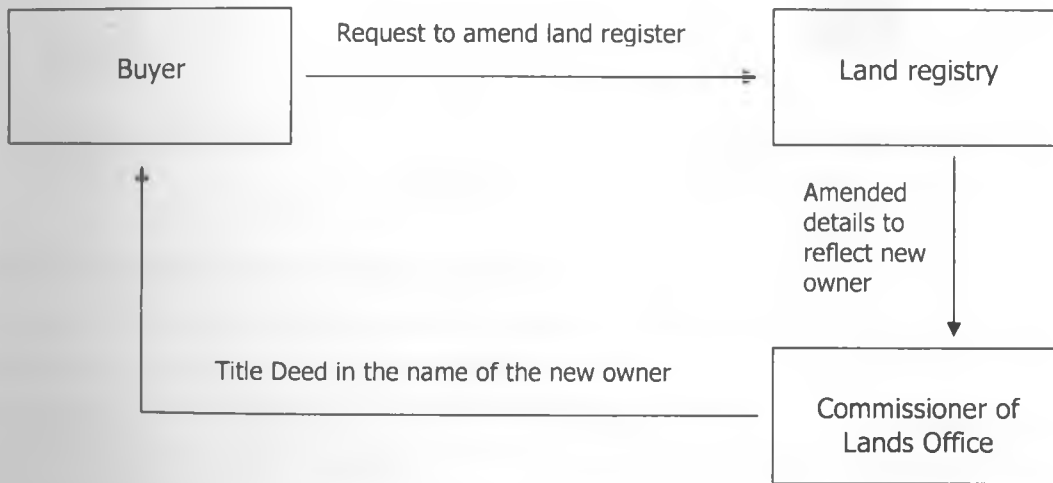


Figure 1

3.1.2 Current Decentralized Provincial and District Land Registries

All the registries are isolated should Kajiado registry for example wish to pass some message to the ministry of lands head office, they have to either make a phone call or send a registered mail. This mode of operation is not only expensive and slow but also inefficient.

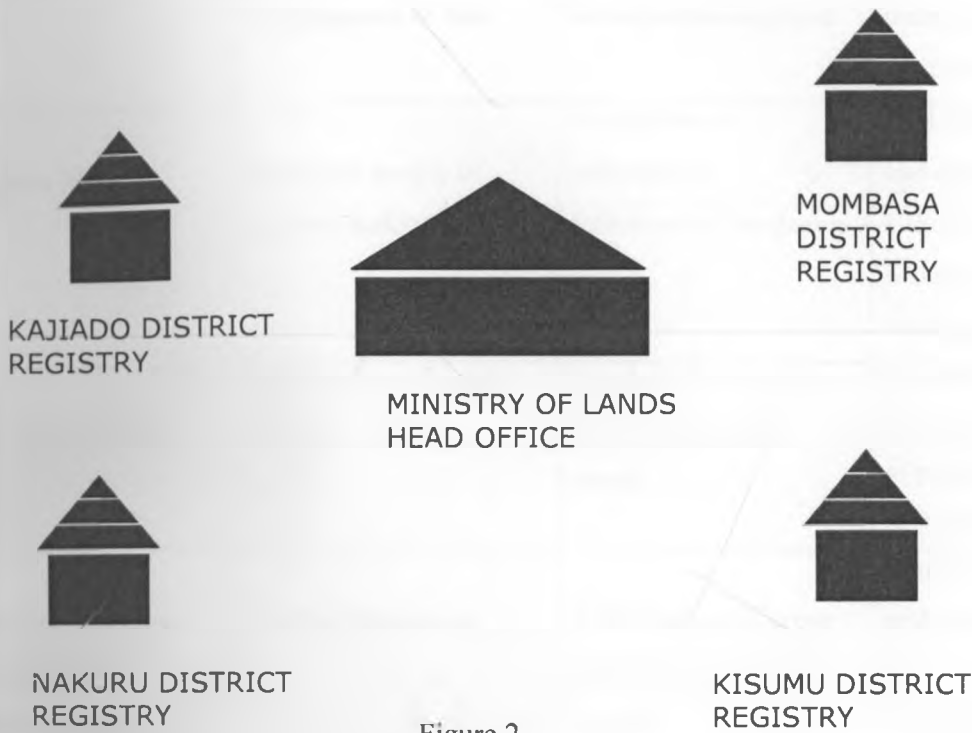


Figure 2

3.2 Key Considerations for Cost Benefit Analysis

It is important that in the implementation of the system, consideration be given to measurable benchmarks for Cost Benefit Analysis of the system.

| Key Consideration | Benchmark | Measure | Expected Output |
|-------------------------|------------------------|-----------------------------|----------------------------------|
| Excessive Documentation | Use of registers | Number of registers | Eliminate use of registers |
| | Scanned Images | Memory required | Eliminate use of physical copies |
| Duplication of effort | Double entry of data | Extent of duplication | Eliminate double entry |
| | Integration with other | Level of human intervention | Seamless integration |

| | | | |
|--|--|--|--|
| | systems | Quality of updates to and from the system | |
| | | Time taken to update | Data integrity |
| Data | Timeliness | Lapse time | Real time retrieval |
| | Integrity and completeness of data | Amount of reconciliation required | Reduce human intervention in data verification |
| Decision Making | Speed and quality of decision making | Availability of information | Real time information and update |
| | | Efficiency of escalation | Efficient decision making tools and workflow |
| Trends Monitoring | The visibility of trends related to operations | Level of proactiveness and reactivity to trends | The development and implementation of programs resulting from trend monitoring |
| Reduction of cross departmental dysfunctionality | Level of integration | Effectiveness of cross departmental business process | Seamless integration with systems |
| | | | Integrity of updates |
| | | | Cross application workflow |
| Productivity | Manual Operations | Level of human intervention | Eliminate manual checking and storage of documents |
| | | | Increased speed of transactions |
| | | Quality of human intervention | Efficient error handling |
| | | | Reduced reconciliation requirement. |

Table 1

3.3 Challenges with the current system

- Revenue: - It is hard to detect government revenue leakage since documents are held in several physical files, which would take time to audit. Revenue includes rates, transfer fees and stamp duty.
- Corruption: - The current system is prone to corruption by unscrupulous government officials. For example one of the excuses corrupt officers have been using is that a certain file that is required for the processing to continue is 'missing', and usually if you give some money the file will be found 'miraculously' whoever refuses is forced to make several trips to the registry and eventually yield to pressure to bribe. This kind of excuse will be eliminated since every file is held in electronic file and you can query the system to find out which transfers were delayed beyond a certain set maximum time limit by which a transaction should have been completed.
- Fraud: - Prone to fraud and collusion e.g. during a court case some crucial documents can easily be plucked off from the file hence influencing the judgment.
- Efficiency: - due to the current high volume of paper documents, speed of processing and analysis of data is very slow.
- Retrieval: - Slow retrieval during a search.
- Cost: - Operational costs are high for example storage, mailing, printing and traveling cost.
- Data Integrity: - The current system can not easily detect the existence of a second Title Deed for the same property.
- Backup: - There is no backup mechanism and this is a high risk due to the fact that information is held in physical paper documents which are highly inflammable.

CONTEXT DIAGRAM

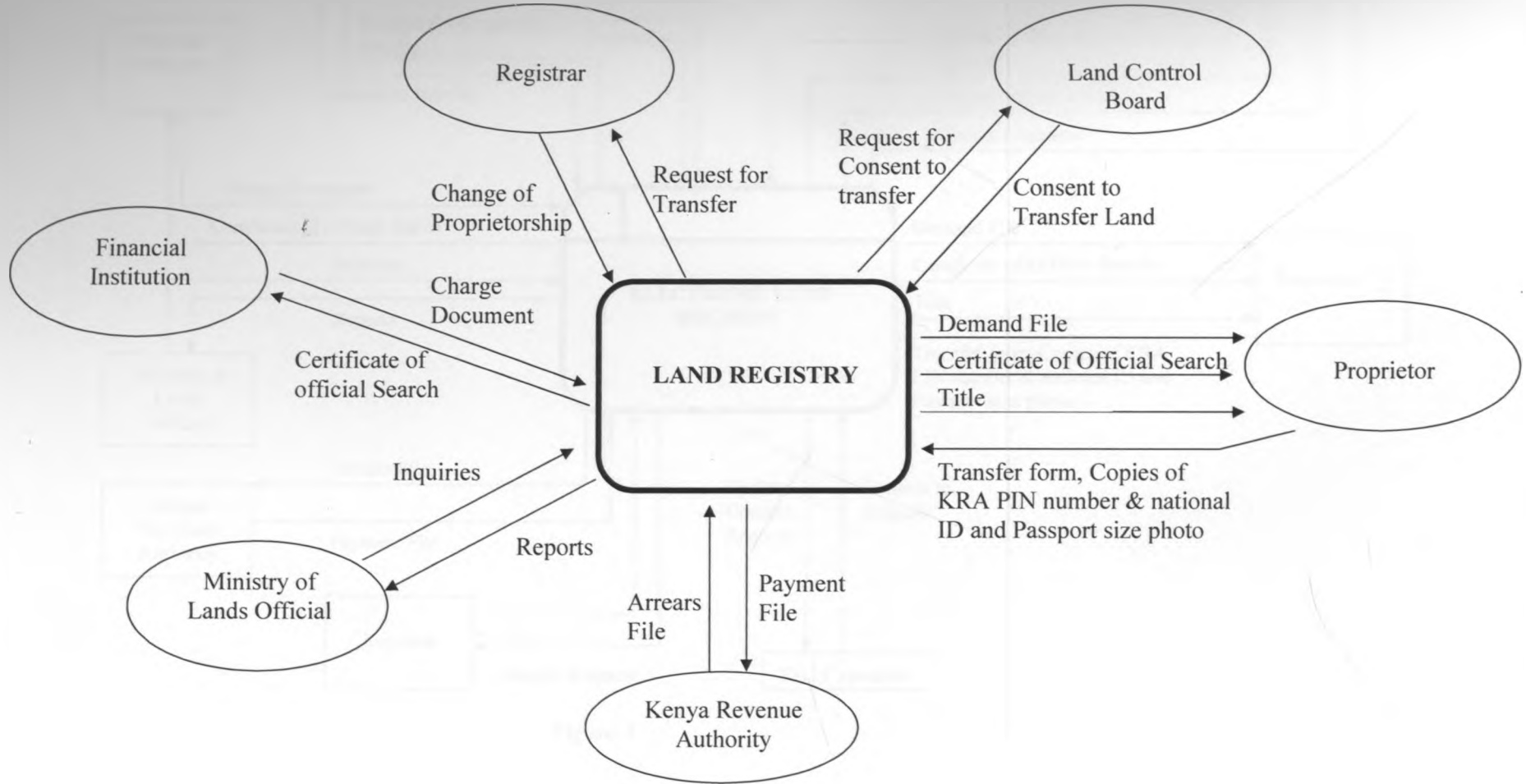


Figure 3

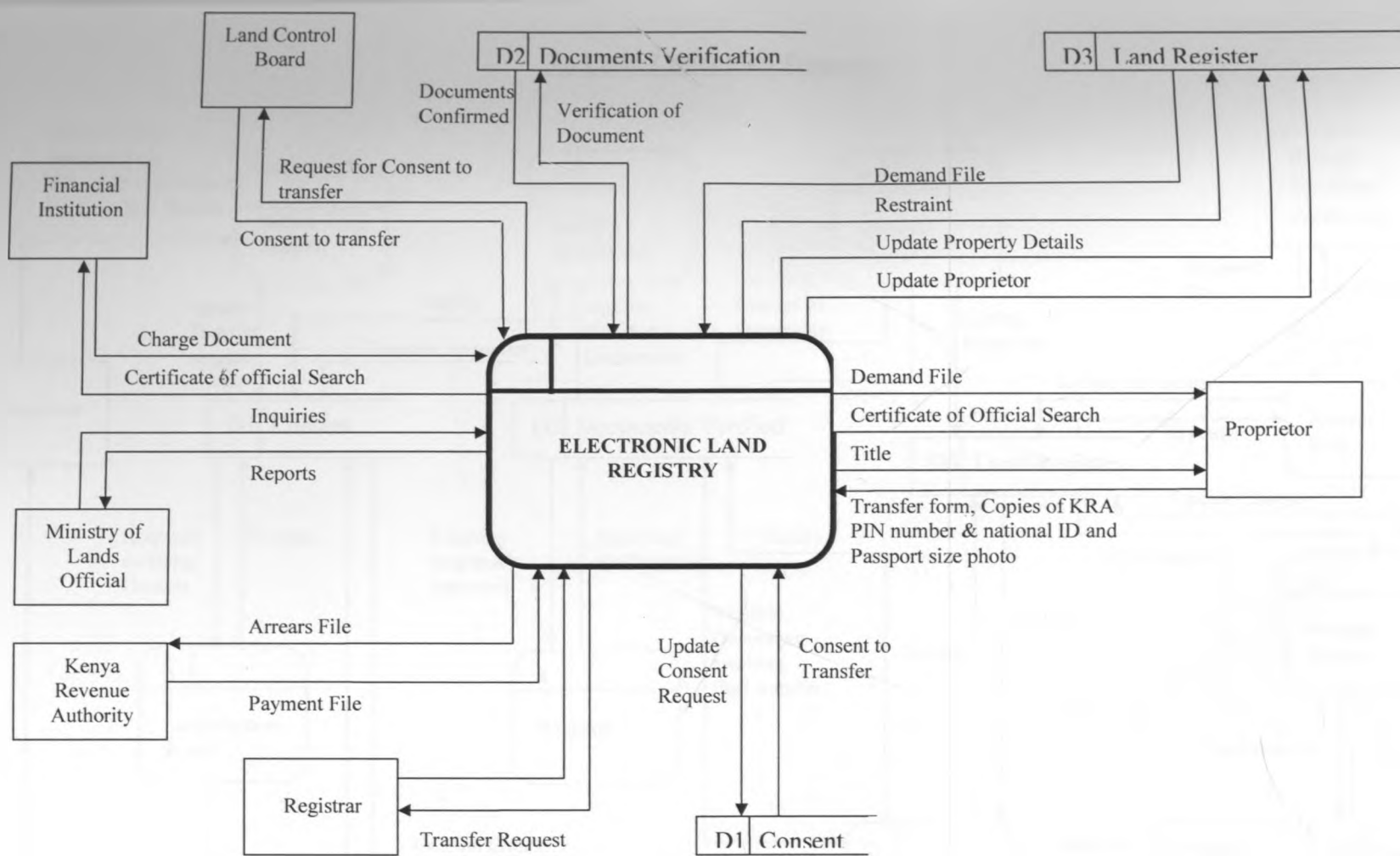


Figure 4

3.6 Level 2 Data Flow Diagram

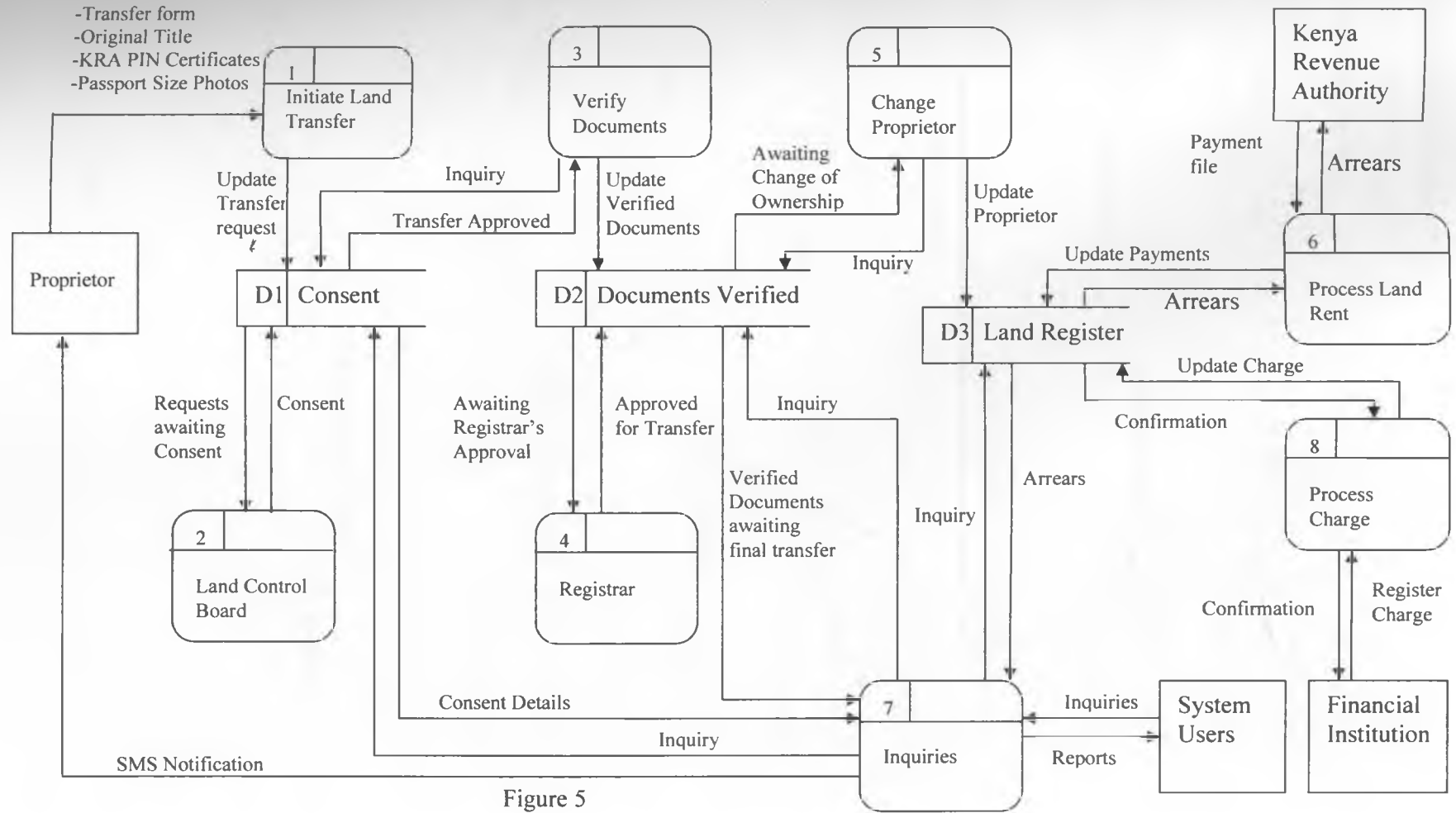


Figure 5

3.7 Entity Relationship Diagrams

KRA – Kenya Revenue Authority

LCB – Land Control Board

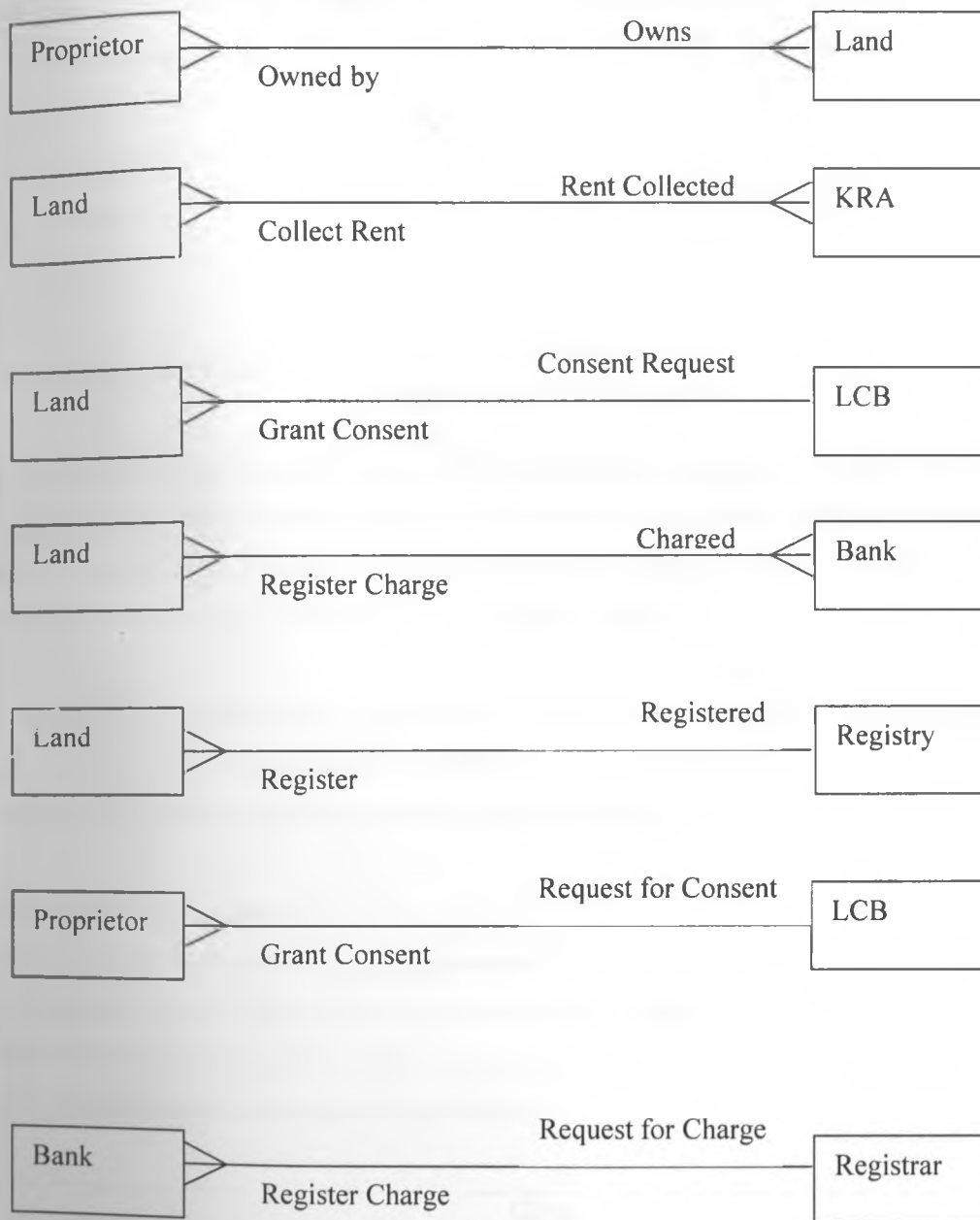


Figure 6

3.8 SYSTEM DESIGN

This section examines the design elements of the system taking cognizance of the user requirements both functional and non functional. Interface should be designed with the screen layout in mind. The interface should be designed using Human Computer Interface principles namely:-

- Aesthetically pleasing
- Clarity
- Consistency
- Control
- Efficiency

3.9 Implementation Platform

The system has a Graphical user interface (GUI) which allows people to interact with the application through graphical icons and visual indicators as opposed to text based interfaces, typed command labels or text navigation to fully represent the information and actions available to a user. The actions are performed through direct manipulation of the graphical elements.

The database was implemented using Microsoft SQL Server, specifically chosen because it's a full featured relational database management system that offers a variety of administrative tools that eases the burden of database development, maintenance and administration.

3.10 Design of the Database

Database design is the process of creating a design for a database that will support the system operations and objectives. Data modelling was used to convey the designer's understanding of the information required of the system into entities, relationships and attributes. The entity Relationship model was used to identify entities and relationship between entities.

| Client | | | | | |
|---------------|---------|------|-----------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| UserName | Varchar | 50 | Identifies user | No | Yes |
| TimeLoggedIn | Varchar | 50 | Log in time | No | Yes |
| TimeLoggedOut | Varchar | 50 | Log out time | No | Yes |

Table 2

| Consent | | | | | |
|---------------------|----------|------|----------------------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| RegistrationSection | Varchar | 50 | Land Registration Section | No | Yes |
| ParcelNumber | Varchar | 50 | Land Parcel Number | No | Yes |
| Date | datetime | 8 | Processing date | No | Yes |
| IDNumber | Varchar | 50 | Identity card number | No | Yes |
| Proprietor | Varchar | 150 | Proprietor's name | No | Yes |
| Address | Varchar | 100 | Proprietor's Address | No | Yes |
| Consideration | Varchar | 150 | Factors to consider if any | No | Yes |
| Condition | Varchar | 250 | Condition for transfer | No | Yes |
| PhoneNumber | Varchar | 50 | Proprietor's phone number | No | Yes |
| Status | Varchar | 50 | whether new or old owner | No | Yes |
| Reason | Varchar | 50 | Reason for transfer | No | Yes |

Table 3

| Contact | | | | | |
|-----------------|---------|------|-------------------------------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| IDNumber | Varchar | 50 | Identity card number | Yes | Yes |
| POBox | Varchar | 20 | Proprietor's Post office Box Number | No | Yes |
| Town | Varchar | 50 | Where the post office is located | No | Yes |
| PostalCode | Varchar | 50 | Proprietor's Postal code | No | Yes |
| EmailAddress | Varchar | 50 | Proprietor's email address | No | Yes |
| TelephoneNumber | Varchar | 50 | Proprietor's telephone number | No | Yes |

Table 4

| Lease | | | | | |
|---------------------|---------|------|----------------------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| RegistrationSection | Varchar | 50 | Land Registration Section | No | Yes |
| ParcelNumber | Varchar | 50 | Land Parcel Number | No | Yes |
| TenantName | Varchar | 150 | Tenant's Name | No | Yes |
| TenantAddress | Varchar | 50 | Tenant's Address | No | Yes |
| TenantPhoneNumber | Varchar | 50 | Tenant's Phone Number | No | Yes |
| TenantIDNumber | Varchar | 50 | Tenant's ID Number | No | Yes |
| DateFrom | Varchar | 50 | Commencement of Lease | No | Yes |
| DateTo | Varchar | 50 | End of Lease | No | Yes |
| AreaLeased | Float | 8 | Size of land pledged | No | Yes |
| Amount | Float | 8 | Amount Secured | No | Yes |
| Witness | Varchar | 150 | Witness to the transaction | No | Yes |
| LandlordAddress | Varchar | 50 | Landlord's Address | No | Yes |

Table 5

| Personal Details | | | | | |
|------------------|----------|------|----------------------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| FirstName | Varchar | 50 | Proprietor's First name | No | Yes |
| MiddleName | Varchar | 50 | Proprietor's Middle Name | No | Yes |
| SurName | Varchar | 50 | Proprietor's Surname | No | Yes |
| IDNumber | Varchar | 50 | Proprietor's ID Number | No | Yes |
| DateofBirth | datetime | 8 | Proprietor's Date of Birth | No | Yes |

Table 6

| Property details | | | | | |
|---------------------|----------|------|-----------------------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| ParcelNumber | Varchar | 50 | Land Parcel Number | Yes | Yes |
| RegistrationSection | Varchar | 50 | Land Registration Section | No | Yes |
| ApproximateArea | float | 8 | Total Area of land | No | Yes |
| Edition | int | 4 | Title edition | No | Yes |
| DateOpened | datetime | 8 | Date Entry made to register | No | Yes |

| | | | | | |
|---------------|---------|-----|-------------------|----|-----|
| Easement | Varchar | 300 | Easements on land | No | Yes |
| NatureofTitle | Varchar | 300 | Nature of Title | No | Yes |

Table 7

| Proprietorship | | | | | |
|---------------------|----------|------|---------------------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| RegistrationSection | Varchar | 50 | Land Registration Section | No | Yes |
| ParcelNumber | Varchar | 50 | Land Parcel Number | No | Yes |
| RegistrationDate | datetime | 8 | Registration date | No | Yes |
| Status | Varchar | 50 | Current / former owner | No | Yes |
| Reason | Varchar | 50 | Reason for transfer | No | Yes |

Table 8

| Restraint | | | | | |
|---------------------|----------|------|------------------------------------|-----|----------|
| Field | Type | Size | Description | Key | Required |
| RegistrationSection | Varchar | 50 | Land Registration Section | No | Yes |
| ParcelNumber | Varchar | 50 | Land Parcel Number | No | Yes |
| RestraintDate | datetime | 8 | Restraint effective from | No | No |
| Name | Varchar | 50 | Person who registered restraint | No | No |
| Address | Varchar | 50 | Address | No | No |
| PhoneNumber | Varchar | 50 | Phone Number | No | No |
| IDNumber | Varchar | 50 | ID Number | No | No |
| from | datetime | 8 | from | No | No |
| to | datetime | 8 | to | No | No |
| Reason | Varchar | 50 | Reason | No | No |
| RestraintType | Varchar | 50 | Restraint Type | No | No |
| AreaPledged | Varchar | 50 | Area Pledged | No | No |

Table 10

3.11 NORMALIZATION

Unnormalized

| | | |
|---------------------|---------------------|-----------------|
| RegistrationSection | SurName | Proprietor |
| ParcelNumber | IDNumber | Restraint |
| PostingDate | DateofBirth | charge |
| IDNumber | ParcelNumber | reasonCharge |
| Proprietor | RegistrationSection | natureoftitle |
| Address | ApproximateArea | ReasonRestraint |
| Consideration | Edition | bankname |
| Condition | DateOpened | chargeamount |
| PhoneNumber | Easement | LandSize |
| Status | NatureofTitle | UserName |
| Reason | Classification | Password |
| NumberofOwners | LeaseFrom | RoleProfile |
| POBox | LeaseTo | Status |
| Town | LandType | wrongattempts |
| PostalCode | Valuation | wrongpwdchange |
| EmailAddress | Landrent | Expiry |
| TelephoneNumber | Landrentdatepaid | ChangePwdOn |
| Amount | SMSsent | Logon |
| DatePaid | Landrentpaid | id |
| DateImported | Restraintdate | sender |
| Updated | RName | receiver |
| TenantName | Address | msg |
| TenantAddress | PhoneNumber | senttime |
| TenantPhoneNumber | IDNumber | receivedtime |
| TenantIDNumber | rfrom | operator |
| DateFrom | rto | msgtype |
| DateTo | Reason | reference |
| AreaLeased | RestraintType | status |
| Amount | AreaPledged | pDate |
| Witness | ChargeAmount | IDNumber |
| LandlordAddress | SearchNumber | Proprietor |
| FirstName | DateSearch | Address |
| MiddleName | Easement | Consideration |
| | AreaPledged | Condition |

1st Normal Form

Contact

P.O. Box
Town
PostalCode
EmailAddress
TelephoneNumber
PhoneNumber

IDNumber
Proprietor

LandType
Valuation

Land

RegistrationSection
ApproximateArea
Edition
DateOpened
Classification
Landrent
Landrentdatepaid
Landrentpaid
Easement
natureoftitle
LandSize
Consideration
Condition
Reason

Rent
DatePaid
DateImported
Updated
Restraintdate
RentName
rentfrom
rentto

Tenant
TenantName
TenantAddress
TenantPhoneNumber
TenantIDNumber
DateFrom
DateTo
AreaLeased
Amount
Witness

Landlord

LandlordAddress
FirstName
MiddleName
SurName
DateofBirth
ParcelNumber

Proprietorship

PostingDate
NumberofOwners

Lease
LeaseFrom
LeaseTo

2nd Normal Form

Consent Table

RegistrationSection

ParcelNumber

Date

IDNumber

Proprietor

Address

Consideration

Condition

PhoneNumber

Status

Reason

NumberOfOwners

Contact Table

IDNumber

POBox

Town

PostalCode

EmailAddress

TelephoneNumber

LandRent Table

RegistrationSection

ParcelNumber

Amount

DatePaid

DateImported

updated

Lease Table

RegistrationSection

ParcelNumber

TenantName

TenantAddress

TenantPhoneNumber ,

TenantIDNumber

DateFrom

DateTo

AreaLeased

Amount

Witness

LandlordAddress

PersonalDetails Table

IDNumber

FirstName

MiddleName

SurName

DateofBirth

PropertyDetails Table

ParcelNumber

RegistrationSection

ApproximateArea

Edition

DateOpened

Easement

NatureofTitle

Classification

LeaseFrom

LeaseTo

LandType

Valuation

Landrent

Landrentdatepaid

SMSsent

Landrentpaid

Restraint Table

RegistrationSection

ParcelNumber

Restraintdate

RName

Address

PhoneNumber

IDNumber

rfrom

rto

Reason

RestraintType

AreaPledged

ChargeAmount

Proprietorship Table

RegistrationSection

ParcelNumber

Date

IDNumber

Proprietor

Address

Consideration

Condition

PhoneNumber

Status

Reason

CHAPTER 4 SYSTEM IMPLEMENTATION AND TESTING

4.1 System Implementation

a) The minimum requirements for the system to run are as follows:-

- Intel Pentium III
- 1 GB RAM
- 100 GB Hard disk
- VGA 32 bit true colours

b) Operating System Platform

Microsoft Windows 2000/XP/Vista

c) Applications

At least Microsoft Office 2000

d) Programming Language

Visual Basic

e) Database

SQL server 2000

4.1.1 Connection to the database

Access to the database was achieved through the configuration of an ODBC (Open Data Base connectivity), and linked through a DSN (Data Source Name) called "LandRegistry"

sample code

```
Set cnDBconn = New Connection
```

```
If cnDBconn.State = adStateOpen Then
```

```
cnDBconn.Close
```

```
End If
```

```
cnDBconn.Open ("LandRegistry"), "landreg", "landreg"
```

```
Exit Sub
```

```
If Err.Number = -2147467259 Then
```

```
MsgBox "CAN NOT FIND DATABASE LOCATION PLEASE SET BEFORE
```

```
PROCEEDING", vbCritical, ""
```

```
End
```

```
End If
```


4.12 Input Validation

This is a dominant feature in the system designed to prevent invalid input.

Example

Legally a lease can only be registered if the lease period is more than a year. So the system validates the dates of the period to confirm that they conform to this rule.

Sample Code

```
Private Sub DTPTo_LostFocus()
```

```
    Dim X As Integer
```

```
    X = DTPTo.Value - DTPFrom.Value
```

```
    If X < 365 Then
```

```
        MsgBox "LEASE PERIOD HAS TO BE MORE THAN 1 YEAR TO BE ELIGIBLE FOR  
REGISTRATION", vbCritical, "Confirmation"
```

```
        DTPTo.SetFocus
```

```
    End If
```

```
End Sub
```

Screen Shot

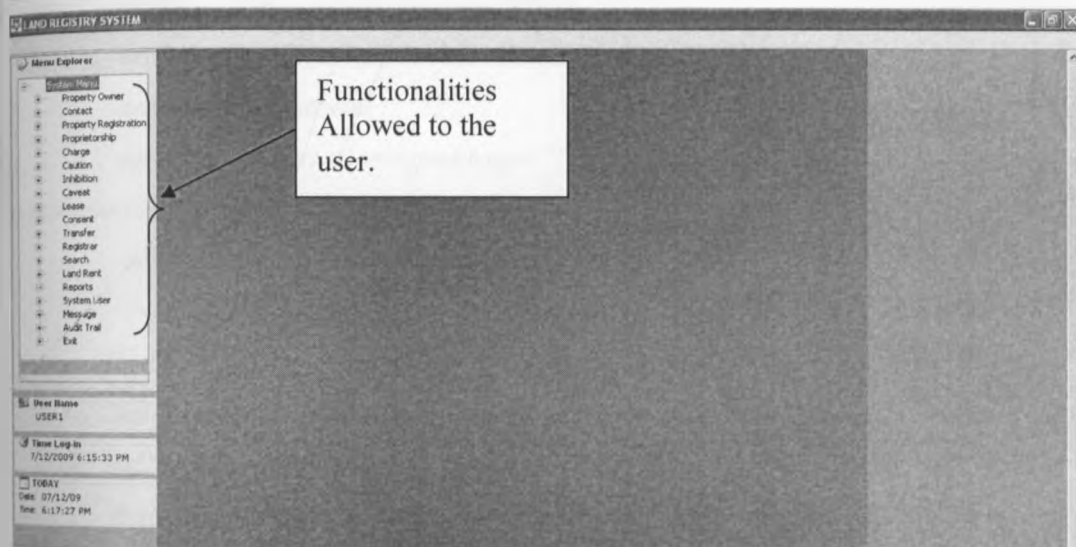
The screenshot displays the 'Lease Agreement Registration' application window. The title bar reads 'Lease Agreement Registration (As Stipulated under Section 45 to 64 of Registered Land Act)'. The interface includes a date field set to '26-Mar-2009', and dropdown menus for 'Land Registration Number', 'Registration Section', and 'Parcel Number'. The main area is divided into two panes: 'Register Lease' and 'Confirm Legal Requirements'. The 'Register Lease' pane contains fields for 'Lessor (Landlord)' (Name, Address, Mobile Phone Number, ID Number) and 'Lessee (Tenant)' (Name, Address). Below these are fields for 'Whereas it is agreed' (From, Amount Payable) and 'Area Leased (in hectares)'. A 'Witnessed By' field is also present. A 'Confirmation' dialog box is overlaid on the application, displaying the message: 'LEASE PERIOD HAS TO BE MORE THAN 1 YEAR TO BE ELIGIBLE FOR REGISTRATION'. The dialog box has an 'OK' button. At the bottom of the application window, there are 'Save' and 'Exit' buttons.

4.1.3 Access Control

Access to the system is by use of a pre assigned username and password. Each username is tied to a particular role profile, hence is only allowed limited access to the functionalities associated with the role profile.



A login form with two input fields: 'User Name' containing 'user1' and 'Password' containing 'xxx'. Below the fields are three buttons: 'Log In' with a checkmark icon, 'Change Password', and 'Cancel' with an 'X' icon.



Sample Code

```
sql = "select * from users where username='" & txtusernameEditpwd.Text & "'"
If rsusers.State = 1 Then
    rsusers.Close
End If
With rsusers
    .Open (sql), cnDBConn, adOpenKeyset, adLockOptimistic
    If .RecordCount > 0 Then
        If !Status = "disabled" Then
            MsgBox "User Disabled", vbCritical, ""
```

Exit Sub

End If

If !Password = txtCurrentPwd.Text Then

Framepwd.Enabled = True

txtusernameEditpwd.Enabled = False

txtCurrentPwd.Enabled = False

txtNewPwd.SetFocus

pwdatept = 0

sql = "update users set wrongpwdchange='0' where username='" & txtusernameEditpwd.Text & "'"

cnDBconn.Execute (sql)

Else

If rsusers!wrongpwdchange < 3 Or IsNull(rsusers!wrongpwdchange) = True Then

MsgBox "Wrong password, you have " & (2 - rsusers!wrongpwdchange) & " attempts", vbInformation, ""

txtCurrentPwd.Text = ""

txtCurrentPwd.SetFocus

sql = "update users set wrongpwdchange='" & (rsusers!wrongpwdchange + 1) & "'" where username='" &

txtusernameEditpwd.Text & "'"

cnDBconn.Execute (sql)

Else

sql = "update users set status='Disabled' where username='" & txtusername.Text & "'"

cnDBconn.Execute (sql)

Exit Sub

End If

End If

End If

End With

4.2 System Evaluation

The evaluation phase is one of the most crucial parts on a system life cycle because it's an indicator of the degree of its success. The fundamental principle of testing is to ensure that the developed application meets the specifications defined in the earlier stages of analysis and design.

a) Data Integrity

This is solved by ensuring there are null value controls, default value control and other control sets.

b) Data Accuracy

This is solved by setting controls on the input forms e.g. if date input is required the system should not allow any other format of data input.

c) Security

The following security features are available in the system.

- Only authorized users are granted access to the system. Identification is by way of unique user name and password.
- Audit Trail: - All activities in the system are captured in the audit trail hence minimizing misuse of the system by users, since they are aware that any activity/transaction in the system can be traced back to them.
- User Groups with limited access to functionalities allowed for that group is in place. Every user is then assigned to a user group.
- Password expiry: - This ensures that users are forced to change their password after a certain predefined period.
- Limited log in attempts: - A user is automatically disabled after 3 unsuccessful log in attempts, to avoid trial and error mode of figuring out someone else's password.
- User Enable/Disable: - The system allows the system administrator to disable or enable so if a user is proceeding for leave, he/she is disabled in the system for the period he/she is away.
- Password Reuse: - Once the system has prompted a user to change password, the old password cannot be reused.

d) Short Message Service Alert

The system alerts proprietors at every stage of a transaction.

4.3 Analysis and Evaluation of Results

| Test No. | Test Description | Expected Output | Observed Results | Comments |
|----------|-----------------------------|--|--|---------------------------------------|
| 1. | Register Restraints on land | <ul style="list-style-type: none"> • The system should allow the registration of the various restraints namely Caution, Caveat and Inhibition. • The system should not allow any transaction on a parcel of land that has a restraint on it. | Restraint registration possible. The system also prohibits transactions on a parcel of land with restraints. | Restraint implementation successful |
| 2. | Security | The system should have elaborate security mechanisms. Access to system resources should be on a 'need-to-have' basis. | <p>The following features are available</p> <ul style="list-style-type: none"> • Audit Trail • Access is by user of unique user names and passwords. • User groups with various access levels. • Password expiry. • 3 unsuccessful log in attempts. • Disabling of users when on leave. • Password recycling prohibited. • Encryption of critical data to avoid unauthorized access. | Adequate Security features available. |

| | | | | |
|----|---------------|--|--|---------------------------------------|
| 3. | MIS Reports | The system should provide reports, which are easy to understand/follow, to aid management and users make informed decisions. | All reports are simplified and designed in a user friendly manner. | Reports meet the required standards. |
| 4. | Workflow | The system should have a systematic work flow that is easy to follow and addresses all the stages in land transfer process, as per the legal requirements. | The system has a simplified workflow. The design prohibits progress to the next stage unless all the legal requirements of the current stage have been fulfilled. For example an item cannot be sent to the registrar unless the land control board have seen and approved it. | Workflow meets the required standard. |
| 5. | SMS Alerts | The system should be able to send alerts to the proprietors | The system is able to send alerts on all land transaction related activities in the system. The SMS messages are clear and convey the intended communication effectively | Successful |
| 6. | File exchange | The system should have import and export features to allow file exchange with external systems. | The system supports Electronic File Interchange between the registry and Kenya Revenue Authority. | File exchange Successful |
| 7. | Easy to use | The system should be easy to use | The system has a simplified graphical user interface that is easy to use. There are error messages that alerts the user incase a process fails. | Successful |

| | | | | |
|----|-----------------------|---|--|-----------------|
| 8. | Segregation of Duties | The system should support separation of duties to enhance security and accountability. | The system supports granting/denial of access to a particular functionality. A user access matrix can be designed in accordance with the organizational structure then create user groups with appropriate levels of access. | Fully Supported |
| 9. | Legal Requirements | The system should have adequate controls such that the flow of information within the system is in accordance with the Law. | The system has a checklist of all the legal requirements applicable in a particular situation, such that before you proceed you must confirm by ticking that the requirements have been met. | Successful |

CHAPTER 5 CONCLUSION

In as much as chapter 300 laws of Kenya is clear on the issue of retention of all paper documents relating to land transactions, for reference incase of disputes, there is no backup mechanism for these records. The situation is made worse by the fact that the registries do not have automated fire suppression equipment installed, which poses a great risk in the event of fire breaking out.

Electronic land registration therefore is a process that is long overdue, given the sharp increase in the number land transactions. The system addresses the challenge of efficiency and high operational cost brought about by the current paper based registration system. Electronic records are also easier and faster to retrieve.

It has been a challenge for the ministry of lands to comply with the legal requirement that all parcels of land be registered in there respective district registries, due to the increase in the number of new districts from an initial 46 to the current 256. However with a centralized electronic registration system, migration of land from one registration area to the next involves a few commands to effect a global change in the database.

Currently registries operate independently with very little interaction with each other. This forces one to travel all the way to a specific registry in order to transact, this is not only inconveniencing but also primitive in this era where everybody is embracing centralized processing. Electronic land registration system, enables land registry offices country wide to effectively share data, hence enabling citizens to be served from any land registry countrywide, the same way you get full service in a bank from any of there branches.

The system modernizes land registration and will be the first major overhaul of land registration in 45 years.

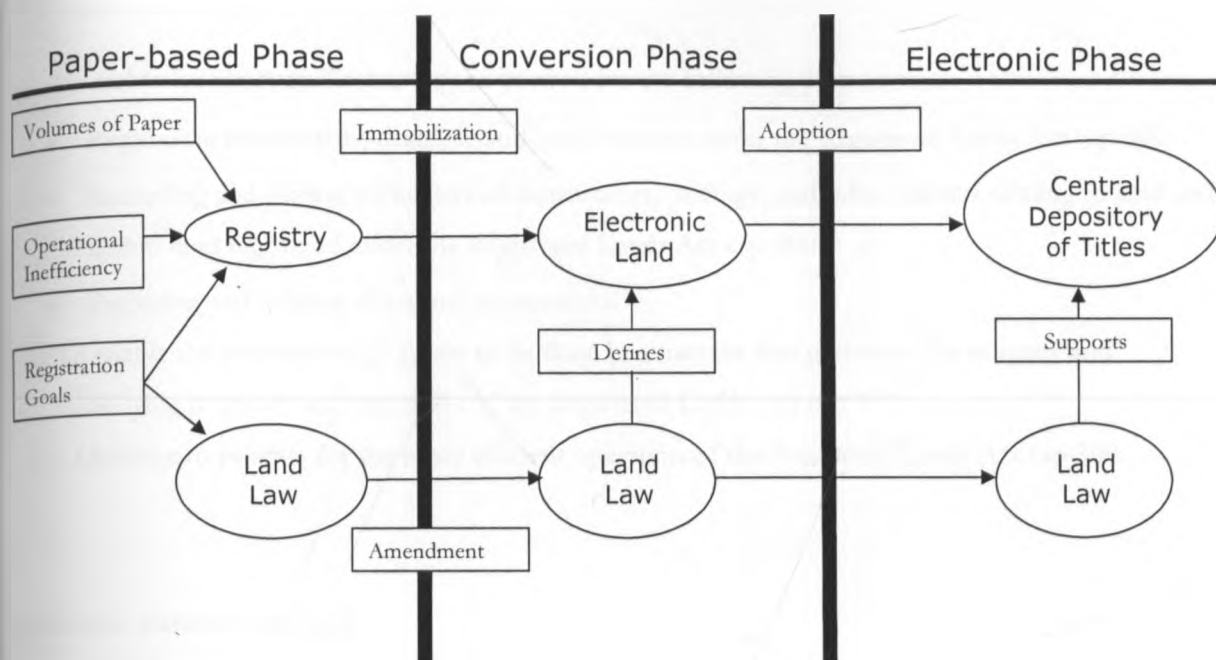
5.1 Challenges experienced during research period

The major challenge during my research period was getting information form the ministry of lands officials. I visited there offices several times in vain even though I had a letter clearly stating that the information I was seeking was to be used for academic purposes only. However one of the lawyers I consulted introduced me to a friend of his in the ministry.

I also had to research on land law which posed a great challenge since it was a totally new field for me.

5.2 RECOMMENDATION

Below is a proposed a proposed implementation framework.



Paper – based Phase

This represents the current registration system, which is faced by huge volumes of paper, operational inefficiency and failure to meet registration goals.

Conversion Phase

The first step is to amend the law (details of the amendment discussed below) so that electronic land is legalized. The registrar of titles will then issue a gazette notice to create electronic transaction land.

Immobilize all paper titles will then follow, this exercise involves recalling all paper titles.

Electronic Phase

The final step will be the adoption of the new registration system; a Central Depository of Titles (CDT) will be formed to replace the current land registries. Legal provisions have to be made to give powers to CDT to act as the sole custodian of land records.

5.2.1 Proposed Amendments to the Land Titles Act

The land law as it is right now, only recognizes paper based documents and does not provide for the use of electronic documents for land transactions, which is a core feature in an electronic

land registry. This calls for an amendment in order to establish a legal basis for my new registry system.

Purposes of this Amendment

- (a) To enable Information Technology to be used for the following purposes:
- Registering instruments, dealings, and other matters under the Registered Lands Act cap 300:
 - Recording and storing particulars of instruments, dealings, and other matters relating to land and title to land registered under the Registered Lands Act cap 300:
 - Preparing and lodging electronic instruments.
- (b) To enable the activities in (a) above to be done in a manner that preserves the integrity and underlying purposes and principles of the Registered Lands Act cap 300.
- (c) Otherwise to provide for the more efficient operation of the Registered Lands Act cap 300.

Electronic transactions land

- (a) Land is electronic transactions land if it is subject to:-
- The Registrar makes an entry on a computer register to the effect that the land is electronic transactions land.
 - The Registrar has, by notice in the *Gazette*, declared the land to be electronic transactions land
 - The land forms part of an area of land that the Registrar has, by notice in the *Gazette*, declared to be electronic transactions land.
- (b) Land ceases to be electronic transactions land if—
- The Registrar makes an entry to that effect on a computer register; or
 - The Registrar has, by notice in the *Gazette*, declared that the land is no longer to be regarded as electronic transactions land; or
 - The land forms part of an area of land that the Registrar has, by notice in the *Gazette*, declared no longer to be electronic transactions land.

No certificates of title for electronic transactions land

- (a) The Registrar must not issue a certificate of title for electronic transactions land.

- (b) If land is declared to be electronic transactions land, all certificates of title whether referred to as certificates of title or outstanding duplicate certificates of title) for the land are cancelled as from the date on which the declaration takes effect.

Electronic Evidence of Land Records in Court

Computer printout, etc, is admissible in evidence if an instrument is recorded or registered in any medium other than paper, a document that records the contents of the instrument is admissible in evidence if the document:-

- (a) Is generated by or produced from the computer system; and
- (b) Is in a readily understandable form; and
- (c) Is certified by or on behalf of the Registrar as a true representation of the instrument.

Central depository of Titles

An independent body to be created whose functions are but not limited to:-

- a) Custodians of the electronic land data
- b) Enforce security measures so as to ensure integrity of land records
- c) Manage the transfer and registration of interests by different parties on land.

Land Titles Assurance Fund

The Land Titles Assurance Fund (LTAF) is to be created under the Registered Land Act to compensate people for certain financial losses due to real estate fraud, omissions and errors of the land registration system. An LATF tribunal is to be established to hear and recommend payment to claims.

REFERENCE

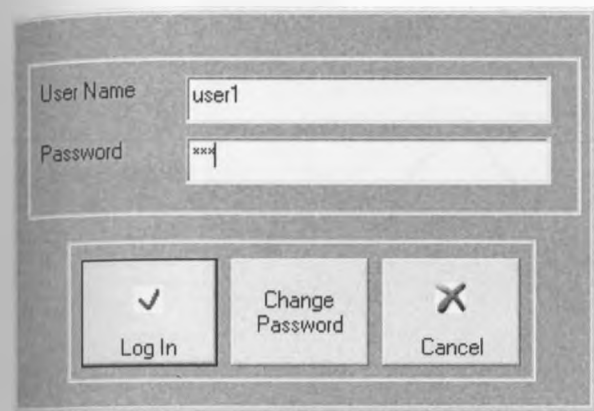
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5. Avison D.E and Fitzgerald. Information Systems Development: Methodologies, Techniques & Tools (2nd Edition). Mc Graw Hill,1995
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7. Planet Source Code, 6th January 2009.Visual Basic Sample Code
Available from: <http://planet-source-code.com>
8. Code Comments, 20th January 2009.General Programming Topics
Available from: <http://www.codecomments.com>
9. Code Guru, 5th March 2009.Software Development
Available form: <http://www.codeguru.com>
10. Ministry of Attorney General-Ontario, 3rd August 2008.E-Laws
Available from: <http://www.e-laws.gov.on.ca/navigation?file=home&lang=en>
11. Ministry of Attorney General-Ontario, 3rd August 2008.Land registration
Available from:
http://www.ontario.ca/en/information_bundle/land_registration/stel01_130081
- 13 Land Registry – United Kingdom, 23rd April 2009
Available from: <http://www.landreg.gov.uk/>

APPENDIX I:

USER MANUAL

1. Logging into the system

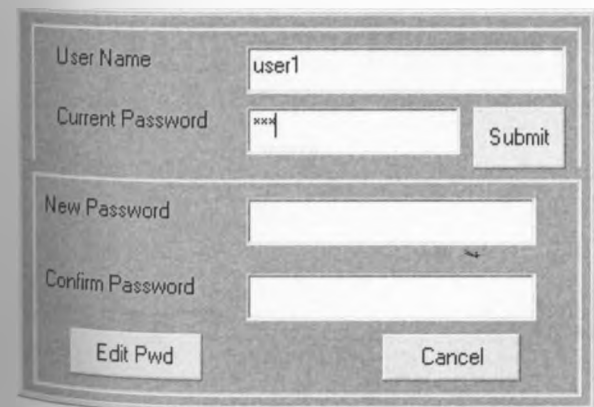
Key in the username and password then click “Log In”



A screenshot of a login window. It features two text input fields: "User Name" containing "user1" and "Password" containing "xxx". Below the fields are three buttons: "Log In" with a checkmark icon, "Change Password", and "Cancel" with an 'X' icon.

Changing Password

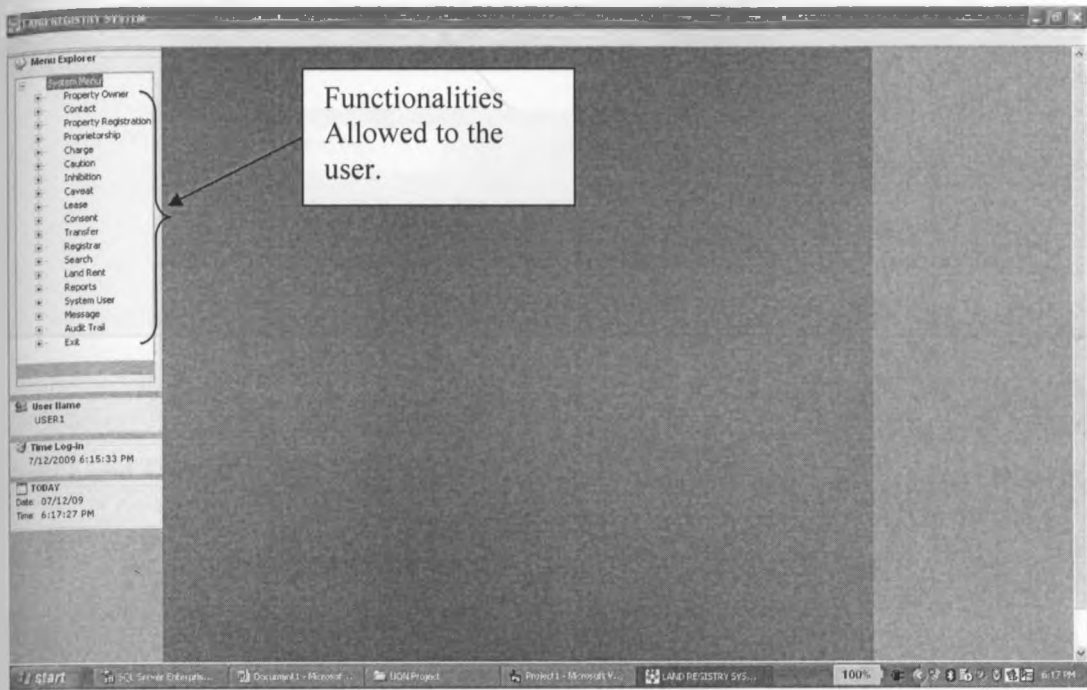
- Click “Change Password” button to load the interface below:
- Type in the username and password
- Click “submit” button to enable the “New Password” text box.
- Type in the desired password and click “Edit Pwd” button to complete the process.



A screenshot of a change password window. It has three text input fields: "User Name" (containing "user1"), "Current Password" (containing "xxx"), and "New Password" (empty). A "Submit" button is located to the right of the "Current Password" field. Below the "New Password" field is a "Confirm Password" field. At the bottom are "Edit Pwd" and "Cancel" buttons.

2 Main Form

- Upon successful log in, the user will see the form below.
- Each user is only allowed limited functionalities based on the user group assigned.



3 Land Owner

New Owner

- Type in the personal details and click “Save”
- The system validates the date of birth and will not accept someone under the age of 18 years.

New Land Owner

Personal Detail:

First Name

Middle Name

SurName

ID Card Number

Date of Birth

Edit Land Owner

Date of Birth

- Click “Find” button to get the input box below

AMMEND RECORD ✕

Specify in the ID Card Number

- Key in the ID number of the person whose details you wish to amend.
- The details will be populated as shown below

Edit Personal Details

| | |
|----------------|--|
| First Name | <input type="text" value="PAUL"/> |
| Middle Name | <input type="text" value="JP"/> |
| SurName | <input type="text" value="AWINJA"/> |
| ID Card Number | <input type="text" value="123456"/> |
| Date of Birth | <input type="text" value="26-Mar-1980"/> |

Save

Find

Delete

Exit

- Make the required amendments and click “Save” to complete the process.

Deletion of Personal Details

- Click “Find “ as demonstrated above
- Once the details have been retrieved, click “Delete” Button.

4 Contact

New Details

Add New Contact

| | | |
|----------------|-------------------------------------|-------------------------------------|
| ID Card No | <input type="button" value="Find"/> | <input type="text" value="123456"/> |
| PAUL JP AWINJA | | |

- Type in the ID number and click “FIND” button
- The name of the owner of the ID card number will be retrieved.
- Populate the form below and key in “SAVE” button to complete the process.

Add New Contact

ID Card No. Find 123456

PAUL JP AWINJA

P.O Box

Town

Postal Code

Email Address

Telephone Number

Edit Contact Details

- Key in the ID Number as explained above
- The contact details will be retrieved and populated on the form
- Make the required change and click “Save Changes” to complete the process.

Email Address

Telephone Number

Deletion

- Key in the ID Number as explained above
- The contact details will be retrieved and populated on the form
- Make the required change and click “Delete Contact” to complete the process.

1. Property Registration

New Property

The screenshot shows a software interface for registering new property. The title bar reads "Register New Property". The form is organized into several sections:

- Top Left:** "Edition" (text input) and "Date Opened" (dropdown menu showing "13-Jul-2009").
- Top Right:** "Registration Section" (text input), "Parcel Number" (text input), and "Approximate Area" (text input).
- Middle:** Radio buttons for "Free Hold", "Lease Hold" (selected), "Commercial Land", "Residential Land", and "Agricultural Land". Next to "Lease Hold" are "Lease Period From" and "To" dropdown menus, both showing "02-Jul-09".
- Bottom Left:** "Easements, ETC" (text area).
- Bottom Right:** "Nature of Title" (text area).
- Bottom Center:** "Save" and "Exit" buttons.

- Key in the details in the form above
- For lease hold properties, you must state the lease period.

Edit Property

Edit Property Details

| | | | |
|----------------------|--------------|------------------|-------------|
| Registration Section | NAKURU/NJORO | Approximate Area | 30 |
| Parcel Number | 1234 | Edition | 1 |
| | | Date Opened | 03-Jul-2009 |

Free Hold
 Lease Hold
 Lease Period From: 02-Jul-2009 To: 01-Jul-2020

Commercial Land
 Residential Land
 Agricultural Land

| | |
|----------------|-----------------|
| Easements, ETC | Nature of Title |
| NONE | LEASE |

Save Delete Exit

- Specify the Registration Section and parcel number and Click “Find” to retrieve the property details.
- Make the required amendments and click “Save” to complete the process.

6. Proprietorship

Proprietorship

Register property to the new Owner

| | | | |
|----------------------|------------------|---------------|-------|
| Registration Section | KITENGELA/MAVOKO | Parcel Number | 12343 |
|----------------------|------------------|---------------|-------|

Single Owner
 Joint Ownership
 Number of Owners:

| | | | |
|----------------|--|---------------------------|-----------|
| Date | 13-Jul-2009 | Mobile Phone Number | 056123456 |
| ID Card Number | 123456 | Consideration and Remarks | |
| Proprietor | PAUL JP AWINJA | Conditions for Issue | |
| Address | P.O Box 435 - 00200 NAIROBI cnm@yahoo.com | | |

Save Exit

Step 1:- Specify Registration Section

Step 2:- Specify Parcel Number

Step 3:- Specify ID Number

Step 4:- For Joint Ownership give the number of owners

Registration Section **KITENGELA/MAVOKO** Parcel Number **12343**

New Proprietor **Confirm Legal Requirements**

- Original Title Surrendered
- 1 Passport size photo each of both the buyer and seller received
- Copies of National Identity cards received from both seller and buyer
- Copies of Kenya Revenue Authority PIN Certificate received from both seller and buyer
- Land Transfer form duly signed by all the parties received
- Consent Given by Land Control Board

Step 5:- Tick to confirm that the legal requirements have been met.

Step 6:-

Click "Save" to complete the transaction

Edit Proprietor Details

Edit Proprietor's Details

Step 1:- Specify Registration Section **Step 2:- Specify Parcel Number**

Registration Section **NAKURU/NJORO** Parcel Number **1234**

| | | | |
|----------------|---|---------------------------|------------------|
| Date | 13-Jul-2009 | Mobile Phone Number | 072345613 |
| ID Card Number | 12355 | Consideration and Remarks | none |
| Proprietor(s) | JORAM MWEMA KITILI | Conditions for Issue | none |
| Address | P.O Box 90 - 120098 KAJIADO none | | |

Step 3:- Key in the ID number

- The proprietor's details will be retrieved upon keying in of the ID number.
- Make the required amendments

- Click "Save" to complete the transaction.

7. Charge

Charge

Register New Charge

Date: 26-Mar-2009

Land Registration Number: NGONG/NGONG

52726

Proprietor

| | |
|---|--------------------------------|
| Name: JORAM MWEMA KITILI | Mobile Phone Number: 072345612 |
| Address: P.O Box 90 - 120098 KAJIADO | ID Number: 12355 |
| | Size (In Hactres): 30 |

Charge/Further Charge

Existing Charge

Confirm Legal Requirements

| INSTITUTION | REASON | SIZE | AMOUNT |
|--------------------------------------|---------------|------|--------|
| <input type="checkbox"/> BARCLAYS | PERSONAL LOAN | 10 | 100000 |
| <input type="checkbox"/> NBK | PERSONAL LOAN | 10 | 12345 |
| <input type="checkbox"/> EQUITY BANK | Mavuno Loan | 2 | 23000 |

Address

Charges registered

Displayed

Charge/Further Charge

Existing Charge

Confirm Legal Requirements

| | | | |
|---------|----------------------|---|----------------------|
| Name | <input type="text"/> | Mobile Phone Number | <input type="text"/> |
| Address | <input type="text"/> | Size of Land to be Held as Colateral (In Hactres) | <input type="text"/> |
| Amount | <input type="text"/> | | |
| Purpose | <input type="text"/> | | |

- Key in the required details

Size (in Hactres)

Charge/Further Charge Existing Charge Confirm Legal Requirements

The Chargor and the Chargee have signed the charge documents in accordance with section 3 of Registered Land Act.

There is no restraint lodged on the property

The proprietor has provided copies of his/her Kenya Revenue Authority PIN Number, Passport size photo and national identity card

Stamp duty has been paid

Tick to confirm that all the legal requirements have been met

Charge Discharge Exit

- Click “Charge” button to complete the process

Discharge

- Specify the Registration Section and Parcel number details
- Details will be retrieved.
- Click “Existing Charge” Tab

Size (in Hactres) 30

Charge/Further Charge Existing Charge Confirm Legal Requirements

| INSTITUTION | REASON | SIZE | AMOUNT |
|---|---------------|------|--------|
| <input type="checkbox"/> BARCLAYS | PERSONAL LOAN | 10 | 100000 |
| <input checked="" type="checkbox"/> NBK | PERSONAL LOAN | 10 | 12345 |
| <input type="checkbox"/> EQUITY BANK | Mavuno Loan | 2 | 23000 |

Charge Discharge Exit

- Tick on the check box to select the charge
- Click “Discharge” button

- A dialogue box will pop up to confirm discharge.
- Click “Yes” to complete the process.

8. Caution

Caution

Date: Land Registration Number:

Proprietor

| | | | |
|---------|--|---------------------|--|
| Name | <input type="text" value="JORAM MWEMA KITILI"/> | Mobile Phone Number | <input type="text" value="072345612"/> |
| Address | <input type="text" value="P.O Box 90 - 120098 KAJIADO"/> | ID Number | <input type="text" value="12355"/> |

Caution Lodged By:-

| | | | |
|---------|----------------------|---------------------|----------------------|
| Name | <input type="text"/> | Mobile Phone Number | <input type="text"/> |
| Address | <input type="text"/> | ID Number | <input type="text"/> |

Caution Period

From: To:

Reason:

- Specify the Registration Section
- Specify the Parcel Number
- This will retrieve the ownership details of the land
- Fill in the details of the person lodging the caution and the reason
- Click on the “Confirm Legal Requirements” tab
- Tick to confirm the legal requirements
- Click “Save” button to complete the process.

Removing Caution

- Specify the Registration Section
- Specify the Parcel Number

- Click “Remove” button
- A dialogue box will pop up asking you to confirm whether you want to remove the caution.
- Click “Yes” to confirm removal.




9. Inhibitions

Inhibitions

Register New Inhibition

Date: Land Registration Number: Registration Section: Parcel Number:

| Register Inhibition | Confirm Legal Requirements |
|--|--|
| Proprietor | |
| Name: <input type="text"/> | Mobile Phone Number: <input type="text"/> |
| Address: <input type="text"/> | ID Number: <input type="text"/> |
| Inhibition Registered By:- | |
| Name: <input type="text"/> | Mobile Phone Number: <input type="text"/> |
| Address: <input type="text"/> | <input type="text"/> |
| Inhibition Period | |
| From: <input type="text" value="26-Mar-2009"/> | To: <input type="text" value="26-Mar-2009"/> |
| Reason: <input type="text"/> | |

 Save
 Remove Inhibition
 Exit

- Specify the Registration Section
- Specify the Parcel Number
- This will retrieve the ownership details of the land
- Fill in the details of the person registering the Inhibition and the reason
- Click on the “Confirm Legal Requirements” tab
- Tick to confirm the legal requirements
- Click “Save” button to complete the process.

Removing Inhibition

- Specify the Registration Section
- Specify the Parcel Number
- Click “Remove” button
- A dialogue box will pop up asking you to confirm whether you want to remove the inhibition.
- Click “Yes” to confirm removal.

10. Caveat

Caveat

(As Stipulated under Section 136 of Registered Land Act)

Date: 26-Mar-2009 Land Registration Number: NAKURU/NJORO 1234

Register Caveat

Confirm Legal Requirements

Registrar

Name: JORAM MWEMA KITILI Mobile Phone Number: 072345613
Address: P O Box 90 - 120098 KAJIADO ID Number: 12355

Period

From: 14-Jul-2009 To: 14-Jul-2009

Reason:

 Save  Remove Caveat  Exit

- Specify the Registration Section
- Specify the Parcel Number
- This will retrieve the ownership details of the land
- Fill in the details of the person registering the Caveat and the reason
- Click on the “Confirm Legal Requirements” tab
- Tick to confirm the legal requirements
- Click “Save” button to complete the process.

Removing Caveat

- Specify the Registration Section
- Specify the Parcel Number
- Click “Remove” button
- A dialogue box will pop up asking you to confirm whether you want to remove the caveat.
- Click “Yes” to confirm removal.

11. Lease

Lease Agreement Registration

(As Stipulated under Section 45 to 64 of Registered Land Act)

Lease dated

Land Registration Number

Register Lease

| Lessor (Landlord) | |
|---------------------|--------------------------------|
| Name | JORAM MWEMA KITILI |
| Address | P.O Box 90 - 120098 KAJIADO |
| Mobile Phone Number | 072345613 |
| ID Number | 12355 |

Confirm Legal Requirements

| Lessee (Tenant) | |
|---------------------|----------------------|
| Name | <input type="text"/> |
| Address | <input type="text"/> |
| Mobile Phone Number | <input type="text"/> |
| ID Number | <input type="text"/> |

Whereas it is agreed between the parties as follows

| | | | | |
|--------------------------|--|----------------|----------------------|--|
| From | <input type="text" value="26-Mar-2009"/> | Lease Period | To | <input type="text" value="26-Mar-2009"/> |
| Area Leased (In hactres) | <input type="text"/> | Amount Payable | <input type="text"/> | |
| Witnessed By | <input type="text"/> | | | |


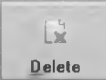


Save


Exit

- Specify the Registration section and Parcel number
- Details of the Lessor(Landlord) will be retrieved
- Enter details of the tenant and the lease.
- Click “Save” to complete the process.

Ammend Lease Agreement

(As Stipulated under Section 45 to 64 of Registered Land Act)

| | | | | |
|---|--------------------------------|--------------------------|---|-------|
| Lease dated | 26-Mar-2009 | Land Registration Number | NGONG/NGONG | 52726 |
| Lessor (Landlord) | | Lessee (Tenant) | | |
| Name | JORAM MWEMA KITILI | Name | JDASH OGWANG | |
| Address | P.O Box 90 · 120098 KAJIADO | Address | P.O BOX 48 RANGWE jogwang@yahoo.com | |
| Mobile Phone Number | 072345612 | Mobile Phone Number | 07234567 | |
| ID Number | 12355 | ID Number | 33465578 | |
| Whereas it is agreed between the parties as follows: | | | | |
| Lease Period | | | | |
| From | 15-Apr-2009 | To | 15-Apr-2009 | |
| Area Leased (In hectares) | 54 | Amount Payable | 11,000.00 | |
| Witnessed By | sisi kwa sisi advocates | | | |
|    | | | | |

- Specify the Registration section and Parcel number
- Details of the Lease will be retrieved
- Make the desired amendment
- Click “Save” button to complete the process.

Deletion

- Specify the Registration section and Parcel number
- Click “Delete” button.
- You will be asked to confirm deletion
- The lease will be deleted upon confirmation.

12. Consent

Consent by Land Control Board

(Land Control Act Cap 302)

| Consent | | | Confirm Legal Requirements | |
|--|------------|----------------|----------------------------|---------------|
| REG. SECTION | PARCEL No. | APPLICANT | ID NUMBER | PHONE No. |
| <input type="checkbox"/> NAKURU/NJOROI | 1234 | PAUL JP AWINJA | 123456 | 056123456 |
| <input checked="" type="checkbox"/> KITENGELA/MAVOKO | 12343 | PAUL JP AWINJA | 123456 | 056123456 |
| <input type="checkbox"/> NAKURU/NJOROI | 1234 | ANDREW MWAURA | 234567 | +254728774482 |

Approve Reject Exit

- Tick on the checkbox to select all the application that is to be approved/Reject.
- Confirm the legal requirements by ticking on the checkboxes under “Confirm Legal Requirements” Tab.
- Click either “Approve” or “Reject” depending on the decision

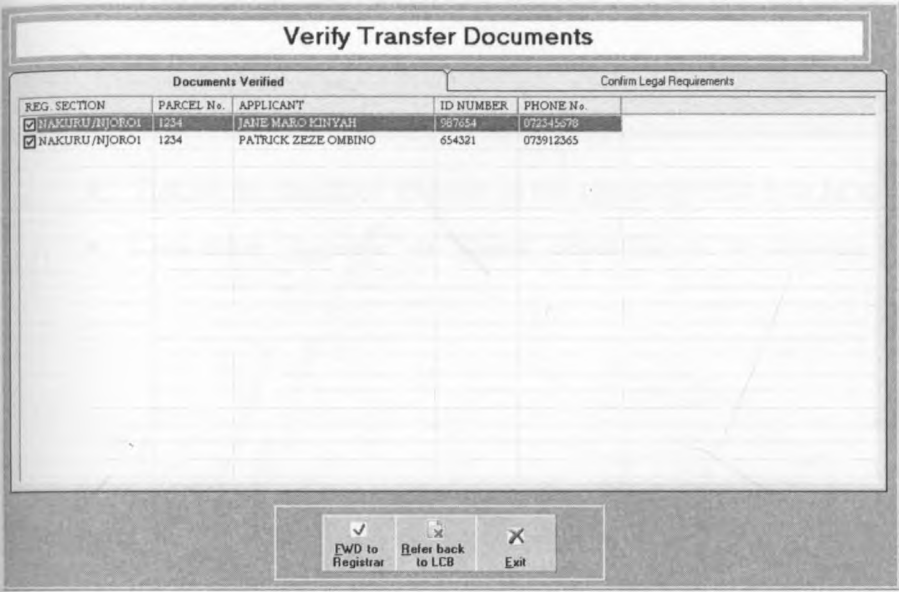
Viewing Further Details

| Consent | | | Confirm Legal Requirements | |
|--|------------|----------------|----------------------------|-----------|
| REG SECTION | PARCEL No. | APPLICANT | ID NUMBER | PHONE No. |
| <input type="checkbox"/> NAKURU/NJOROI | 1234 | PAUL JP AWINJA | | |
| <input checked="" type="checkbox"/> KITENGELA/MAVOKO | 12343 | PAUL JP AWINJA | | |
| <input type="checkbox"/> NAKURU/NJOROI | 1234 | ANDREW MWAURA | | |

| KITENGELA/MAVOKO 12343 | |
|------------------------|--|
| Current Owner | PAUL JP AWINJA |
| ID No. | 123456 |
| Phone Number | 056123456 |
| Address | P O Box 435 - 00200 NAIROBI cniw@yahoo.com |
| Area | 40 |
| Edition | 2 |
| Date Opened | 4/14/2009 |
| Easement | NONE |
| Nature of Title | ABSOLUTE |

Double click on an Item to display more details as shown above.

13. Verify Transfer Documents



- Tick on the checkbox to select all the application that is to be approved or referred back to the Land Control Board.
- Confirm the legal requirements by ticking on the checkboxes under “Confirm Legal Requirements” Tab.
- Click either “Approve” or “Refer back to LCB” depending on the decision

14. Registrar

Final Transfer by Registrar

| REG. SECTION | PARCEL No. | APPLICANT | ID NUMBER | PHONE No. |
|---------------------------------------|------------|-------------|-----------|-------------|
| <input type="checkbox"/> NAKURU/NJORO | 1234 | CLARIBHECIC | 26715035 | 25472960232 |

- Tick on the checkbox to select all the application that is to be approved/Reject.
- Click either “Approve” or “Reject” depending on the decision

15. Search

Search

Shows the proprietor and all the registered interests on a piece of land

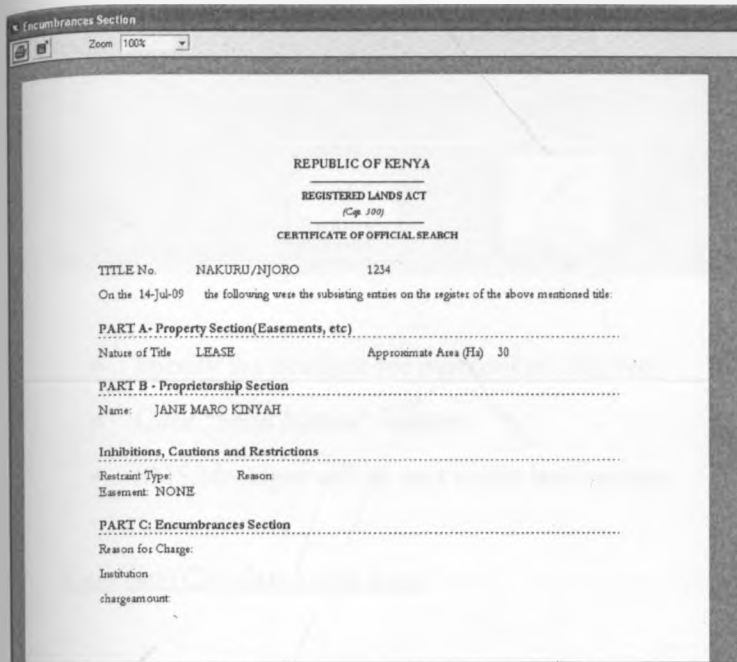
Date: Land Registration Number:

Proprietor Name: Mobile Phone Number:

Address: ID Number:

- Specify the Registration Section

- Specify the Parcel Number
- This will retrieve the ownership details of the land.
- Click “Search” button to generate a printable certificate of official search, as shown below.



15. Land Rent

Sending Demand Notice

Send Demand Notice

Dead Line for Payment:

- Specify the deadline for payment of land rent
- Click “Send Notice” button
- SMS Messages will be sent to the land owners.

Generate/Calculate Land Rates

Generate Land Rates

From: To:

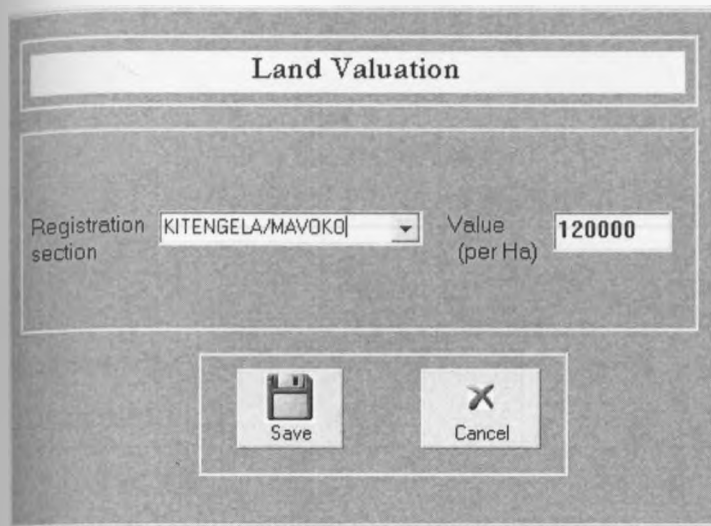
Registration Section: %:

This allows you to calculate land rates applicable within a defined period, for each parcel of land depending on the value

- Specify the period that the land rates will be applicable for example in the case above the rates are applicable between 14th July 2009 and 14th July 2010

- Specify the registration section, in case you are only calculating for a particular section, otherwise leave it at the default which is “All”.
- Specify the percentage to be used in calculation.
- Click “generate” button to complete the process.

Valuation

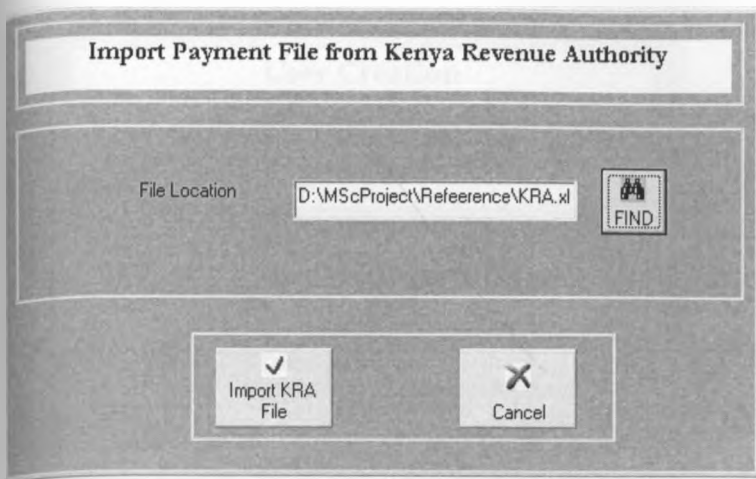


The screenshot shows a software window titled "Land Valuation". Inside the window, there are two main input fields. The first is a dropdown menu labeled "Registration section" with the text "KITENGELA/MAVOKO" selected. The second is a text input field labeled "Value (per Ha)" containing the number "120000". Below these fields, there are two buttons: "Save" (with a floppy disk icon) and "Cancel" (with an "X" icon).

This enables you to capture the average value of land in a particular registration section.

- Select the registration section
- Key in the value
- Click “Save” to store the value.

Loading Kenya Revenue Authority File

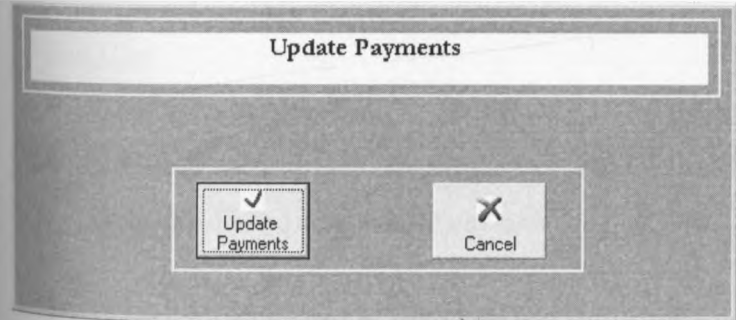


This enables you to load land rent payment file form KRA. The structure of the file should be as follows:

| Reg. Sec | Parcel No. | Receipt No. | Date Paid |
|--------------|------------|-------------|-----------|
| NAKURU/NJORO | 1234 | 556 | 22-Jun-09 |

- Click “FIND” button to locate the import file
- Click “Import KRA File”.

Updating Payments




This process updates the property record with the payment details.

- Click “Update Payments” button to complete the process.


16. System User

User Creation

| | |
|----------------------------|---|
| User Name | <input style="width: 80%;" type="text" value="user1"/> |
| Password | <input style="width: 80%;" type="password" value="xxxx"/> |
| Confirm Password | <input style="width: 80%;" type="password" value="xxxx"/> |
| Role Profile | <input style="width: 80%;" type="text" value="Administrator"/> ▾ |
| Status | <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled |
| Expiry | <input type="radio"/> Never Expires <input checked="" type="radio"/> Expires |
| | <input style="width: 80%;" type="text" value="16 Jul 2009"/> ▾ |
| Change Pwd on first Log on | <input type="checkbox"/> |


Save


Delete


Exit

- Key in a unique user name
- Type in the password
- Specify the “Role Profile”
- Click “Save” button to complete the process

Edit User

- Key in the user name.
- If the user name already exists the system will retrieve the details.
- Make the desired amendment and save.

17. Creating Role Profile

Create Role Profile

Role

Full Rights

Charge

Caution

Caveat

Consent

Contact

Inhibition

Lease

Personal Details

New Proprietor

Search

Land Rent

Audit Trail

New Property

Edit Contact

Edit Lease

Edit Personal Details

Edit Property details

Edit Proprietorship

Registrar

RoleProfile

SMS

Create User

Reports



Save



Delete



Exit

- Type in the name of the Role.
- If the role exists, the details will be retrieved
- Make the desired amendments.
- Click “Save” button to complete the process.

APPENDIX II:

QUESTIONNAIRE 1

Project Title:

Electronic Land Registry for Kenya

Research areas:

Land and land related transactions, input data, input format, output generated and its format.

Research Questionnaire

It focuses on the possibility of developing an effective and efficient electronic systems to address problems found (and inherent) in current paper systems, with bias on electronic land registration information system

Respondents

Legal Expert

Appreciation/Secrecy

Any information received thereof will be appreciated, where necessary, regarded with due secrecy as this is purely an academic pursuit.

Section a: General

1. What are the general functions of the lands section of the ministry of lands and settlement?
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.....
.....

2. What are the sources of government revenue in the lands section of the ministry of lands and settlement?
.....
.....

.....

Section b: The Current Land Registry System.

1. What year was it constituted?

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2. What are its general functions?

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3. What limitations/problems are currently facing it?

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4. What year was it decentralized to provincial and district levels?

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.....

5. What was the main objective of the decentralization?

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.....

.....

- Was such an objective achieved?

(Yes or no)

.....

- What problems/ limitations have so far arisen due to the decentralization?

.....

.....
.....

6. How does the central land registry relate with its decentralized units? For example how is information exchanged? by phone, couriers, fax or others

.....

7. How many transactions does the system handle in one working day? (give an approximate figure)

.....

8. Approximately what percentage rise does the above figure make in comparison to the number of transactions the system used to handle during its inception?

.....
.....

8. What structures or mechanism has been adopted to accommodate such a rise in number of transactions?

.....
.....
.....

9. Approximately what is the total figure of human workforce necessary to efficiently and effectively run and maintain the entire system?

Initially.....
Presently.....

10. Law in Kenya requires that all records regarding land and its associated transactions are not destroyed. If so this accumulates to large volumes of paper documents. In lieu of this

- How are such vast paper documents stored and what's the associated cost in terms of space, storage materials and labour?

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Section C: Land

1. How is land classified in Kenya? E.g Agricultural

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2. What is the procedure of changing from one classification to the other e.g agricultural to residential

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3. What are some of the factors that are considered before effecting the change above?

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4. What does "land search" mean?"

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and must it be conducted in the land registry where the parcel of land is situated or in any land registry nearest to the client? (Yes/No)

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If answer to the above is No, is there a way one can conduct a search without necessarily travelling?

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5. How does land control board/tribunal come into play in land transactions?

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6. What does the term “trust land” mean?

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7. What jurisdiction does it fall under?

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8. What interest in land do the persons settled in settlement schemes have? and who has the absolute rights over such land?

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Section D: Lands Register

1. What input data/forms/documents are required for registration of previously unregistered parcels of land?

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2. What sections does a land register have?

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.....

and what data is required for entry in the above sections of a land register?

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3. What do the following terms stand for

i. Registration of titles

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ii. Registration of deeds and documents.

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4. What documents/forms to be filled are required by each of the above system?

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5. What is needed to convert from one system to another?

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6. What is required for the following land transactions to be effected?

- Buying
- Leasing

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- Inheritance

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- Mortgaging

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Section E: Interest/Tenure on Land

1. How does the land registry capture data about sectional properties i.e. mode of ownership that relates to high-rise apartments where individual persons own units of a building for example flats on a specific floor. In such a case an individual has both freehold rights (in the specific flats) and tenants in common interests (in common passages, sewerage, drainage etc). How are such interests described and registered in the land registry?

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2. How are the above titles drawn? (Please provide a copy of such registration and title if available.)

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3. Under land adjudication act, a tribe, clan, section, family or other group can hold land as a group. What's the maximum and minimum number of representatives of such a group that can be registered on behalf of the group?

maxmin.....

4. Incase the group want to sell off such land what is the procedure

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.....

5. If the group wants to subdivide the land such that everyone is issued his/her own title, what would be the procedure?

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6. Are the shares transferable? E.g if one member wants to sell his shares

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7. In co-ownership interest in land such as joint tenancy and tenancy in common, how are their titles drawn in case the number of co-owners surpasses that provided by law?

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.....

8. How are the above two co-ownership interest differentiated in the land registry?

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.....

9. Under land acquisition act, the government can compulsorily acquire a parcel of land for public use like building of roads, health centers etc. the registered owner will then be required to surrender his title deed to the registrar of lands who shall then cancel it. Does it mean then that all records regarding that parcel of land are destroyed?

.....
.....
.....
.....
.....

what data is captured to show a public (government owned) land?

.....
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.....
.....

.....There are various categories of interests in land (estates, encumbrances and servitudes) and temporary restraints thereof (caution/caveat inhibition and restriction). How are these interests and/or restraints captured in the land register?

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10. “Overriding interests” are those interests not captured in the land register. How are such interests therefore, highlighted to a party interested in acquisition of a parcel of land subject to a claim by a third party as an overriding interest?

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.....

11. what’s the minimum size of a parcel of land considered by the government as an economic unit (that which can produce enough for consumption and trade) that cannot be further subdivided in the event of transfer of the said parcel of land?

.....

.....
.....

12. Land control act provides that before anyone transfers his land by way of sale or gift to another person, he must get the consent of the relevant land control board, so as to give the transfer effect in the eyes of the law. Does the land registry keep a copy of such consent?

.....

13. If yes, how is it captured in the land records?

.....
.....
.....
.....
.....

14. In the case of a co-operative society, what name is used to indicate ownership of a parcel of land in the title deed or certificate of ownership? the co-operative's name or the chosen members names as in group representative?

.....
.....
.....

15. What does index map mean? and must every land office have one? (give a copy if available.)

.....
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.....

16. How are equitable rights on land captured? for example where a landowner upon death leaves the land to another person- equitable owner, on behalf of his underage children

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17. Incase of the above arrangement, can the land ownership be transferred?

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18. How are the children protected in case the equitable owner defaults on the arrangement to hand over the land when the children reach maturity age?

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.....

Please issue copies of such documents as

- page of land register
- title deed/green card
- certificate of title
- Payment receipts incase of government leases. Etc

This is for clarification of required input and output data of the system and their formats.

Name of respondent.....

Designation.....

or

data source (e.g. government reports, sessional papers etc)

.....
.....
.....
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.....
.....

(This is for reference purposes only)

APPENDIX III

QUESTIONNAIRE 2

Project Title:

Electronic Land Registry for Kenya

Research areas:

Land and land related transactions, input data, input format, output generated and its format.

Research Questionnaire

It focuses on the possibility of developing an effective and efficient electronic systems to address problems found (and inherent) in current paper systems, with bias on electronic land registration information system

Respondents

Legal Expert

Appreciation/Secrecy

Any information received thereof will be appreciated, where necessary, regarded with due secrecy as this is purely an academic pursuit.

1. What are the steps are followed when transferring land?

2. How many sections do you have in the Registry?

.....
.....

3. What are the roles played by each step above?

4. Who has access to the documents?

5. Who has rights to amend?

6. Is there an independent audit that's carried out?

7. How safe are the documents against fire

8. What happens incase documents are lost?

APPENDIX IV

SAMPLE CODE

Option Explicit

Public cnDBconn As New Connection

Public rsContact As New Recordset

Public rsPersonalDetails As New Recordset

Public rsPropertyDetails As New Recordset

Public rsProprietorship As New Recordset

Public rsLease As New Recordset

Public rsconsent As New Recordset

Public rsresearch, rsLandrent As New Recordset

Public timein As String

Public numberofowners, Ownercount As Integer

Public msg, incmsg, RegSection, parcelNo, restraintreason, restrainttype, restraintregby As String

Public rsRestraint As New Recordset

Public rsRoleProfile As Recordset

Public pwd, strEncrypted As String

Public pwdatempt As Integer

Public rsIncomingSMS As Recordset

Public rsaudittrail As New Recordset

Public totalsize, sizeoncharge As Double

Public valuation As Double

Public phonenum, rentamount As String

Public k, noofitems, patempt As Integer

Public rsusers As Recordset

Public rsAddressBook, rsvaluation As New Recordset

Public strIDNo, sql, username, functionality, roleprofile, IdentityCard As String

Public strReceiver, strMsg As String

Public intId As Integer

Public litem As ListItem

Public timeloggedin, timeloggedout, actionperformed, parcelnumber, registrationsection, proprietorname As String

Public Transfer, allowed, restrainexist, consent As Boolean

Public Sub OpenDatabase()

```
'-----  
'Name:      OpenDatabase  
'Type:      Subroutine  
'Purpose:   Connect Application to the Database  
'Last Modified: 26 Mar 2009  
'-----
```

On Error GoTo 10

Set cnDBconn = New Connection

```
If cnDBconn.State = adStateOpen Then  
    cnDBconn.Close  
End If
```

```
cnDBconn.Open ("LandRegistry"), "sa", "123456"
```

```
Exit Sub
```

```
If Err.Number = -2147467259 Then
```

```
    MsgBox "CAN NOT FIND DATABASE LOCATION PLEASE SET BEFORE  
    PROCEEDING", vbCritical, ""
```

```
End
```

```
End If
```

```
10:  MsgBox Err.Description
```

```
Exit Sub
```

End Sub

Public Function pwdencryption(pwd)

```
Dim temp, temp1 As String
```

```
Dim i As Integer
```

```
strEncrypted = ""
```

```
For i = 1 To Len(pwd)
```

```
temp = Mid(pwd, i, 1)
```

```
temp1 = Asc(temp) + 10
```

```
strEncrypted = strEncrypted & Chr(temp1)
```

```
Next
```

```
End Function
```

```
Public Function pwddecryption(pwd)
```

```
Dim temp, temp1 As String
```

```
Dim i As Integer
```

```
strEncrypted = ""
```

```
For i = 1 To Len(pwd)
```

```
temp = Mid(pwd, i, 1)
```

```
temp1 = Asc(temp) - 10
```

```
strEncrypted = strEncrypted & Chr(temp1)
```

```
Next
```

```
End Function
```

```
Public Function checkRights(functionality, roleprofile)
```

```
AllFunctions.OpenDatabase
```

```
AllFunctions.OpenTableRoleProfile
```

```
allowed = False
```

```
sql = "select * from roleprofile where profile="" & roleprofile & "" and functionality="" &  
functionality & """
```

```

With rsRoleProfile
  If .State = 1 Then
    .Close
  End If
  .Open (sql), cnDBconn, adOpenKeyset, adLockOptimistic

```

```

  If .recordcount > 0 Then
    allowed = True
  End If
End With

```

```
End Function
```

```
Public Function AuditTrail(username, timeloggedin, timeloggedout, functionality, actionperformed,
parcelnumber, registrationsection, proprietortname, IdentityCard)
```

```
On Error Resume Next
```

```
Set rsaudittrail = New Recordset
```

```

sql = "insert into audittrail (username, timeloggedin, timeloggedout, functionality, actionperformed,
parcelnumber, registrationsection, proprietortname,IdentityCard) values ('" & username & "', '" &
timeloggedin & "', '" & timeloggedout & "', '" & functionality & "', '" & actionperformed & "', '" &
parcelnumber & "', '" & registrationsection & "', '" & proprietortname & "', '" & IdentityCard & "')"

```

```
cnDBconn.Execute (sql)
```

```
End Function
```

```
Public Sub OpenTableProprietorship()
```

```

'-----
'Name:      OpenTableProprietorship
'Type:      Subroutine
'Purpose:   Open Proprietorship Table
'Last Modified: 29 Mar 2009
'-----

```

```
Set rsProprietorship = New Recordset
```

```
If rsProprietorship.State = 1 Then
    rsProprietorship.Close
End If
```

```
rsProprietorship.Open ("select * from Proprietorship"), cnDBconn, adOpenKeyset,
adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTableLandRent()
```

```
'-----
```

```
'Name:      OpenTableLandRent
```

```
'Type:      Subroutine
```

```
'Purpose:   Open LandRent Table
```

```
'Last Modified: 21 Jul 2009
```

```
'-----
```

```
Set rsLandrent = New Recordset
```

```
If rsLandrent.State = 1 Then
```

```
    rsLandrent.Close
```

```
End If
```

```
rsLandrent.Open ("select * from Landrent"), cnDBconn, adOpenKeyset, adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTableRoleProfile()
```

```
'-----
```

```
'Name:      OpenTableRoleProfile
```

```
'Type:      Subroutine
```

```
'Purpose:   Open RoleProfile Table
```

```
'Last Modified: 22 Apr 2009
```

```
'-----
```

```
Set rsRoleProfile = New Recordset
```

```
If rsRoleProfile.State = 1 Then
```

```
rsRoleProfile.Close
```

```
End If
```

```
rsRoleProfile.Open ("select * from RoleProfile"), cnDBconn, adOpenKeyset, adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTableValuation()
```

```
'-----
```

```
'Name:      OpenTableValuation
```

```
'Type:      Subroutine
```

```
'Purpose:   Open RoleProfile Table
```

```
'Last Modified: 09 Jul 2009
```

```
'-----
```

```
Set rsvaluation = New Recordset
```

```
If rsvaluation.State = 1 Then
```

```
    rsvaluation.Close
```

```
End If
```

```
rsvaluation.Open ("select * from valuation"), cnDBconn, adOpenKeyset, adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTableLease()
```

```
'-----
```

```
'Name:      OpenTableLease
```

```
'Type:      Subroutine
```

```
'Purpose:   Open Lease Table
```

```
'Last Modified: 29 Mar 2009
```

```
'-----
```

```
Set rsLease = New Recordset
```

```
If rsLease.State = 1 Then
```

```
    rsLease.Close
```

End If

```
rsLease.Open ("select * from lease"), cnDBconn, adOpenKeyset, adLockOptimistic
```

End Sub

```
Public Sub OpenTableconsent()
```

'-----

```
'Name:      OpenTableconsent
```

```
'Type:      Subroutine
```

```
'Purpose:   Open Lease Table
```

```
'Last Modified: 17 Apr 2009
```

'-----

```
Set rsconsent = New Recordset
```

```
If rsconsent.State = 1 Then
```

```
    rsconsent.Close
```

```
End If
```

```
rsconsent.Open ("select * from consent"), cnDBconn, adOpenKeyset, adLockOptimistic
```

End Sub

```
Public Sub OpenTableusers()
```

'-----

```
'Name:      OpenTableusers
```

```
'Type:      Subroutine
```

```
'Purpose:   Open users Table
```

```
'Last Modified: 17 Apr 2009
```

'-----

```
Set rsusers = New Recordset
```

```
If rsusers.State = 1 Then
    rsusers.Close
End If
```

```
rsusers.Open ("select * from users"), cnDBconn, adOpenKeyset, adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTableContact()
```

```
'-----
'Name:      OpenTableContact
'Type:      Subroutine
'Purpose:   Open Contact Table
'Last Modified: 26 Mar 2009
'-----
```

```
Set rsContact = New Recordset
```

```
If rsContact.State = 1 Then
    rsContact.Close
End If
```

```
rsContact.Open ("select * from Contact"), cnDBconn, adOpenKeyset, adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTableSearch()
```

```
'-----
'Name:      OpenTableSearch
'Type:      Subroutine
'Purpose:   Open Search Table
'Last Modified: 26 Mar 2009
'-----
```



```
Set rssearch = New Recordset
```

```
If rssearch.State = 1 Then
```

```
    rssearch.Close
```

```
End If
```

```
rssearch.Open ("select * from searchland"), cnDBconn, adOpenKeyset, adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTablePersonalDetails()
```

```
'-----
```

```
'Name:      OpenTablePersonalDetails
```

```
'Type:      Subroutine
```

```
'Purpose:   Open Personal Details Table
```

```
'Last Modified: 26 Mar 2009
```

```
'-----
```

```
Set rsPersonalDetails = New Recordset
```

```
If rsPersonalDetails.State = 1 Then
```

```
    rsPersonalDetails.Close
```

```
End If
```

```
rsPersonalDetails.Open ("select * from PersonalDetails"), cnDBconn, adOpenKeyset,  
adLockOptimistic
```

```
End Sub
```

```
Public Function CheckRestrict(RegSection, parcelNo)
```

```
Dim sikuyaleo As Date
```

```
Set rsRestrict = New Recordset ~
```

```
restrictexist = False
```

```
restrictreason = ""
```

```
restrictregby = ""
```

```
restricttype = ""
```

sikuyaleo = Date

sql = "select * from restraint where RegistrationSection= '" & RegSection & "' and ParcelNumber
=''" & parcelNo & """

With rsRestraint

If .State = 1 Then

.Close

End If

.Open sql, cnDBconn, adOpenKeyset, adLockOptimistic

If .recordcount > 0 Then

restrainexist = True

restraintreason = !reason

restrainttype = !restrainttype

restraintregby = !rname

End If

End With

End Function

Public Sub OpenTableAddressBook()

'-----

'Name: OpenTableAddressBook

'Type: Subroutine

'Purpose: Open AddressBook Table

'Last Modified: 10 Apr 2009

'-----

Set rsAddressBook = New Recordset

If rsAddressBook.State = 1 Then

rsAddressBook.Close

End If

```
rsAddressBook.Open ("select * from AddressBook"), cnDBconn, adOpenKeyset,  
adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTableIncomingSMS()
```

```
'-----  
'Name:      OpenTableIncomingSMS
```

```
'Type:      Subroutine
```

```
'Purpose:   Open Ozekimessagein Table
```

```
'Last Modified: 06 May 2009  
'-----
```

```
Set rsIncomingSMS = New Recordset
```

```
If rsIncomingSMS.State = 1 Then
```

```
    rsIncomingSMS.Close
```

```
End If
```

```
rsIncomingSMS.Open ("select * from ozekimessagein"), cnDBconn, adOpenKeyset,  
adLockOptimistic
```

```
End Sub
```

```
Public Sub OpenTablePropertyDetails()
```

```
'-----  
'Name:      OpenTablePropertyDetails
```

```
'Type:      Subroutine
```

```
'Purpose:   Open Property Details Table
```

```
'Last Modified: 28 Mar 2009  
'-----
```

```
Set rsPropertyDetails = New Recordset
```

```
If rsPropertyDetails.State = 1 Then
```

```
    rsPropertyDetails.Close
```

```
End If
```

```

rsPropertyDetails.Open ("select * from PropertyDetails"), cnDBconn, adOpenKeyset,
adLockOptimistic
End Sub

Public Sub OpenTableRestraint()
'-----
'Name:      OpenTableRestraint
'Type:      Subroutine
'Purpose:   Open Restraint Table
'Last Modified: 28 Mar 2009
'-----

Set rsRestraint = New Recordset

If rsRestraint.State = 1 Then
    rsRestraint.Close
End If

rsRestraint.Open ("select * from Restraint"), cnDBconn, adOpenKeyset, adLockOptimistic
End Sub

Public Sub OpenTableAuditTrail()
'-----
'Name:      OpenTableAuditTrail
'Type:      Subroutine
'Purpose:   Open Audit Trail Table
'Last Modified: 01 Jul 2009
'-----

Set rsaudittrail = New Recordset

If rsaudittrail.State = 1 Then
    rsaudittrail.Close
End If

rsaudittrail.Open ("select * from audittrail order by TimeLoggedIn asc"), cnDBconn,
adOpenKeyset, adLockOptimistic
End Sub

```

Public Sub UnloadAllForms()

Unload frmMaintainContactDetails
Unload frmMaintainPropertyDetails
Unload frmContactDetails
Unload frmMaintainPersonalDetails
Unload frmPersonalDetails
Unload frmPropertyDetails
Unload frmMaintainProprietorship
Unload frmSMS
Unload frmCaution
Unload frmCaveat
Unload frmuser
Unload frmInhibitions
Unload frmLease
Unload frmMaintainLease
Unload frmProprietorship
Unload frmConsent
Unload frmTransfer1
Unload frmRegistrar
Unload frmRoleProfile
Unload frmCharge
Unload frmSearch
Unload frmAuditTrail
Unload frmSendDemandNotice
Unload frmCalculateRates
Unload frmValuation
Unload frmKRA
Unload frmKRAMatch
Unload frmLandHistory

End Sub

Public Function sendSMS(strReceiver, strMsg, intId)

'Name: sendSMS

'Type: Subroutine

'Purpose: Writes message to ozekimessageout table, where the SMS engine will pick it

'Last Modified: 2 Apr 2009

OpenDatabase

```
sql = "INSERT INTO ozekimessageout  
(id,sender,receiver,msg,senttime,receivedtime,reference,status,operator,msgtype) " _  
    & "VALUES (" & intId & ",," & strReceiver & ",," & strMsg & ",," & Now &  
",,";'send',,)"
```

```
cnDBconn.Execute (sql)
```

```
End Function
```

```
Public Sub GenerateMessageID()
```

```
Dim rsOpentableMessageID As Recordset
```

```
Set rsOpentableMessageID = New Recordset
```

```
    AllFunctions.OpenDatabase
```

```
    If rsOpentableMessageID.State = 1 Then
```

```
        rsOpentableMessageID.Close
```

```
    End If
```

```
    rsOpentableMessageID.Open "select * from MessageID", cnDBconn, adOpenKeyset,  
adLockOptimistic
```

```
    If rsOpentableMessageID.recordcount > 0 Then
```

```
        intId = rsOpentableMessageID!MsgID
```

```
        cnDBconn.Execute ("update MessageID set msgid=" & intId + 1 & """)
```

```
    End If
```

```
End Sub
```

```
Public Sub jointOwners()
```

```
    If Ownercount < numberofowners + 1 Then
```




REPUBLIC OF KENYA

THE REGISTERED LAND ACT
(Chapter 300)

Title Deed

Title Number 4541/1/1111/1

Approximate Area 0.51 Ha. Plot Number

Registry Map Sheet No. 1

This is to certify that Name Of Owner

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |

is (~~was~~) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 30 of the Registered Land Act as may for the time being subsist and affect the land.



Red Stamp

GIVEN under my hand and the seal of the
 K E N Y A District Land Registry

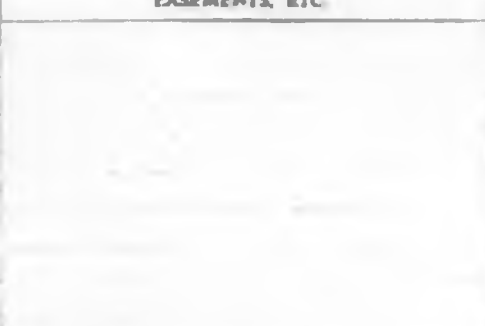
this Date day of Date , 20

Land Registrar


Registrars Signature

(To be completed only when the applicant has paid the fee of \$3.125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land

| | | | |
|--------------------------------------|---|--------------------------------|--|
| SECTION: _____ OPENED: 17, 1 Date | | PART A—PROPERTY SECTION | |
| REGISTRATION SECTION SALE/LEASE | EASEMENTS, ETC | NATURE OF TITLE | |
| PARCEL NUMBER |  | ABSOLUTE | |
| Plot Number | | | |
| APPROXIMATE AREA | | | |
| 0.51 | | | |
| REGISTRY MAP SHEET No: _____ | | | |

PART B—PROPRIETORSHIP SECTION

| ENTRY NO. | DATE | NAME OF REGISTERED PROPRIETOR | ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR | CONSERVATION AND REMARKS | SIGNATURE OF REG. |
|-----------|------|-------------------------------|--|--------------------------|--|
| | Date | Name Of Owner | Adress Of Owner P.O. BOX MONGABA. | |  |
| | | | | | |
| | | | | | |
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