THE REPUBLIC OF UGANDA

Private Sector Foundation Uganda

SECOND PRIVATE SECTOR COMPETITIVENESS PROJECT

(PSCP II)

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Review of the Legal Framework for Land Administration

Final Draft Issues Paper Land Information Systems

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Contents

1 Introduction

1.1 Overview

This is the Draft Final Issues Paper on Land Information Systems. It is submitted against the background of the Second Private Sector Competitiveness Project (PSCP II). The Government of Uganda has received funds (under Credit Number: 3975 UG) from the International Development Association (IDA), towards the cost of the PSCP II. It has applied part of the proceeds of this Credit to a component for Improving the Business Environment (Land Registry sub-component Improvements in the Land Registry). This component aims to improve the business environment through a number of steps, including:

- strengthening the capacity of the Land Registry to process land titles;
- updating land records and establishing a land information system;
- extending the formal system of land registration;
- sensitizing groups or individuals who have not had access to land tenure security; and
- building the capacity of the Land Registry staff.

Under the PSCP II Project and in particular the above component, Private Sector Foundation Uganda (PSFU) has procured the services of the Consultant (Kalenge, Bwanika, Kimuli & Company, Advocates, in association with several Subconsultants) to provide consultancy services for the Review of the Legal Framework for Land Administration. This assignment, in summary, entails:

- comprehensively reviewing land-based laws;
- recommending revisions and harmonization; and
- drafting new laws in areas indicated.

This Paper discusses issues that, in our view, require legislative attention for effective implementation of a land information system (LIS) in Uganda. Given the inherent complexity of the topic, this Paper (while our final contribution) does not purport to be the final word on LIS issues. Rather, we see it as a guideline for further discussion by stakeholders during consultations before final enactment of any LIS legislation.

Importantly, this Paper takes into account comments made on our earlier Draft Issues Paper on LIS. In particular, we benefited from the views of Mr Mike Che (LIS Consultant on the PSCP II, and the author of two key reports on the LIS). We have also considered and taken into account the comments of the Law Reform Working Group (LRWG) on our earlier Draft Issues Paper on land information systems. The LRWG's comments were formulated at its meetings on 24 January to 27 January 2010. For ease of reference, Appendix 1 of this Paper tabulates the LRWG's comments and our responses to them.

Appendix 2 of this Paper comprises a draft Bill for a National Land Information Authority Act. This Act also is for discussion purposes only. Many of its clauses will need amendment to give effect to the final decisions which will need to be on matters raised in this Paper. We put it forward as a starting point, to give stakeholders a feel for how the eventual legislation might look.

The information in this Paper is based on:

- The Consultant's understanding of the task, gained from the terms of reference and discussions with officials from the Ministry of Lands and Urban Development.
- A review of literature and case studies on LIS best practices. The case studies have been synthesized to identify the issues that are relevant for LIS implementation in Uganda.
- Our own local knowledge of the history of land administration in Uganda. In addition, our subconsultants in Australia have provided international experience to ensure that the proposals in this Paper reflect international best practice in land information systems.
- Reviews of the work of leading experts and scholars in LIS and of cadastre studies, such as Peter Dale, Ian Williamson, Helge Onsrud, Kate Lance and Clarissa Fourie Augustinus.

1.2 Structure of the Paper

This Paper is organized into six sections and two appendices.

- Section One gives a general introduction to the paper.
- Section Two highlights the policy context of a LIS in Uganda. It also summarises the recommendations of Government-commissioned studies.
- Section Three discusses a number of concepts that are closely related to LIS. It explains linkages between the concepts of Land Management, Land Administration, Land Information Management, Land Information Systems and Spatial Data Infrastructures. Where necessary, we explain or define these concepts. This section should be useful both to readers with limited experience of LIS concepts and to professionals who need to understand the rationale behind our proposals for LIS implementation in Uganda.
- Section Four presents some LIS best-practices and case studies. It appraises the case studies and discusses implications for LIS development in Uganda.
- Section Five expands on lessons learnt in the case studies, to present and discuss specific issues around implementation of a LIS in Uganda. It discusses various options, and highlights our recommendations at the end of each area discussed.

- Section Six summarises our general conclusions and recommendations on LIS implementation.
- Appendix 1 tabulates the LRWG's comments on our earlier Issues Paper on land information systems, and our responses to those comments.
- Appendix 2 comprises a Draft National Land Information Infrastructure Act. The aim is to show how the key recommendations in this Report could be translated into legislative action.

2 Policy Framework

The Paper discusses the implementation of the LIS from the perspective of various government policy initiatives and documents. The initiatives include the PSCPII, the Medium-Term Competitiveness Strategy (MTCS), and the Land Sector Strategic Plan (LSSP). The documents are mainly government-commissioned studies on LIS.

2.1 Government LIS Policy Context

The overall objective of the PSCP II is to create sustainable conditions for enterprise-creation and growth that respond to local and export markets. The PSCP II supports the Uganda Government program for eliminating the key restraints on Uganda's international competitiveness. Crucial steps include reducing the cost of doing business and encouraging investment, to better position the private sector to respond to market opportunities.

PSCP II has three mutually-reinforcing components. The pertinent one for this assignment is the *Project Component 3 (Improving the Business Environment).*[1] This addresses critical issues in the business environment, including improvements in the Land Registry and other related spatial records. Implementing the components will help to modernize the commercial legal environment, reduce the time and cost of doing business, and, crucially, restore the integrity of the Land Registry and other land information databases.

In July 2000, the Government of Uganda produced the Medium-Term Competitiveness Strategy (2000-2005) (MTCS).[2] Its aim was to create an environment in which the private sector could grow, become profitable, and compete both locally and abroad. It set out reform priorities, including reforms to the substance and application of commercial law, the regulatory and administrative framework governing business transactions, and more particularly (for the purposes of this assignment) land registration.

The MTCS was also intended to facilitate the growth of an efficient land market, to stimulate investment and market-led development. From the perspective of the land sector, a priority was to remedy shortcomings in the land registration system. These shortcomings are seen as a significant obstacle to investment. One possible strategy was to promote private sector partnership with government in the provision of land-related services. These services may include systematic demarcation, cadastral surveying, topographical mapping, database development, and so on.

1. The other components are:
Project Component 1—Developing Infrastructure and Financial Services; and
Project Component 2—Enhancing Enterprise Competitiveness.
They are outside the scope of the Consultant's assignment and of this Report.

2. Now replaced by the Competitiveness and Investment Climate Strategy (CICS).

The Government of Uganda's commitment to developing a computerised land information system is also seen in the Land Sector Strategic Plan 2001-2010 (LSSP). LSSP is the guiding document for providing the operational, institutional and financial framework for sector-wide reforms in land management, including implementing the Land Act 1998. The LSSP is also an important element in Uganda's contribution to the United Nations Agenda 21, and to the Habitat Agenda, which outline strategies for achieving sustainable development, adequate shelter for all, and sustainable human settlement in an urbanizing world.

The LSSP was designed around key national priorities. They include:

(i) the Poverty Eradication Action Plan;
(ii) the Plan for the Modernisation of Agriculture;
(iii) the Decentralization policy;
(iv) the Liberalization and Medium-Term Competitiveness Strategy.

The LSSP aims to remove barriers to increased land utilization; to broaden land services to rural areas and customary land; to address inequality, tenure insecurity and inequitable systems and processes; to strengthen the land rights of the vulnerable and of women; to empower local governments and communities to make and implement their own policies for their land; and to provide an appropriate and supportive framework for sound environmental and natural resource management.

Six broad objectives for the Land Sector were identified through the consultative planning process. Strategic Objective 4, "To increase availability, accessibility, affordability, and use of land information for planning and implementing development programmes", directly highlights the importance of a viable land information system. The two strategies to achieve this objective are:

- a systematic adjudication and demarcation of land rights; and
- a unified, relevant and accessible land information system.

As part of the strategy to establish a land information system, the LSSP sets priorities that include the following:

- rehabilitating the Land Registry and existing land records, so as to overcome the current predicament of non-existent or unclear land records and the inability to enforce existing land rights; and
- facilitating decentralization of records, so as to improve access to land and title information.

The reform objectives of the LSSP, viewed in the overall context of the Government of Uganda's policy instruments, are multi-faceted and multi-sectoral. They are intended to address many issues. These include:

- creating a land market
- enhancing private sector development and private sector competitiveness
- improving security of tenure and land rights
- updating land-sector legislation to bring it into line with the provisions in the *Constitution* and the *Land Act* for protecting land and property rights
- removing or overhauling superfluous or obscure land legislation
- removing barriers to increased land use and unshackling the enforcement of land rights
- helping to modernise agriculture and eradicate poverty
- creating a Land Information System (LIS)
- removing obstacles to using land as security
- enhancing access to financial services
- strengthening the land rights of vulnerable members or groups in Ugandan society, and of women
- facilitating and promoting the decentralisation of land services
- providing an appropriate and supportive framework for sound environmental and natural resource management.

2.2 LIS Policy in the Context of Existing Government Reports

The Government's commitment to developing a Land Information System is manifested in the studies it has commissioned on the topic. The studies stretch back more than 15 years. Notable studies include:

1. Land Tenure and Agriculture Development in Uganda, by Makerere Institute of Social Research and The Land Tenure Centre of Wisconsin, USA, 1989;
2. Report on the Land Registration Procedure and Land Registry in Uganda, D.W. Greenwood, 1990;
3. Rehabilitation and Development of Land Survey and Registration in Uganda, Gerhard Larsson, 1990;
4. A Base For a Land Information System In Uganda, Swede Survey, 1996;
5. Proposal for the Computerization of the Land Registry, Computer Supplies Ltd, 1996;
6. Design and Development of a Geographic Information System including the Master Plans for the Development of the Ugandan Spatial Infrastructure, The Swedish Consortium, June 2001;

7. Technical Audit on Current Initiatives and Proposals for Securing Land Registry Records in Uganda, Swede Survey, 2003;
8. A Review of the Status of Land Information Systems in Uganda, Sivest, 2003;
9. Detailed Plan for the Design and Implementation of LIS in Uganda, Swede Survey, 2004;
10. Securing and Upgrading the Land Registry and Implementation of a Land Information System in Uganda, Geo-Information Communication Ltd, 2007.

These studies make many useful recommendations, covering a wide range of issues—from technical, technological and legal, to economic and institutional. A recurrent theme is the need for immediate and urgent rehabilitation and computerization of land records. The studies consistently and universally recommend establishment of a Land Information System as a long-term strategy for addressing land information accessibility in Uganda. We present the key recommendations later, in Section Four.

3 Existing Legal Framework for Land Administration in Uganda

3.1 Inventory of Legislation

The legal framework for land administration in Uganda comprises the following core legislation:

i). The Constitution of the Republic of Uganda 1995 (as amended)

ii). Land Act, 1998 (Cap. 227 laws of Uganda, Revised Edition 2000), as amended by the Land (Amendment) Act No. 1 of 2004

iii). Registration of Titles Act, Cap. 230

iv). Survey Act, Cap. 232

v). Surveyor's Registration Act, Cap. 275

vi). Land Acquisition Act, Cap. 226

vii). Mortgage Act, Cap. 229

viii). Town and Country Planning Act, Cap. 246

ix). Condominium Property Act, No. 4 of 2001

x). Traditional Rulers (Restitution of Assets and Properties Act 1993), Cap. 247

ix). Local Government (Rating) Act, No. 8 of 2005

xii). Land Regulations, 2004.

In addition, other laws govern certain aspects of land-related activity. They may be relevant to land information management and may contribute vital land information. An example is the Stamps Act, Cap 342, which applies to land transactions (instruments) that attract Stamp Duty, such as sales and transfers, leases, mortgages and charges, and to some extent affects land market valuations. But its function is more tax-related than land administration-related.

The laws numbered iii) to ix) above are comprehensively covered in our other Issues Papers under this Project—Reform of Land Administration Laws.

3.2 Summary Overview of land administration legislation in Uganda

3.2.1 The Constitution of Uganda 1995 (as amended)

At the apex of land administration laws is the Constitution of Uganda 1995 (as amended). The Constitution is the supreme law of Uganda and the fountain from which all land legislation originates (and in case of legislation that pre-dates the Constitution, it is the source from which that legislation derives its legitimacy).

The 1995 Constitution ushered in fundamental reforms in ownership, tenure, management and control of land in Uganda. Under Directive XI (Role of the State in development), Paragraph (iii), in furtherance of social justice, the State may regulate the acquisition, ownership, use and development of land and other property, in accordance with the Constitution. Under Article 26 (Protection from deprivation of property), every person has a right to own property either individually or in association with others, and no person may be compulsorily deprived of property or any interest in or right over property, except on certain conditions.

Chapter Fifteen, on Land and Environment, is the core of the Constitutional provisions governing Land. This Chapter includes Article 237 (1), under which land in Uganda belongs to the citizens of Uganda and vests in them in accordance with the land tenure systems provided for in the Constitution. The land tenure systems are:

(a) customary;

(b) freehold;

(c) mailo; and

(d) leasehold.

The Constitution re-established these four land tenure systems, reversing the Land Reform Decree 1975 which had abolished all tenures except customary tenure and leasehold. The 1995 Constitution further provided for the enactment of a law on or before July 2, 1998 (i.e. the second anniversary of the first sitting of Parliament elected under the Constitution) that would

- regulate the relationship between the lawful or bonafide occupants of land referred to in Article 237(8) and the registered owners of that land, and
- provide for the acquisition of registrable interests in land by occupants.

This is the foundation for the Land Act of 1998, now Cap. 227 of the Laws of Uganda, Revised Edition, 2000.

In relation to land administration, the Constitution provides for the establishment and functions of the Uganda Land Commission. The Constitution also provides for the establishment of District Land Boards to hold and allocate land not held by any person or authority, and to facilitate the registration and transfer of interests in land. The District Land Boards are to be independent of the Uganda Land Commission and of any other person or authority; and they are required to take account of national and district land policies.

3.2.2 Land Act, 1998, Cap. 227of the Laws of Uganda, Revised Edition, 2000

The stated objective of the Land Act is to provide for the tenure, ownership and management of land; to amend and consolidate the law relating to tenure, ownership and management of land; and to provide for other related matters.

In conjunction with the Constitution, the Land Act provides for, amongst other things:

- a range of land-management institutions;
- a re-affirmation of the types of land tenure systems in Uganda (customary, mailo, freehold and leasehold);
- a decentralized system of land administration, corresponding to the decentralization of governance of districts under the Local Governments Act, 1997;
- the operations of the transformed Uganda Land Commission, District Land Boards, and District Land Tribunals;
- establishment of District Land Offices, Sub-county Land Tribunals, and Parish Land Committees;
- customary owners to acquire certificates of ownership and to convert customary and leasehold tenure to freehold; and
- security of occupancy on mailo, freehold or leasehold land for lawful or bonafide occupants.

3.2.3 The Land (Amendment) Act 2004

The Land (Amendment) Act, 2004 made certain changes to the Land Act, Cap. 227, and imposed restrictions on the transfer of family land. The Amendments also introduced changes to the dispute resolution mechanisms under the principal Act.

3.2.4 Registration of Titles Act, Cap. 230

The Registration of Titles Act (RTA), Cap. 230, has been in force since 1924. It is based on a 1915 statute from the Australian state of Victoria. It governs the registration of land titles in Uganda, and the registration of key transactions in land, such as transfers, mortgages, leases and encumbrances. The Act introduced the Torrens system of title registration, which provides a state-guaranteed system of title (usually called an "indefeasible" title), backed by a right to compensation for loss of land. Except for changes in the provisions dealing with mortgages and some amendments made by the Land Act, Cap. 227 and the Land (Amendment) Act, 2004, the RTA has remained virtually unchanged since its enactment over 80 years ago.

The Survey Act, Cap. 232

The Survey Act was enacted in 1939 to provide for and regulate the survey of lands. It set up the statutory office of Commissioner of Lands and Surveys, which later became the

Commissioner for Surveys and Mapping, with functions and responsibilities for regulating land surveys.

Since 1939, enormous changes have occurred in surveying methods and expertise. They have changed dramatically the technical landscape in which surveyors work. The legal framework in which surveyors work has also changed dramatically. The 1995 Constitution now provides a framework within which all Ugandans must work; and the *Land Act 1998* has established principles that must be complied with by any professional whose work bears a connection with land.

Surveying is a fundamental aspect of land administration and, for that matter, of any Land Information System. Cadastral surveys directly affect the establishment of the Land Information System and the rehabilitation of the land registration system in Uganda. Surveys are required for a number of land transactions, including subdivision, consolidation, and conversion from customary or leasehold tenure.[3]

3.2.5 Surveyor's Registration Act, Cap. 275

The Surveyors Registration Act, Cap. 275, commenced in June, 1974, originally as the Surveyors Registration Decree 9/1973. The Act establishes a Surveyor's Registration Board, defines the powers and functions of the Board, and provides for the registration of surveyors, the regulatory discipline of surveyors, and related matters.

Laws governing the making of surveys and the regulation of surveyors (qualifications, licensing and permitted activities) are a fundamental component of any land administration framework.

3.2.6 The Land Acquisition Act, Cap. 226

The Land Acquisition Act, Cap 226, provides for the compulsory acquisition of land for public purposes, compensation for such acquisition, and incidental matters such as valuation for compensation purposes.

The Act has been in place since 1965. It was applied to the Protectorate of Uganda by virtue of the Indian Acts Ordinance. It is the implementing law for Article 26 of the Constitution, which guarantees the right to own property and requires prompt payment of fair and adequate compensation before the taking of possession and acquisition of the land. However, it is not entirely in harmony with Article 26, since it allows possession of land to be taken *before* compensation is paid, and it is by no means clear that the Act would necessarily ensure the prompt payment of fair and adequate compensation. (However, of course, the Act predates the 1995 Constitution by 30 years.)

3. LIS Baseline Report, at p. 67.

We have prepared a separate Issues Paper specifically dealing with reform of the law relating to Land Acquisition.

3.2.7 The Mortgage Act, Cap. 229

The Mortgage Act was originally enacted in 1974, as the Mortgage Decree No. 17/1974. Its purpose was to amend the law relating to mortgages, which was then principally contained in the Registration of Titles Act.

The Mortgage Decree, and later the Mortgage Act, set out the remedies available to a mortgagee upon default by a mortgagor. These included realization of the security; the appointment, duties and remuneration of a receiver; possession by a mortgagee; foreclosure; distribution of proceeds of sale; and other related matters.

More recently, the Mortgage Act 2007 was enacted to consolidate Ugandan mortgage law, which until then was scattered between the Mortgage Act, Registration of Titles Act, the Land Act, and to an extent, the Financial Institutions Act No.2 of 2004. This Act repeals and replaces the Mortgage Act Cap 229 and also certain mortgage-related provisions in the Registration of Titles Act, Cap. 230. The Act also introduces a number of innovations.

Mortgage law is the subject of a separate Draft Final Issues Paper.

3.2.8 The Town and Country Planning Act, Cap. 246

The Town and Country Planning Act, Cap. 246 (TCPA) is the principal statute governing physical planning in Uganda. It was originally enacted as the Town and Planning Ordinance, 1951 and revised in 1964. The object of the TCPA is to provide for the orderly and progressive development of land, towns and other areas.

The TCPA makes provision for declaration of planning areas, preparation and approval of schemes, execution of schemes, and compensation and betterment.

The TCPA has been overtaken by events. Legislation such as the 1995 Constitution, the 1998 Land Act and the National Environment Act, Cap. 153, have rendered parts of the TCPA redundant. Further, like much other land-sector legislation, the Act predates the Constitution of 1995, the Land Act, 1998, and other recent legislation which impacts on spatial and land use issues and policies. In our view, it is out of step with present land law and newly-recognized interests in land. It is also out of step with modern policies on matters such as decentralization, environmental protection and sustainability, land use, and the creation of a free land market.

Its obsolescence culminated in the drafting of the Physical Planning Bill, 2007. The Bill envisages the establishment of a National Physical Planning Board; the composition, functions and procedures of the Board; the establishment of district and urban physical planning committees; the making and approval of physical development plans; applications for development permission; and other related matters.

3.2.9 The Condominium Property Act, No. 4 of 2001

The Condominium Property Act regulates the ownership of property in condominium developments, especially apartment blocks. Followoing the lead of other countries, the Act allows buildings or parts of buildings to be separately owned. In Uganda, this is called "condominium" property; in other jurisdictions, it is called "strata" property.

The Condominium Property Act is a fairly recent statute. It is generally viewed as overly-complex, and this complexity is likely to discourage development rather than encourage it.

Amongst its shortcomings, the Act lacks effective enforcement mechanisms to ensure the adequate regulation of day-to-day living in condominium properties. At present, disputes can only be resolved by court action. By contrast, the Land Act provides alternative dispute resolution mechanisms, such as mediation—a process that is quicker, cheaper and more accessible than court proceedings.

The Act requires the establishment of a fund for administrative expenses, for the day-to-day management of the condominium property (section 21). However, it does not require the establishment of a fund for future expenditure, such as structural maintenance of the condominium property. This is a serious deficiency.

The Act also lacks clarity on issues such as mortgage insurance, and liability for law suits in case of building defects.

We have discussed these and other shortcomings of the Condominium Act in a separate Draft Final Issues Paper.

3.2.10 Traditional Rulers (Restitution of Assets and Properties Act), Cap. 247

This Act was passed in 1993. Its long title states that it is: "An Act to give effect to article 118A of the Constitution of 1967 and to restore to traditional rulers assets and properties previously owned by them or connected with or attached to their offices but which were confiscated by the State . . .". Section 2(1) provides for the transfer of property, previously confiscated, back to the Traditional Rulers.

Although relatively recent, this Act needs to conform with the provisions of the Constitution. It also needs to conform with the Land Act.

Any transfer to Traditional Rulers raises issues about the rights and interests of occupants on land claimed back by Traditional Rulers.

3.2.11 Local Government (Rating) Act, No. 8 of 2005

The purpose of this Act is to provide for the levy of rates on property by local governments within their areas of jurisdiction, to provide for the valuation of property for the purpose of rating, and to provide for the collection of rates. Enacted in 2005, this Act repealed the old law

on local government rating (the Local Government Act, Cap. 243), which had been in place since 1979.

Despite its rather recent enactment, the Act needs review in the context of a modern land administration system. An efficient local government system must facilitate the flow of key land information to the land information system, provide for the data-custody and data-remittance responsibilities of local governments, and facilitate efficient methods of local government tax collection.

3.2.12 Land Regulations, 2004

The Land Regulations 2004, although strictly subsidiary legislation, are a major component of the land administration framework.

The Land Regulations, 2004 (Statutory Instrument No. 100 of 2004), became effective in November, 2004. They revoked and replaced the Land Regulations 2001 (Statutory Instrument No. 16 of 2001), made under Section 94 of the Land Act 1998.

The Regulations generally operationalize the detailed provisions of the Land Act. They provide forms for various functions, and for transactions under both the Act and the Regulations.

There are numerous other land-related laws in Uganda. However, the laws mentioned above form the basis of the land administration system.

4 Conceptual Framework

"Land Information System" (LIS) is a well-known concept. However, the understanding of the concept, and its practical application, varies throughout the world. These variations stem from different perceptions of related concepts, such as land management, land administration, and land tenure—concepts that are much older than the concept of LIS itself.

We begin with an explanation of these related concepts, as a prelude to adopting a working definition of LIS for the purpose of this Draft Final Issues Paper. By doing so, we avoid the temptation of slavishly adopting standard western definitions of LIS that fail to engage the problems of emerging and innovative land tenure systems.

The concepts covered in the following discussion include land administration, land management, land information management, and LIS-related acronyms such as GIS and SDI.

4.1 Land Administration

It is difficult to formulate a universal definition of *land administration*. This is because of the diversity of cultures, traditions, legal systems and societies which land administration systems serve.

Nevertheless, it is generally accepted that "land administration" should describe those public sector activities required to support the alienation, development, use, valuation and transfer of land—including cadastre, land registers, land consolidation, valuation, and land information systems.[4] This, for example, is the meaning used in UNECE 1999.[5] "Land administration" also includes the process of recording and disseminating information about ownership, value and use of land and associated resources (*ibid*).

More comprehensively, the World Bank[6] defines "land administration" as a system, implemented by the State, to record and manage rights in land. According to this definition, a land administration system may include the following major elements:

a) the management of public land;

b) the recording and registration of private rights in land;

4. *Land Administration*, by Peter F. Dale and John D. McLaughlin, Chapter 1 -Introduction and Overview, part 1.1 Land and Society.

5. *The UNECE (MOLA) initiatives for Europe and their Potential Impact on International Land Administration*, Helge Onsrud (Norway). Presented at the UN-FIG Conference on Land Tenure and Cadastral Infrastructures for Sustainable Development Melbourne, Australia, 24 – 27 October 1999.

6. According to a report prepared by Land Equity International Pty Ltd for the World Bank *(Land Administration: Indicators of Success, Future Challenges, 2006).*

c) the recording, registration and publicizing of grants or transfers of rights in land through, for example, sale, gift, encumbrance, subdivision, and consolidation;

d) the management of fiscal aspects of land, including land tax, historical sales data, and land valuation (for a range of purposes, including the assessment of fees and taxes, and compensation for State acquisition of land); and

e) the control of land use, including zoning and the development application/approval process.

In terms of functionality, land administration has been said to include primarily the following five components: cadastre, land registration, land consolidation, land valuation, and land information systems (ECE 1999).[7]

Some authors, such as Flourie Clarissa (*see* Clarissa 2002[8]) have expressed concerns that modern definitions of LIS do not address African issues, such as possessory/occupancy rights; communal ownership of land; and the role of land administration infrastructure.

For the purposes of this Issues Paper, then, we may adopt as sufficient the following definition of land administration:

> *"the process of determining, recording and disseminating information about ownership, value and use of land, when implementing land management policies".*

This definition, or something very close to it, serves as a guiding principle in many policy documents, in research programmes, as well as in education and training.[9] It incorporates most of the components seen in the definitions noted above. It is the definition proposed in previous LIS design Government Reports (*see* GIC Report 2007[10]). And it has the benefit of not restricting unduly what may be included in an LIS.

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7. Meeting on Officials on Land Administration (MOLA) of The UN Economic Commission for Europe (ECE) (*The UNECE (MOLA) initiatives for Europe and their Potential Impact on International Land Administration*, Helge Onsrud (Norway). Presented at the UN-FIG Conference on Land Tenure and Cadastral Infrastructures for Sustainable Development Melbourne, Australia, 24 – 27 October 1999.

8. *Designing Viable Land Administration Systems: Options and Challenges*, Paper presented at the World Bank Regional Workshop on Land Issues in Africa and the Middle East, Kampala, Uganda, May, 2002, Panel discussion statement, *'Land administration in Africa: Options and challenges'*, by Dr. Clarissa Fourie.

9. *Some options for updating the Land Administration Guidelines with respect to institutional arrangements and financial matters*", Paul van der Molen (Netherlands).

10. *Securing and Upgrading the Land Registry and Implementation of a Land Information System in Uganda: The Baseline Evaluation Report*, Final Draft, Geo-Information Communication Ltd, Kampala, Uganda – May, 2007.

4.2 Land Management

Defined simply, *land management* is the management of activities associated with land as a resource from both an environmental and an economic perspective. It is the process by which land resources are put to good effect, and encompasses the management of all land-related activities that are required to achieve sustainable development. It may include farming, mineral extraction, property and estate management, and the physical planning of towns and countryside. It also includes such matters as:[11]

- property conveyancing, including decisions on mortgages and investment;
- property assessment and valuation;
- the development and management of utilities and services;
- the management of land-related resources such as forestry, soils, or agriculture;
- the formation and implementation of land-use policies;
- environmental impact assessment; and
- the monitoring of all activities that affect the best use of land.

Land management therefore involves fundamental policy decisions about the nature and extent of investment in land. At the same time, it encompasses routine operational decisions made on a daily basis by land administrators, such as surveyors, valuers, land registrars, and other land users.

From an institutional perspective, land management includes *land information management*. This is because land management requires a range of land administration functions,[12] which in turn are based on and are facilitated by land information infrastructures that provide information about the built and natural environments.

4.3 Land Information Management

In simple terms, *land information management* is the managing of information about land. However, land information management can also be seen from a broad economic and institutional perspective, since it contributes to the operation of a wide range of activities in both the urban and rural sectors.

In the urban context, a primary activity of land information management is contributing towards the efficient management and administration of land. This is closely tied to land and housing

11. *UNECE land Administration Guidelines,* p.13.

12. These functions include the areas of regulation of land rights (securing and transferring rights in land); land value (valuation and taxation of land and properties); land use (planning and control of the use of land and natural resources); and land development (implementing utilities, infrastructure and construction planning).

delivery, the housing finance system, town planning, utility and infrastructure management, land taxation, land ownership, land transfer and land development. In the rural context, land information management is closely connected to increases in agricultural productivity through improved security of tenure, the evolution of a formal land market, and environmental management.[13]

Modern land administration systems also deliver detailed information at the individual land *parcel* level. At that level, they service the needs of all categories of land information users—individual, community, district and national. Benefits include guarantee of ownership; security of tenure and credit; facilitating efficient land transfers and land markets; supporting the management of assets; and the provision of basic information in the processes of physical planning, land development and environmental control. Ultimately, data collected for individual land parcels at a local level becomes essential at national level also.[14]

Land administration functions are typically divisible into four components: juridical (ie, the register of ownership of parcels of land),[15] regulatory, fiscal, and information management. These constituent functions are conventionally organized around a number of agencies (five in Uganda), responsible respectively for land administration, surveying and mapping, land registration, land valuation, and physical planning. Each of these agencies collects data and makes it available to the public. This reflects the need for institutionalized and regulated land information management, not only for managing information but also for collating it, harmonizing it, and keeping it up to date.

Effective land management must be based on knowledge. And knowledge depends on information. And reliable information depends on the methods of data collection and the ways in which their results are disseminated.[16] Land-related information must be managed efficiently to maximize its potential benefits and to satisfy the diverse interests of stakeholders.

13. See generally, *Land Information Management at the World Bank*, Ian Williamson, The Australian Surveyor, March 1991, Vol. 36 No. 1.

14. *Cadastral data as a component of Spatial Data Infrastructure in support of Agri-environment programmes*. Report of the EC – EUROGI – HUNAGI Workshop, 2001.

15. The juridical cadastre involves the definition of the legal interests in the real property. See also *Cadastres and Land Information Systems in Common Law Jurisdictions*, I. P. Williamson, for a wider range of cadastres.

16. *Land Administration Guidelines: With Special Reference to Countries in Transition*, Publication ECE/HBP/96, United Nations, Economic Commission for Europe, Geneva, 1996.

Bringing all these elements together, in our view it is evident that *land information management* should entail:[17]

i. Determining the land information requirements of government (at both national and local level), of the community and of individuals;
ii. Examining how the information is actually used in decision-making processes; how information flows from one producer or user to another; and what constraints exist on that flow;
iii. Developing policies for determining priorities, allocating resources, assigning responsibilities for action, and setting standards of performance and methods for monitoring them;
iv. Improving existing land information management systems, or introducing new ones;
v. Assessing and designing new tools and techniques;
vi. Ensuring that privacy and data security are respected (a matter we return to below).

The processes for setting up and managing land information systems must reflect these qualities.

4.4 Land Information Systems

The International Federation of Surveyors (FIG) defines a *land information system* (LIS) as:-

> *a tool for legal, administrative and economic decision-making and an aid for planning and development. A land information system consists, on the one hand, of a database containing spatially referenced land-related data for a defined area and, on the other, of procedures and techniques for the systematic collection, updating, processing and distribution of the data. The base of a land information system is a uniform spatial referencing system, which also simplifies the linking of data within the system with other land-related data.*

Data relating to land and property is increasingly being managed within formal land information systems.[18] The land information system (LIS) plays a central role in managing the flow of and access to this data. The operations of the LIS encompass various stages and processes of dealing with data. They include:

- the acquisition and assembly of data;
- the processing, storage, and maintenance of data; and
- the retrieval, analysis, and dissemination of data.

The usefulness of the LIS depends upon its being accurate, accessible, up-to-date, complete, and comprehensive. It also depends on user-friendliness, as distinct from convenience merely for the producer of the information it contains.

17. Land Administration Guidelines, ibid.

18 . Dale & Mclaughlin, *Land Administration*.

An efficient LIS facilitates access to accurate and relevant information. This in turn leads to informed land management decision-making. The type and scope of information in a LIS database may vary for different jurisdictions, depending on the administration system it supports and prioritises. Traditionally, however, land information systems evolve from basic cadastres (e.g., parcels, ownership, boundaries and rights) and then later widen their scope to multi-purpose cadastres. A multi-purpose cadastre integrates legal information (e.g., parcels, ownership, boundaries, rights), physical information (e.g., topography, man-made features), and cultural information (e.g., land use, demographics) into a common and accurate spatial reference framework (*see* Figure 1[19]).

A Land Information System may exist in manual or paper form. In paper form, all the data and procedures for capturing, storing and disseminating data are paper-based. This approach is slow, inefficient, outdated, and has given way to the computer-based LIS. Nowadays, a reference to LIS generally means a computer-based LIS.

A computer-based LIS is beneficial in that it:

- Facilitates faster processing of land registrations and transactions.
- Provides an efficient way of storing land records, hence saving space and cost.
- Leads to standardization in the collection and processing of information.
- Saves records from deterioration through tear and wear.
- Allows efficient security procedures for preventing unauthorised access.
- Efficiently manages back-up and recovery of records in case of fire and other disasters.
- Promotes intra- and inter-institutional collaboration.

For the purposes of this Issues Paper, we have adopted the FIG definition of a land information system. The same definition has been used in Government-commissioned LIS reports.

To ease of reference, we repeat, the FIG definition here:

> *a tool for legal, administrative and economic decision-making and an aid for planning and development. A land information system consists, on the one hand, of a database containing spatially referenced land-related data for a defined area and, on the other, of procedures and techniques for the systematic collection, updating, processing and distribution of the data. The base of a land information system is a uniform spatial*

19. Williamson, Ian 1997: A strategic Management of Cadastral Reform - Institutional Issues. *FIG Commission 7 Symposium on Cadastral Systems in Developing Countries, Penang, Malaysia.*

referencing system, which also simplifies the linking of data within the system with other land-related data.

4.5 Cadastre

As noted earlier, land management and land information are significant components in the land administration process. Land management is the process of managing the use and development of land resources. Land information is an essential prerequisite for achieving land-management objectives.

A critical component of land information is the cadastre. Essentially, a *cadastre* is a land information system that records land parcels. A cadastre may take a number of forms:

- *Juridical cadastre*: a register of ownership of parcels of land.
- *Fiscal cadastre*: a register of properties recording their value.
- *Land-use cadastre*: a register of land use.
- *Multi-purpose cadastre*: a register including many attributes of land parcels.

The FIG definition of cadastre is as follows:

> *A cadastre is normally a parcel based, and up-to-date land information system containing a record of interests in land (e.g. rights, restrictions and responsibilities). It usually includes a geometric description of land parcels linked to other records describing the nature of the interests, the ownership or control of those interests, and often the value of the parcel and its improvements. It may be established for fiscal purposes (e.g. valuation and equitable taxation), legal purposes (conveyancing), to assist in the management of land and land use (e.g. for planning and other administrative purposes), and enables sustainable development and environmental protection.*

We respectfully adopt this definition in this Paper. Thus, the cadastre is the principal source of information about property rights. Amongst other things, the cadastre provides land information users (whether in the private or public sector) with:

- information identifying the owners of interests in land;
- information about those interests (e.g. the nature and duration of rights, restrictions, and responsibilities);
- information about the parcels (e.g. location, size, improvements, value).

The essential elements of a modern cadastre have been described as follows:[20]

20. *Cadastres and Land Information Systems in Common Law Jurisdictions*, I. P. Williamson, The Australian Surveyor, March 1986, Vol. 33, No. 1.

1. A series of large-scale maps showing property boundaries, all buildings and structures on the land and the major natural features. In urban areas scales of 1:1000, 1:500 or even 1:100 are used, decreasing to about 1:2500, or less, in rural areas.
2. A register or number of registers containing information on ownership, valuation, land use and any other matters dealt with by the cadastre, for every land parcel. While there may be variations in content, e.g., the inclusion of valuation of taxation matters in a fiscal cadastre, generally it is the legal component of the cadastre which has primary importance. The cadastre must be complete, that is, every parcel of land in the state or jurisdiction must be displayed on the maps and included in the respective registers. Ideally, this would include all state owned parcels including reserves, parks, roads and unalienated land, if applicable.
3. Each parcel in the cadastre must have a unique common identifier[21] to be used by all authorities dealing with parcel based information. This acts as a link between the parcel itself and all records related to it such as legal documents, valuation or assessment rolls. It facilitates data input and data exchange. The parcel reference number should appear on base or index maps that will help the public identify their land in relation to their neighbours. Index maps should be compiled both as reference for cadastral information and for efficiently integrating environmental and other information.
4. Ideally, the use of this identifier by all authorities would be enforceable at law. Common identifiers include:
    i. volume number and folio number derived from title registration ;
    ii. recorded survey plan number and parcel number;
    iii. Municipal, village or regional unit and parcel number;
    iv. map number and parcel number;
    v. municipality, suburb or region and street address; and
    vi. geographic coordinates.
5. The cadastre must be dynamic, that is, it must be continually updated. There must be legally enforceable procedures which require that all changes to the information in the cadastre must automatically and immediately update the registers and large scale maps.
6. The information in the registers must be correct and preferably have legal status and be "guaranteed" by the state. This aspect particularly applies to title registration but equally could apply to all encumbrances or matters affecting title.
7. The contents of the registers should be public, within reasonable limits. It must be

21. Sometimes this is referred to as a Unique Parcel Identifier or Parcel Identification Number (PIN): a unique number permanently linking a parcel with information relating to that specific parcel.

available to all government authorities.

8. The large-scale mapping system must be supported by a permanently marked and well maintained, coordinated survey/geodetic reference system. Such a system is mandatory so as to be able to integrate all forms of spatial information.
9. The cadastre must include an unambiguous definition of parcel boundaries both in map form and on the ground; this is usually the result of cadastral surveys. The most common method of carrying this out is to permanently monument the parcel boundaries. These monuments are then surveyed with the corresponding measurements being displayed on technical maps or plans. In such a system the boundaries of each parcel can be precisely defined and located on the ground even if the boundary monuments are missing or disturbed.

The central role of the cadastre in land administration is underscored by statements such as:-

> *A cadastre is similar to a land register in that it contains a set of records about land. The cadastre is a form of land information system.*[22]
>
> *The most common form of land information system is the cadastre.*[23]

Land information systems can take many forms, depending on the purpose for which they are designed. For example, environmental information systems, and road and utility network systems, are all forms of land information systems. However, for a land information system to be a cadastre, it must be parcel-based.[24] While all cadastres or cadastral systems are forms of land information systems, not all land information systems are parcel-based.

In this Draft Final Issues Paper, we see a parcel-based system as the starting point for a Ugandan land information system.

The SwedeSurvey Study on the Development of a Detailed Plan for the Implementation of LIS in Uganda, carried out in 2003/2004, proposed a phased approach to establishing a unified LIS. The Study recommended that the LIS should start from cadastre and land registration, and then gradually expand to valuation, taxation and planning:

22. See *FIG Statement on the Cadastre*, Paragraph 2 (2. The Cadastre and Land Information).

23. Dale & McLaughlin, *Land Administration*.

24. A parcel (or plot) of land is an area of land with a particular ownership, land use, or other characteristic. A parcel is frequently used as the basis for a cadastre or land registration system. *"The basic spatial unit in a cadastre is known as a parcel. A parcel can be defined in many ways depending on the purpose of the cadastre..."* FIG, 1995. Adapted from the English version of the *Multilingual Land Tenure Thesaurus* of the Food and Agriculture Organization of the United Nations, 2003. Under a parcel-based system, information is geographically referenced to unique, well-defined units of land.

The existing land registries in Uganda are proposed to be replaced with only one information system, which will include information on the different tenure types like freehold, leasehold, mailo and customary rights. The system will consist of two parts: a central database for the whole country and updating from districts. A separate LIS Centre, under the MWLE but with an independent management structure will be responsible for the LIS is also proposed. The LIS Centre will start as a project and develop into an independent authority under MLHUD during a project phase of five years". Swedesurvey (2004)

RECOMMENDATION

Based on international best practice, on our own judgment, and on recommendations in previously-commissioned Government reports, we recommend that the Ministry begin with a parcel-based land information system (LIS), to be transformed into a multi-purpose cadastre or universal LIS. The Universal LIS would contain relevant information as determined by Uganda's development needs. Such information may include environmental information, utilities/facilities information, socio-economic information, and citizen-management data such as births, deaths and marriages.

4.6 Geographic Information Systems (GIS)

Since its evolution, GIS has revolutionised the geospatial industry. GIS are sets of hardware, software and data, which facilitate matters such as: the acquisition and assembly of spatial data; their processing, storage and maintenance; and their retrieval, analysis and dissemination.[25] GIS should be seen as all-embracing institutional arrangements, of which the technology is but a part.

A GIS helps facilitate the process of decision-making where alternative possibilities or choice options exist. GIS-modelling embodies entirely new spatial reasoning, concepts and procedures—features that are not reflected in traditional paper-map processes.

From the viewpoint of data-processing and analysis, the GIS is an integrating technology, especially where analysis may involve one or more data types in a multi-layer arrangement. The concept borrows certain ideas from the old "map overlay" concept (Egonhofer and Richards 1993), which has been applied successfully as a design principle to separate geographical data into thematic map layers.

The layers that represent different themes of spatial data are two dimensional virtual and transparent horizontal planes, vertically arranged so that geographical locations on one plane map to the same locations vertically above or below them (see Figure 2[26]).

The bulk of GIS analyses are based on manipulation of one layer—e.g., looking for locations that show some conformity, similarity or variation in characteristics over space and time. However, the analyses may also involve manipulation of multiple layers, using mathematical, logical or spatial operators.

The degree to which the layers register (or align) to each other in a GIS is crucial. However, achieving a perfectly-registered GIS can be difficult.

A number of factors may cause imperfections in the registration of layers, and (at worst) lead to incompatibilities in the vertical alignment of layers. These factors include:

(i) Variations in map projections of the individual layers.

(ii) Variations in coordinate systems.

(iii) Variations in the scale at which the geographical objects are compiled.

(iv) Internal errors within the data, including digitization errors, errors in field observations, errors resulting from sampling in satellite images, and aggregation errors.

25. Peter F. Dale & John D. McLaughlin, *Land Administration*, (1999).

26. Drawn from *A Spatial Data Infrastructure for Modeling Wetland Functional Capacity in Uganda*, PHD Thesis By Musinguzi Moses 2007, Uppsala University/Makerere University Library.

A GIS employs map projections. A map projection is the manner in which the spherical surface of the earth is translated onto a plane (map surface). It is accomplished by direct geometric projection or by a mathematically derived transformation. A projection begins with an assumption of a spheroid or ellipsoid, which is a mathematical figure that approximates the shape of the Earth in form and size, and is used as a reference. The translation results in some distortions which affect the size, shape and location of objects on the map.

Variations in the coordinate system and the origin may cause GIS layers not to overlay (register). Variations in the units adopted for both angular and distance measurements may also cause GIS data layers not to overlay.

The institutional context in which the GIS will be used, and the functions it is to perform may shape the characterization of the GIS. [27]

4.7 Spatial Data Infrastructure

There is a perception that the bulk of the cost of setting up a GIS lies in the purchase of hardware, software, hiring of personnel and installation of office infrastructure. Experience, however, has shown that the largest proportion of expenditure is on data capture and management (Rhind 2003).

In some instances, data capture constitutes between 60 - 85% of the cost of establishing a GIS. This makes it prudent for different organizations and institutions to share spatial data. It is neither possible nor economical for any one organization to acquire all the data its GIS would require.

Groot and McLaughlin (2003) trace the need for sharing spatial data back to the 1970s, when many national surveying and mapping agencies began developing strategies for standardising procedures for accessing geospatial data.

Today, there is widespread recognition that the data layers and tables in most geographic information systems should come from multiple organizations (ESRI Website 2006). One way of sharing data is for users to acquire portions of their GIS databases from other GIS users.

A basic requirement for sharing and integration is that data be collected and spatially referenced in a consistent manner (Groot and McLaughlin 2003, p3; Smith and Rhind 1999). There must be common standards for capture, structure and documentation of spatial datasets. Potential users can then search and use datasets from other institutions within a framework of agreed institutional arrangements.

27. *The implementation of geographical information systems for land administration in Ghana*, Isaac Karikari and John Stillwell , IDPR, 26 (2) 2004.

A framework under which data is captured, documented and disseminated would help to widen the scope of geographical information systems from individual corporate levels to more general spatial data infrastructures. Within a spatial data infrastructure framework, the individual corporate GIS then becomes a building block for larger infrastructure (Chan and Williamson 1999).

Spatial data infrastructures are now accepted as efficient frameworks for increasing the quantity and accessibility of spatial data across organizations at local, national or federal government level—even up to global level.

What is a Spatial Data Infrastructure?

Described simply, a *spatial data infrastructure* is a framework for connecting users of geographic information (GI) to the producers or users of data, through an efficient infrastructure.[28] A common definition of spatial data infrastructure, often quoted in the SDI literature, is: '*the technology, policies, standards, human resources, and related activities necessary to acquire, process, distribute, use, maintain, and preserve spatial data*'.[29]

Spatial Data Infrastructures facilitate the sharing of data with the aim of saving money, time and effort required to acquire new data sets.

The components of a Spatial Data Infrastructure are[30]:

(i) People/institutions, constituting partnerships.

(ii) Networks, providing the means to access data.

(iii) Policies, guiding access to data.

(iv) Technical standards, prescribing structured approaches to development of and access to data.

(v) Spatial datasets, developed by institutions under their individual mandates but in conformity with agreed standards.

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28. *Master Plan for the Establishment of a National Geographic Information System for Botswana*, BW-1475-04, SwedeSurvey, June 2004.

29. US Federal Government circular issued on 19 August 2002, and available at http://www.whitehouse.gov/omb/circulars/a016/print/a016_rev.html.

30. Rajabifard A. and I. Williamson (2001), *Spatial Data Infrastructure: Concepts, SDI Hierarchy and Future Directions,* Proceedings of GEOMATICS'80 Conference, Tehran, Iran.

SDIs are best constituted through institutional partnerships, with dedicated persons or institutions committed to sharing spatial data and adhering to established norms and agreed standards (see Figure 2).

Since an LIS is an infrastructure and possesses all the qualities of an SDI, in reality an LIS is a form of SDI. The framework for implementing an LIS also requires provisions that encourage, motivate and facilitate organizations to share spatial information. In an effective LIS, departments and institutions that produce land information work together for the benefit of users at government, community, institutional and individual level.

The term *infrastructure* in this context expresses the idea of an underlying foundation or basic framework, on which data, activities or procedures are built. The concept is a broad one, and requires "*a reliable, supporting environment, analogous to a road or telecommunications network that, in this case, facilitates the access to geographically-related information using a minimum set of standard practices, protocols, and specifications. … Like roads and wires, an SDI facilitates the conveyance of virtually unlimited packages of geographic information*."[31] In this sense, land and spatial information infrastructures have the same underlying rationale and characteristics as roads and communications infrastructures.[32]

An effective SDI is, therefore, more than mere technology and the provision of datasets. Rather, an SDI is the "ground rules" to enable spatial data from different digital data bases to be combined seamlessly without undue difficulty, and for the data to be made widely available. It is a means to collect, collate and disseminate spatial data to users at an organizational, local, national, and even international level. The central objective of an SDI is to link people to data.[33]

The development of an efficient SDI is fundamental to an efficient and effective cadastral system.[34] In this sense, SDI, cadastre and LIS are interdependent. Land records are themselves a form of spatially-referenced information, and indeed a cadastral layer is one of the core datasets of most spatial data infrastructures. Thus, a modern analysis of land administration should focus

31. This flows from a more detailed definition (which has for example, been accepted by Botswana), and is derived from the *SDI CookBook*. See *Developing Spatial Data Infrastructures: The SDI Cookbook*, Version 1.0, 6 July 2000, Edited by: Douglas D. Nebert, Technical Working Group Chair, GSDI; www.gsdi.org

32. *Spatial Data Infrastructure for Australia and New Zealand, ANZLIC*: The Spatial Information Council (Australia New Zealand Land Information Council).

33. *Land Administration and Spatial Data Infrastructures* , by Ian Williamson, Donald Grant and Abbas Rajabifard , TS 1 – SDI and Cadastre, Cairo, Egypt April , 2005.

34. *Spatial Data Infrastructure and the Cadastral System of Trinidad and Tobago: the Caribbean Experience*, Jacob OPADEYI, Trinidad and Tobago.

not merely on juridical issues, but also on the benefits arising from the use of land records as a source of spatial information.[35]

The goal, at the Pilot Stage of the Uganda LIS, should be to establish the national land information database as the core element of the spatial data infrastructure.[36]

Cadastral systems record information about the ownership, use and classification of land at a detailed level. This information is necessary for any modern economy to function efficiently. Data collected in connection with or based upon cadastral systems is often required at national level—even though it must be collected for individual parcels at the local level. The data is important for informed decision-making at various levels of government.[37]

The information requirements for managing sustainable development require datasets to be available locally, nationally, regionally as well as globally. This necessitates the creation of a "vertical information highway", to allow information to be generated through administrative activities at the local level (e.g. land registration), and then to be aggregated through the local to the national level; and in some cases (such as federal structures in Australia, Canada and USA, or regional organizations like the European Community and locally the East African Community) to be further integrated through to regional and even global levels. [38]

A review of the most common datasets in many SDIs is presented in the Table below.[39] It shows that the cadastral layer is a basic layer in many countries. It is among the seven datasets that have been generally accepted as fundamental datasets in various national and regional SDIs.

35. *'Land administration in Africa: Options and challenges'*, by Dr. Clarissa Fourie, a paper presented at the session on: Designing Viable Land Administration Systems in Africa at The World Bank Regional Workshop ON Land Issues in Africa and the Middle East, Kampala, Uganda, May, 2002.

36. *FINAL REPORT Volume – 1: Land Information System Preliminary Design and Architecture*, Geo-Information Communications Ltd, Kampala, Uganda, 2007, at p.47.

37. *Cadastral Data as a Component of Spatial Data Infrastructure in support of Agri-Environmental Programmes*, Report of the EC-EuroGI- Hunagi Workshop, Budapest, 2001.

38. *The Nairobi Statement on Spatial Information for Sustainable Development,* FIG and The United Nations, October 2001.

39 *A Spatial Data Infrastructure for Modeling Wetland Functional Capacity in Uganda*; Ph D thesis by Musinguzi Moses 2007, Uppsala University/Makerere University Library.

Table 4.1 Framework datasets for various National& Regional SDI(Musinguzi 2007)

Dataset	South Africa NSIF	Global Map (Japan)	US-National Spatial Data Infrastructure (NSDI)	Canadian Geo-Spatial Data Infrastructure(GSDI)	Australian Spatial Data Infrastructure (ASDI)	Infrastructure for Spatial Information in Europe)(INSPIRE)	Nigeria SDI	Botswana NGIS	Hungary National Association for GeoInformation (HUNAGI)
Topography				√		√	√	√	
Digital Imagery	√		√		√		√	√	√
Administrative Units	√	√	√	√	√	√	√	√	√
Cadastral	√		√		√	√	√	√	√
Transportation		√	√	√	√	√	√	√	√
Geodetic framework			√	√	√		√	√	√
Hydrography	√	√	√		√		√	√	√
Landuse		√				√	√	√	
Geology							√		√
Population		√					√	√	√
Elevation	√	√	√	√	√	√	√	√	√
Landcover		√				√	√		
Risk vulnerability						√			
Environmental						√			

4.8 Uganda National Spatial Data Infrastructure Initiatives[40]

Earlier, we noted a Study Report on *Design and Development of Geographic Information, Uganda*, by Swedish Consortium, 2001. This contained a component, *Recommendations on the Development of Co-ordinated Uganda National Spatial Data Infrastructure*. That NSDI initiative was under the auspices of the Ministry of Finance and Economic Development (ie, under the Second Economic and Financial Management Project [EFMP II]) and did not envisage a key role for an SDI-support to land administration or the LIS. However, the Study Report recommended:

40. For a recent Case Study on Uganda, see *Opportunities and Challenges for SDI Development in Developing Countries - A Case Study of Uganda*, Moses Musinguzi, Gerhard Bax and S.S. Tickodri-Togboa, Geoinformatics 2004, Proceedings of the 12th International Conference on Geoinformatics – Geospatial Information Research: Bridging the Pacific and Atlantic, University of Gävle, Sweden, 7-9 June 2004.

i. MHLUD (Lands and Survey Department), which is one of the major producers and users of geo-spatial data and maps, should be a member of a Co-Financing Committee for Acquisition of Spatial Data and Maps;

ii. MHLUD (Lands and Survey Department) should have ownership/custodianship of certain main datasets, in accordance with the principle that each dataset should be owned by the organisation with the mandate to decide on changes to and use of the dataset. (The Study also recommended that ownership of the key spatial data subsets—hydrography, elevation, and additional infrastructure—be placed in the Lands and Surveys Department.); and

iii. Free exchange of key spatial data sets within Government institutions, so as to promote further development of an SDI in Uganda.

The LIS Baseline Survey correctly pointed out that the Uganda National Spatial Data Infrastructure proposed in the above study:

> *"was not directly linked to the land administration system and was concentrated on education, health and water resources management sectors".*

There was no evident follow-up action by Government to create the NSDI proposed in that GIS study, until the initiative was taken up by the Ministry of Lands, Housing and Urban Development as part of this current project for the Reform of Land Administration Laws. Most of the intermediary discussions (such as the Global Spatial Data Infrastructure (GSDI) workshop in the Geography Department at Makerere University, and the workshop by Ministry of Finance and Wetlands Inspection Division) have merely heightened awareness of the benefits of SDI. Development of a national SDI requires concrete actions geared to forming strong partnerships, if the infrastructure is to overcome institutional and organization barriers.

To sum up this discussion: in our view, MLHUD should assume the leadership role in creating an SDI in Uganda.[41] The Ministry holding the Department of Lands and Surveys is the appropriate Department to provide leadership for a national SDI.

41 . Nkambwe, M., "Land Information Systems Development and the National Spatial Data Infrastructure", *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, Vol. XXXIV, Part 6/W6, 113-116.

5 LIS Implementation Issues in Uganda

5.1 Governance

Experience has shown the success or failure of LIS projects are determined by institutional issues, not technical issues. It is therefore necessary to suggest an institutional arrangement that will provide a suitable environment for the implementation of an LIS.

The Registrar of Titles is currently the main recorder and source of land information. Other land information is shared between various government departments. The studies referred to in our Inception Report, as well as the LSSP, recommend the development of an integrated land information system combining all major land-related information. We take this to be the Government's objective.

The first issue to address is whether the combined land information services should be provided and administered by a particular government department or departments, or by an autonomous or semi-autonomous statutory authority? We now review the main possibilities.

5.1.1 Land Registration or Lands and Survey Department?

If the LIS is to be administered by an existing government department, either the Registrar's office or Surveys and Mapping Department would be the primary choice. Both departments generate and maintain cadastral and land information that would be priority information for an LIS. The Registrar's office is competent in handling legal cadastral information, which in LIS terminology is 'textual'. The Registrar's office may be slightly handicapped in handing cadastral survey data, which in LIS terminology is 'graphical' information. This data may be more competently handled by surveyors. Likewise, the Surveys and Mapping Department is competent in handling graphical information but may be less competent in handling textual information. A land information system must comprise both graphical and textual data.

In Uganda, the Registrar's office is the source of land information for titles for those searching titles for ownership and encumbrances. Some people may also refer to Surveys and Mapping when seeking information about the location of boundaries of a parcel; but the volume of the latter is not as great as the former. If volume of inquiries were a basis for selecting a suitable home for an LIS, then the Registrar's office would be the choice, and indeed, some reports have recommended this. This option would, however, necessitate all other departments (such as Surveys and Mapping, Valuation, Land Administration and Physical Planning) supplying their information to the Land Registration Department in order to feed into the LIS. It would also require personnel in the Land Registration Department to acquire additional skills in IT and in handling cadastral survey data. The question is whether this is feasible at the moment.

5.1.2 A statutory Authority or Semi-Autonomous Institution?

As we noted in our Inception Report, some studies have recommended that the management of land information services be vested in a separate institution that is either a statutory authority or a semi-independent institution, but is not an existing department in the Ministry of Lands Housing and Urban Development. This recommendation was based on the assumption that such a body would:

- Enhance efficiency in the delivery of land information services.
- Enable commercial or semi-commercial activities to be conducted in order to generate income for better sustainability of the LIS.
- Be less prone to undue political interference in land information management activities.
- Promote staff motivation, as better employment terms could be negotiated, and pegged to performance.

The recommendation was also based on the view that government departments are not necessarily the most effective providers of prompt and quality services to modern customers. This same view has led to some government departments in Uganda being restructured into statutory authorities, such as Uganda Revenue Authority, Uganda Wildlife Authority, National Forest Authority, and so on. At a global level also, land-related services in many countries are provided by statutory authorities.

If a statutory authority is to be considered as an option, it should be developed along the lines of Uganda Revenue Authority, Uganda Wildlife Authority or National Forest Authority. The Authority should be governed by a board of directors and managed by a Managing Director or Commissioner-General (MD/CG), with a Deputy MD/CG and a Secretary. The MD/CG would be the Authority's chief executive officer. He or she would be appointed by the Minister in consultation with the board of directors. The Deputy MD/CG would assist the MD/CG in the performance of his or her duties. The Secretary to the Board would carry out the usual functions of a Secretary to a statutory authority.

Choosing this option would involve merging and restructuring the existing Departments of Surveys and Mapping, Land Registration, Valuation, Land Administration and Physical Planning, so as to fall under the new Authority. The Departments under the new Authority would become Directorates, headed by Directors. Furthermore, this option would require establishing a Secretariat with technical advisors to implement the restructuring process. The Secretariat would be disbanded as soon as the new Authority is in force.

Furthermore, before this option were adopted, it would be important to consider sustainability of the Authority, given the volume of business in land information services. In many developed countries where land information services are provided under statutory authorities, the authorities are able to generate income from land information services, and the income is used to employ

staff and maintain a number of other activities. In this same way certain statutory authorities in Uganda (such as Uganda Revenue Authority and Uganda Wildlife Authority) have been able to sustain their existence and operations. However other authorities, such as National Environmental Management Authority (NEMA), which substantially depend on donor-funding for running their operations, are faced with closing if funding ceases, because they are not self-sustaining. The issue of sustainability therefore needs to be addressed before selecting this option as providing the infrastructure for a land information system in Uganda.

An alternative to a statutory authority is a semi-autonomous institution that operates outside the Ministry structure. The institution would not merge any of the existing departments, but instead would "mainstream" the application of automated procedures for managing land information in the departments. This arrangement is along the lines of the Integrated Financial Management System (IFMS) of Uganda, The National Infrastructure for Land Information System (NaLIS) of Malaysia, the National Spatial Data Infrastructure of US, and the Spatial Data Infrastructure of South Africa.

The semi-independent institution would be responsible for developing information systems to support land information management in each of the user departments, and ensure that the information systems and data therein are inter-operable. The institution would be responsible for building the capacity of the local staff in the user departments to develop, maintain, update and manage the local information systems. However, the data and databases developed would remain the property of the parent institutions. The institution would have full access to the databases, so that users who need land information would refer to the one-stop centre, even if the information is stored in various databases.

At first, the institution should spearhead the development of a computerised land registration information system in the Department of Land Registration, and a computerised cadastral surveying information system in the Surveys and Mapping Department. The legislation to enable electronic registration of land and surveying would be incorporated not only into the LIS law, but also into the respective laws that govern land registration and cadastral surveying (RTA, Survey Act respectively).

As the system matures, the institution would develop linkages with other Departments in the Ministry, and other public and private institutions, for improving access to their land information.

This second option is relatively easy to implement and would avoid many of the institutional issues that might otherwise derail the development of an LIS.

RECOMMENDATION

We recommend the development of a semi-autonomous institution (Uganda Land Information Infrastructure—ULII) with a secretariat—The Uganda Land Information Centre (ULIC)—hosted by the Ministry of Lands, Housing and Urban

Development. The Institution should be administered by a steering committee appointed by the Minister. Key staff of the institution (Secretariat) could be hired on contract basis and given contracts that are pegged to performance.

We attach, as Appendix 2 to this Report, a draft Draft Bill, entitled the National Land Information Infrastructure Bill. If enacted, it would (amongst other things) set up the Uganda Land Information Infrastructure along the lines we recommend. The Draft Bill also shows how such an institution might operate, and the ways in which Ministerial control could be exercised to ensure that the institution works to implement governmental priorities while retaining a degree of independence and responsibility for its own actions.

5.1.3 Governance Structure of ULII:

The ULII should be administered by a steering committee, composed of representatives of user departments and institutions, as well as representatives from the private sector, the donor community, and academia.

5.1.4 Major Functions of the Institution (ULII):

We would envisage the major functions of the institution to be as follows:

- Perform the role of the main land information provider at the national level, and as a core element of the land/spatial information infrastructure;
- Spearhead the development of computerised databases for land registration, cadastral surveying, land use planning, valuation, and land administration;
- Develop strategies for providing land information services to various clients, including the banking system, real estate companies, developers and investment institutions;
- Assist the District Land Offices (DLO) in managing local land information databases;
- Provide methodological support to DLOs in land registration and cadastral activities;
- Maintain the LIS centralized database as a mirror copy of the land information data maintained in the DLOs;
- Promote land information data exchanges with other committed agencies;
- Link all land information databases, so as to provide timely access to land information for users of land information; and
- Build the capacity of relevant departments to implement and maintain land information databases.

5.1.5 Powers and Functions of the Uganda Land Information Infrastructure Committee (ULIIC):

We would see the powers and functions of the steering committee (the Committee) as follows:

1. To advise the Minister or relevant organ of state on:
    (i) matters referred to the Committee by the Minister or organ of state,
    (ii) any matter regarding the capture, management, maintenance, integration, distribution and use of land information; and
    (iii) any matter the Committee considers necessary or expedient for achieving the objectives of the National Land Information System.
2. Additionally, to undertake the following functions:
    (i) supervise, monitor and control the activities of the Uganda Land Information Centre;
    (ii) determine, recruit and employ staff of the Uganda Land Information Centre;
    (iii) facilitate, promote and safeguard an environment for the efficient collection, management, distribution and use of land information;
    (iv) monitor and acquire information relating to the functioning of the Land Information System;
    (v) promote accessibility and use of spatial information in Uganda through coordinating key activities for establishing a National Spatial Data Infrastructure;
    (vi) support the functioning of any structure or measure established under any Land Information Infrastructure Act;
    (vii) print, circulate, sell, finance and administer the publication of any material relating to land information;
    (viii) charge fees for services comparable to the current rate presently charged by the Ministry or reasonable for recovering costs of production and maintenance. (The revenue earned could be reinvested in the further development of the LIS. Ministerial control would ensure that the charges were not excessive.);
    (ix) promote awareness of its activities, including dissemination of information on the importance of land information for effective governance, planning and decision-making;
    (x) submit an annual report to the Minister, reporting the activities of the Committee and its subcommittees and making any recommendations for improving its functioning or the functioning of the Uganda Land Information Infrastructure; and

(xi) do anything necessary for the proper performance of its functions or to achieve the objectives of the Uganda Land Information Infrastructure.

5.1.6 Terms of office of members of the ULIIC

The staff members of the ULIIC:

(i) should be appointed for three years; and

(ii) may not serve more than two consecutive terms unless the Minister considers that appointment for a further term will be beneficial to the Committee.

5.1.7 Disqualification as member of Committee

(1) The Minister could not appoint as a member of the Committee a person who-

(i) is insolvent;

(ii) is mentally ill;

(iii) has been convicted of an offence involving dishonesty or an offence punished by imprisonment.

(2) A member of the Committee would have to vacate office if he or she-

(i) becomes disqualified under (1) from being appointed a member of the Committee;

(ii) has, without the Committee's permission, been absent from two consecutive meetings of the Committee or a subcommittee of which he or she is member;

(iii) resigns;

(iv) has been recalled by, or ceases to be associated with, the institution that he or she represented when appointed;

(v) is incapable of performing his or her duties due to ill health; or

(vi) has engaged in any activity that has brought or may bring the Committee into disrepute.

5.1.8 Meetings of the Committee:

1. The first meeting of the Committee should be held as determined by the Minister and subsequent meetings should be held as determined by the Committee;

2. The Committee must hold at least four meetings each year and any further meetings it determines;

3. The chairperson may convene special meetings of the Committee as he or she determines;

4. The chairperson must convene a special meeting, if requested by:

   - the Minister; or

   - one third of the Committee members.

5. A majority of the members of the Committee constitutes a quorum;

6. A decision of the majority of the members of the Committee present at any meeting constitutes a decision of the Committee;

7. The chairperson has a casting vote in addition to his or her deliberative vote;

5.1.9 Establishment of Sub-committees:

We would envisage that the Committee could-

(i) establish subcommittees for the effective performance of its functions;

(ii) delegate any of its powers or functions to a subcommittee;

(iii) direct the subcommittee to perform the tasks the Committee considers appropriate;

(iv) at any time revoke the delegation to a subcommittee;

(v) despite any delegation, itself exercise a delegated power or function;

(vi) co-opt experts or persons with special skills who are not members of the Committee as non-voting members of a subcommittee; and

(vii) designate a member of a subcommittee as chairperson of the sub-committee.

5.1.10 Regulations

For more detailed matters, the Minister could make regulations to cover (for example):

(i) any matters required to be prescribed under the LIS law;

(ii) criteria for the nomination, selection and appointment of Committee members;

(iii) requirements for capturing spatial information, including exemptions from the requirements;

(iv) measures for avoiding duplication of capture, safeguarding the integrity of captured spatial information, and access to and distribution of spatial information;

(v) administrative or procedural matters necessary to give effect to the objects of the Act.

5.2 Transition Issues

Development of a computer based LIS is a new undertaking. A number of transitional issues would need to be addressed while migrating from a manual LIS to a computer-based LIS.

In identifying and discussing transitional issues, therefore, we have drawn on experiences from other countries, together with the views provided in previous LIS studies in Uganda.

Most of the transition issues concern the creation of a new organization to manage land information services. Creation of a new organization may lead to:

- the replacement of the conventional Lands and Surveys Department with a statutory authority;
- the assumption of responsibility for functions previously performed by the conventional Lands and Surveys Department;
- the transition of staff, assets, liabilities, contracts, rights, proceedings, records and other matters, from the incumbent department to the new authority;
- staff reductions, merging of departments, and related issues.

Examples of similar issues are seen in the land information authority statutes of Western Australia, Singapore, and New Brunswick (Canada).

While some of the issues may be relevant to Uganda, many will not apply under our recommendation for a different governance structure. And so we will discuss only the transition issues which are relevant to our proposed governance structure. These include:

1) maintaining parallel manual and computerized systems for land recording;

2) managing and correcting errors resulting from rehabilitation of land registers; and

3) implementing LIS through piloting and rolling-out phases.

5.2.1 Running Parallel Manual and Computerized Land Recording Systems

Development of an efficient and fully functioning LIS is an enormous task. It involves many stages, spanning long periods of time. Before LIS modules can replace manual systems, they must be developed through processes of testing, piloting and correction of errors. As the LIS is being developed and tested, manual systems must remain operational until the computerized LIS has reached maturity and is able to stand on its own. Only when this is achieved can the computerized LIS be accepted as the primary source of land information.

On the transition from a manual to a computerized system, we adopt the following recommendation from the *Land Information System Preliminary Design and Architecture: Final Report*:

a) *The paper documents will still serve as the main evidence for any land disputes solution for quite a time yet until appropriate legislation is adopted and a completely digital system established.*[42]
b) *The paper originals of the documents can be stored in the strong rooms and should be used only in case of doubt or as the primary evidence.*[43]
c) *The preservation and rehabilitation of written documents is essential because they are accepted as evidence of ownership, and signed and sealed documents remain first evidence and are essential if fraud is to be discovered.*[44]

The same Report emphasises that, in any transition to an electronic environment, evidentiary certainty must not be prejudiced. Even in jurisdictions where electronic registers have been operational for many years (e.g. Ontario and British Columbia in Canada, and New Zealand), protocols still exist for retaining paper documents.[45]

Further, even once the land register becomes computerised, it will be many years before the LIS can accommodate fully-fledged electronic conveyancing and lodgement. Instruments and information will still be prepared and presented in paper format for signing and registration prior to scanning and digital storage. For many years, the Land Titles Office staff will still need to manually record instruments and information on the Register, which will then be used to update the electronic LIS.

Additionally, all LIS studies recommend initial implementation of the LIS as a pilot project. During the pilot stage, the LIS would be limited in scope to a Parcel Information Management System (PIMS). At that stage, and while the necessary administrative and technical processes are under development, the computerized system cannot be given primacy over the paper records.

An example is seen in the experience of Bulgaria. Bulgaria is one of the transition countries which have recently set up a modern land information system. In Bulgaria, paper copies of all

42. *Final Report*, p. 44.

43. *Baseline Evaluation Report*, p.54.

44. *Baseline Evaluation Report*, p. 65.

45. *Electronic Land Dealings in Canada, New Zealand and the United Kingdom: Lessons for Australia*, by Sharon Christensen, Murdoch University Electronic Journal of Law | ISSN 1321-8247.

documents entered in the property register, are also kept; and more significantly, Bulgarian legislation[46] gives paper documents primacy over electronic ones.

Of course, despite the continuing primacy of the paper records during the LIS formative period, care would need to be taken to ensure as little disharmony as possible between the paper and the electronic records. The Ugandan LIS law should require synchronization of content, so that people searching either system do not obtain conflicting information.

RECOMMENDATION

The paper-based manual records should continue to be the principal legal registers until the proposed computerised Land Information System has reached maturity. Until then, efforts should be made to ensure that both the paper-based records and the electronic records are accurate and are synchronized.

The legal framework for establishing and maintaining an electronic register of titles has already been set out in the draft Registration of Titles Bill, 2010, which we submitted in conjunction with our Draft Final Issues Paper on Registration of Titles. In addition, however, the proposed LIS law should establish a legal basis for establishing and maintaining an electronic facsimile of the Valuation, Survey & Mapping, Physical Planning and other Land Administration records.

The proposed LIS law should also provide for the continuity of the powers, functions and responsibilities of the statutory officers in charge of the functions of Survey & Mapping, Physical Planning and Land Administration, and define the obligations of these departments towards the proposed LIS.

The proposed LIS law should also authorize the conversion to electronic form (and maintenance in that form) of all documents and records that are part of the Land Register at the coming into force of the LIS Law. The same should apply to all records pertaining to land that are kept by or stored in the departments of, Survey & Mapping, Physical Planning and Land Administration. The object would be to ensure that, under the LIS law, the records could be maintained and organized electronically, and have full legal effect.

The proposed LIS Law should also provide for keeping 'back-up' copies of registers.

46. *Cadastre and Property Register Act 2000*, Bulgaria. See also, *'Legislation on Property Registration and its Impact on the Property Market'*, paper presented by Peter Dent and Slatina Yaneva, Oxford Brookes University, RICS Foundation.

Finally, the LIS law should authorise the Minister to make subsidiary legislation for the detailed prioritization, phasing-in and other operational aspects of the transition, and any incidental and transitional provisions as may be recommended by the steering committee of the Uganda Land Information Infrastructure (ULII). The aim would be to make the transition to electronic record-keeping as smooth and convenient as possible.

5.2.2 Correction of Errors resulting from Rehabilitation and Validation of Registers

Rectification of Registers

As an introduction, and to highlight the significance of this issue, we quote the following extract from an LIS design preliminary study.

> *The land registration and cadastral systems are in sorry conditions. The land records, including title registration records, are deteriorated and damaged. The errors (as double numbering), inconsistency of records and cases of frauds are as a result of poor documentation and downsizing of personnel, which reduce crosschecks, [promote] low motivation of personnel and spread "back door" practices in the registration procedures.*[47]
>
> *The result of such [loose] practices are also fake land titles circulating on the market, which create additional uncertainty on the market. According to different sources of information over 4000 fake land titles could be on the land property market in the country. Some other sources indicate that a few thousands of fake land titles could be in circulation in Kampala alone. The forged titles can be used also as the instrument for grabbing of the land and depriving many people of their property.*[48]

A World Bank STA Report on the Reform of Land Administration in Uganda (which largely defines the path of this Project) highlights some of the tasks to be undertaken to ensure the rehabilitation, modernization and updating of the land title register.[49] They include harmonization, geo-referencing and rectification of overlapping surveys, reconstruction of missing records, and indexing and reorganizing storage and retrieval systems.

Previous cadastral legislation did not impose a specific *duty* on statutory officers to ensure the accuracy of land records and data. However, the Registrar of Titles has the *power* to rectify the

47. *The Baseline Evaluation Report*, MHLUD/Geo-Information Communication Ltd, Kampala, May, 2007, Executive Summary, at p.6.

48. Ibid, at p. 51.

49. *Moving from Analysis to Action: Land in the Uganda Private Sector Competitiveness Project II*, Rexford A. Ahene.

Register under Section 156 of the RTA. Also, under the special powers conferred by Section 91 of the Land Act, Cap. 227 (as amended by Section 37 of the Land (Amendment) Act, No. 1 of 2004), the Commissioner for Land Registration has power, without referring a matter to a court or a district land tribunal, to cancel or correct a certificate of title or instrument that was issued in error; or that contains a wrong description of land or boundaries; or contains an entry or endorsement made in error; or contains an illegal endorsement; or is illegally or wrongfully obtained or retained. And Section 138 of our draft RTA Bill 2010 gives the Registrar power to correct obvious errors in instruments lodged for registration, while Section 154 of the same Bill empowers the Registrar to correct errors in the Register in the circumstances and manner specified in section 91 of the Land Act.

No similar powers seem to exist for other statutory offices or cadastral components. This absence of power may well cause delays while rectifying errors, when the LIS exercise begins. The LIS law should therefore impose a statutory duty to examine and verify land records and data before the information is entered into the LIS. The law should also provide for the Steering Committee to authenticate any exercise of scanning, examination and verification of land records and data carried out in any ad hoc procedures before the LIS law comes into force. Since the Steering Committee would already have representation from relevant departments (see above), their input would be ensured.

The Government should encourage land owners to voluntarily submit their land records for verification. This would speed up data capture by the LIS, as well as help correct errors, keep data up-to-date, and isolate fraudulent records. It would also increase public awareness of the establishment and functions of the LIS. It should gain the support of banks and financial institutions, because it would improve collateral security in the land market. The support of the banks and financial institutions should also encourage registered land owners, who would see value in cooperating with their lenders.

To encourage this route, voluntarily-verified cadastre records should be fast-tracked into the LIS. Any future dealings on those fast-tracked titles should be allocated a fast-track desk, since they would be already computerized. After full absorption of all records, the desks would be merged with the rest of the modern Land Information System.

To help accelerate the take-up rate of the LIS, the Government could also consider charging lower fees for electronic searches for those land records which are already voluntarily submitted for verification, and higher fees for manual searches where a record is not yet verified.

Subsequently, if the take-up rate remains low, consideration can be given to either compulsory verification or denial of assurance of title for non-verified records. Voluntary verification benefits everyone. Where a title is fast-tracked into the LIS, the state guarantee of title takes on a more realistic meaning.

RECOMMENDATION

The LIS law should impose a statutory duty to examine and verify land records and data before the information is entered into the LIS. It should also provide for the Steering Committee to authenticate any exercise of scanning, geo-referencing, examination and verification of graphical and textual land records and data carried out in any ad hoc procedures before the LIS law comes into force. Where there is discrepancy between information verified on the ground and information in the register, the newly verified information should take precedence.

Government should encourage voluntary submission of land records for verification. Voluntary verification can be encouraged by fast-tracking into the LIS and providing a fast-track desk for verified titles.

Updating the LIS

Keeping land information up-to-date and accurate is important in achieving the three key principles of the Torrens System:[50]

- The *'mirror principle'*, under which the register reflects accurately and completely the current rights in a parcel of land;
- The '*curtain principle'*, under which the register is the sole source of information in ascertaining rights in land;
- The *'insurance principle*', under which, if the register fails accurately to reflect rights in land, a person who suffers a loss is entitled to an indemnity from the government.

Where there are numerous dataset contributors to a national land information service, the organization responsible for the LIS cannot itself guarantee the accuracy of the data. It must rely on the original producers to supply accurate data. To illustrate this point: in Finland it was considered necessary for the LIS law to stipulate that the authority responsible for producing information to the land information system had the obligation to ensure that the information was accurately entered into the system and was kept up to date.[51]

In our view, the same obligation should extend to all producers of datasets.[52] It should extend to spatial data and all other geographic information integrated into the LIS.

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50. Dale and McLaughlin, *Land Administration*, 1999.

51. Raimo Vajavaara, above.

52. See Article 8(2)(e) and Annex I(6) of the EU Directive establishing an *Infrastructure for Spatial Information in the European Community* (INSPIRE).

Earlier, we pointed out that although there are powers for the Registrar to rectify the Register and correct errors, no such powers exist for officers in charge of other cadastral components. Previous Reports have made similar comments. For example, in relation to the Survey Act, Cap. 232, the Swedesurvey Report (*A Concept for a National Land Information System in Uganda*) commented:[53]

> *The Statute is silent on whether after survey there is need to have the surveyed land registered or the record of survey kept either for future use or proof of survey having been carried. With an LIS, every information regarding land must be captured and made available for use and where possible legislation must be in place to ensure compliance and uniformity in quality. Under current legislation, this is not possible. The Survey Act does not take into account the current trend of decentralisation under the Local Government Act and the Land Act where each district is supposed to have its own land office and officers. Consequently the control which the Commissioner is assumed to have remains superfluous in as far as the District Land officer can work independent of the Commissioner.*

With respect to the now-repealed[54] Local Government (Ratings) Act (Cap 242), the same Report noted:

> *Although the Statute authorizes urban authorities to collect data regarding properties and their values, the urban authorities are not obliged to provide this information to any other authority that may be interested in its use. Consequently different organizations, authorities and users end up duplicating their records trying to capture this information due to lack of Modern LIS. Indeed, the existence of such power at the individual cadastral component levels may not benefit the LIS.*

As a result, there is no organized local government fiscal cadastre. This has resulted in deficiencies in local government funding. Also, the same property may be valued at contradictory values in relatively contemporary periods. While computerization of valuation records will help iron out these distortions, there is a strong case for a sound legal and institutional framework for updating (and therefore maintaining) the accuracy of the information.

In short, an effective updating mechanism fundamentally improves the sustainability of an LIS. A dynamic, accurate and up-to-date land information system encourages user confidence. This is essential for sustainability of the system, as well as for cost-recovery.

Proposed Solutions

In the deteriorated state of Ugandan land records, robust LIS measures are needed.

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53. At p.37.

54. Repealed by the *Local Governments (Rating) Act, No. 8 of 2005*, which came into force on 1 November, 2005. A provision has always existed for notification of changes. See discussion infra.

The starting point would be a provision in the LIS law along the lines of the Finish LIS Act, creating a statutory duty for the LIS organization to update and maintain all records in the system. The same duty would apply to all data custodians and producers. Indeed, the law could especially require compliance by those data custodians and producers of datasets who are public or governmental authorities. They should lead by example.

RECOMMENDATION

The proposed LIS Law should establish and detail the statutory duty to update the information in the LIS. The provision should include a framework for the custodians and the data producers who supply datasets to the LIS to update their databases. The statutory duty should particularly apply to data custodians and other producers of datasets who are either local governments or public authorities, or private persons who use public funds to capture data.

5.3 Core Legal Issues

5.3.1 Custodianship in Land Information

What is custodianship?

In the context of land information, custodianship has been described as follows:

> *The principle of custodianship assigns to an agency certain rights and responsibilities for the collection of spatial information and the management of this on behalf of the community. The rights and responsibilities include the right to set marketing conditions for the information and responsibilities regarding the maintenance and quality of the information. It also ensures accessibility of the information and provides a recognised contact point for the distribution, transfer and sharing of the information.*
>
> *The overriding philosophy associated with custodianship is that custodians manage the spatial information as trustees for the community to enable the integration of spatial information.* [55]

This concept finds its way into legislation. An example is the South African Spatial Data Infrastructure Act:[56]

> *"data custodian" means-*
>
> *(a) an organ of state; or*

55. Australia New Zealand Land Information Council (ANZLIC), *Guidelines for Custodianship*, April 1998.

56. Section 1 (definitions), Act 54 of 2003.

(b) *an independent contractor or person engaged in the exercise of a public power which captures, maintains, manages, integrates, distributes or uses spatial information.*

Namibia's *Spatial Data Infrastructure Draft Spatial Data Sharing Policy* of July, 2003, also defines the key terms as follows:-

Custodian

A body or person designated as having a certain right and responsibility for development and/or management of spatial data. A custodian may have the right on behalf of the community to determine the condition for use, accessibility and distribution of data.

Custodianship

The act of ensuring appropriate care and maintenance of the information.

For our purposes, we may define a custodian of a dataset, or a component of that dataset, as an agency having the responsibility to ensure that the dataset is collected and maintained according to specifications and priorities determined in consultation with the user community, and made available to the community under conditions and in a format that conform with specified standards.

Custodianship entails rights and responsibilities associated with the capture and management of information. Where the custodian is a government agency, the information captured by the agency forms part of a State's corporate information resource, with the custodian being appointed to manage information about that resource on behalf of the government.

Understood in this sense, custodianship is an indispensable component of land information management policy. Separate sections of the data base are collected or supplied by many individual components, but the integrated whole can be used by all.

However, custodianship is not necessarily synonymous with ownership. Various datasets may be individually owned by the relevant contributors or, in the case of a national land information system, by the Government; but the data-sets may continue to be managed by the custodians according to agreed principles and procedures.

As a rule of thumb, the institution that produces a dataset should have the mandate for its custodianship. But it is different for core datasets, like the cadastral layer. There, the mandate should be with the appropriate department (Lands and Surveys). Thus, for example, if a private institution (such as a private survey firm) were to produce a cadastral layer, it would have to submit it to Lands and Surveys, the body with the appropriate mandate.

The Study Report on *Design and Development of Geographic Information, Uganda*, by Swedish Consortium, 2001,[57] recommended that:

a) the ownership and the responsibilities of each dataset should be clearly defined, and for each dataset there should be only one owner/custodian; and

b) the guiding principle should be that each dataset is owned by the organisation that has the mandate to decide on changes to and use of the dataset.

On that basis, the Report recommended that ownership of the following key datasets be in the Department of Lands and Surveys:[58]

a. Hydrography (lakes and rivers)

b. Elevation and additional infrastructure

c. Aerial photographs and satellite imagery

d. Man-made structures

e. Topography (elevation).

Custodianship of land-related data may generate certain rights and obligations. These flow from the nature of the data and the role of the custodian. The responsibilities of a custodian include ensuring the accuracy (integrity) and currency (timeliness) of data storage and the security of datasets. Inter-agency relationships (for example between custodians such as NEMA,[59] NWSC[60] or UNBS[61]) may also require the custodian to delegate any or all of its functions for a data item to another custodian or to the LIS organisation, while still remaining accountable for the integrity of the data item. This delegation of functions may need to be supported by a formal agreement or by legislation, defining the relevant duties and obligations.

The custodian may be entitled to charge users for the data, but (possibly) on the condition that it (the custodian) complies with certain land information management standards and acts consistently with the policies and principles of the LIS of which it is a constituent, contributor or participant.

57. Project No. UGANDA EFMP II/PHRD/00/05-GIS, Ministry of Finance, Planning & Economic Development/The Swedish Consortium, Kampala 2001-02-24.

58. See Table titles "*Main User Oriented Datasets in the National Spatial Infrastructure – Recommended Mandates and Actions*".

59. National Environmental Management Authority.

60. National Water & Sewerage Corporation.

61. Uganda National Bureau of Standards.

Custodians may also have rights to issue licenses to users and distributors of the data, and to market the data. Distributorship would carry obligations and responsibilities, including compliance with legal issues (ie, copyright, liability and access).

These matters are illustrated in the South African *Spatial Data Infrastructure Act, 2003*, which provides:

> **Appointment and accountability of data vendors**
>
> 14. (1) A data custodian may, in the prescribed manner, appoint a data vendor to supply products derived from the data custodian's dataset.
>
> (2) A data custodian is accountable for the integrity of unmodified spatial information which is supplied by the data vendor in terms of this Act.
>
> **Agreements on utilisation of spatial information**
>
> 15. (1) A data custodian or a data vendor and a user may enter into a licensing agreement with regard to the use of spatial information.
>
> (2) A licensing agreement must provide for—
>
> *(a)* the duration of the agreement;
>
> *(b)* the legal protection of the copyright of the State and any other interested party; and
>
> *(c)* any other provision that the parties may consider necessary and as may be prescribed.

One needs to note, however, that, the Study Report on *Design and Development of Geographic Information, Uganda*, recommended the adoption of the Principle of Free Exchange of Key Spatial Data Sets within Government Institutions, so as to better promote development of SDI in Uganda. Adoption of this principle would significantly affect any scheme of custodianship.

As with other legal aspects of land information discussed above, custodianship overlaps with other issues. For example, custodianship:-

- can be protected though intellectual property laws such as copyright;
- can be used to control or limit access;
- poses issues of liability regarding LIS data, particularly accuracy, currency, data storage, and the security of land information items or datasets;

- poses issues of "standards" (discussed later in this Paper), because a custodian's responsibilities include ensuring that a dataset is collected, prepared and maintained according to specifications and priorities determined by consultation with the user community.

A useful African model on custodianship is that of Nigeria. In respect of legal issues, it provides as follows:[62]

> 1. The owner of a geospatial dataset shall be the person or institution who funded and created the dataset.
>
> 2. The custodian shall be the person or organization who is responsible for the production, storage, management and distribution of the dataset on behalf of another organization (usually Government).
>
> 3. The producer of public-funded data (community data) shall only be custodian and not owner, managing the data as a trustee for the community and the authoritative source of the fundamental dataset in its care.
>
> 4. The owner (or custodian in the case of community data) of a dataset shall be responsible for:
>
> - Quality control and assurance
> - Data content and formats
> - Validation and maintenance
> - Storage and security
> - Maintenance and updates of metadata
> - Accessibility of the data through supply of the metadata to the Clearinghouse.

RECOMMENDATION

The proposed LIS law should clearly define "ownership" and "custodianship" of land information and other spatial data and then provide for its custodianship. It should also provide for:

- **the duties and responsibilities of a custodian;**

62. *National Geoinformation Policy*, Federal Ministry of Science and Technology, Abuja, September, 2003, at p.29.

- **the interrelationship between various custodians, and the relationship between them and the LIS organization;**
- **the protection of data in the custody of a custodian;**
- **the interrelationship between custodianship of land information, copyright over land information, and liability in relation to land information;**
- **any related matters.**

5.3.2 Pricing of Land Information

Our literature review reveals that, in some quarters, pricing of access to land information is seen as a purely administrative matter. In others it is considered of such importance that pricing ought to be regulated by legislation.

Pricing of land information gives rise to a number of issues. They include:

- rigorous attitudes towards cost recovery and downsizing of government; and
- the need to provide access to land information to the rural poor or others whose land is not titled. (These are estimated at more than ¾ of the population.)

There is also the reality that government authorities acquire information about land ownership and use by statutory compulsion and at taxpayers' expense. Having used its position as upholder of community interests to collect the information, should the government agency be able to sell it for profit? Or should it treat the information as a 'public good', freely available to stimulate social and economic development?[63]

The need for cost-recovery can put pressure on governments to sell information for commercial benefit, even to government authorities themselves. Governments must balance diverse demands, including from individuals, community interest groups and corporate business. It must be concerned not only with wider community interests such as the rural poor, but with stimulating an efficient land market, privatization, downsizing government, private sector competitiveness, and other economic sector reforms—all of which limit the government's ability to offer this service as a public good.

63. *Principles for an Integrated Land Administration System to Support Sustainable Development* by Lisa A. Ting, The University of Melbourne, Melbourne, Victoria 3010, Australia. The concept of a "Public Good" is also championed by Br. Clarissa Fourie Augustinus. See *'Land Administration in Africa: Options and Challenges*' paper presented at session on: Designing Viable Land Administration Systems in Africa, by Clarissa Fourie at the *World Bank Regional Workshop on Land Issues in Africa and the Middle East*, Kampala, Uganda, 29th April-2nd May, 2002.

Relevant questions include the following:[64]

- How much should be charged to customers for land information services and products?
- Should the land information organization charge differentially for services and products (business vs. private citizens)?
- Will charging inhibit equitable access to information?
- Does charging constitute "double taxation" if the data is produced from public funds? Is government information part of government service, or is it to be treated as a corporate asset?

Computerization of Land Records and Sustainability

There are two major cost elements in constituting a land information system: the construction of the system, and its continuing maintenance. In both elements, computerization plays a fundamental role.

Computerization provides prompt access to land data. It also facilitates earlier analysis of land market information, standardization in the collection and processing of land information, prevention of unnecessary duplication, ease of storage, faster title registration and transfer processes, the keeping of disaster recovery copies of registers, and data aggregation and integration.[65]

But computerization is costly, and this ultimately affects the pricing of land information. A fundamental problem is how to ensure the sustainability of the IT component of the LIS, when the lifespan of most hardware and software is merely a few years. It is likely in the case in the Land Component of the PSCPII, that donor-funding will help in the initial set-up costs, including procuring hardware and software. But what happens if the donor-funding were to dry-up? And the more capital-intensive an agency becomes, the more it needs to spend on maintaining and replacing equipment. Difficult decisions need to be made on who will pay for technology upgrades.[66]

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64. *The Unique Challenge of Land Information Systems and the Knowledge Economy in Africa*, by Ian R. Methven, Michael D. Sutherland, and Boipuso Nkwae, Background Issues Paper for the UNECA Symposium '*Land Information Systems in the Knowledge Economy*', Centre for Property Studies and Terradigm, New Brunswick, Canada, December, 2006.

65. See generally, *UNECE Land Administration Guidelines*, at p.20; *A Concept for a National Land Information System in Uganda*, p. 18 and p. 41; and see also *LIS - Preliminary Design and Architecture - Final Report*, p.14.

66. *Land Administration in the UNECE Region - Development Trends and Main Principles*, p.67-70 (75-78, E: Paying for land administration).

In terms of sustainability, of course, the higher the level of cost recovery, the more the organization ought to be able to invest in developing new products, services and technology.

The various options for funding a LIS include the following:[67]

(a) no cost recovery, with all operations being paid for by the State;

(b) users pay for the cost of making data available, but not for the cost of its collection and updating;

(c) partial cost recovery;

(d) full cost recovery;

(e) profit, which is reinvested in the LIS agency.

Many studies have concluded that a land administration system can become self-supporting by recovering all costs through user fees.[68] On this basis, pricing policy follows the cost-recovery principle:

> *"...maintenance and continued development more and more are financed through direct users fees. In principle a properly designed land information system should be able to recover its operating costs and perhaps also the direct investment costs within a certain length of time. Different arrangements can be considered for the financing from commercial financing, donor support in form of grants and loans and partnership between government and commercial financing."*

This is essentially the approach advocated by the *2004 Swedesurvey Report*.[69] It recommends that:

(i) in the second phase (i.e., a pilot stage to test design proposals) project implementation should be financed fully from governmental funding supported by donors; and

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67. *Land Administration in the UNECE Region*, p.68 (76). Some of these options have been expressed as follows:

> There are in principle three different forms for financing a land administration system: financing by tax; financing by fees; financing by commission. ***Financing by tax*** means that there is no connection between the activity from which the tax is drawn and the grant that is given by the Government (national or local) to an agency in order to finance an activity. ***Financing by fees*** means that an applicant pays for a service and that there is a connection between the fee and the cost for the service. The tariff is decided by the Government. The fees can go directly or indirectly to the agency. ***Financing by commission*** means that an applicant pays for a service and that the agency that offers the service has the authority to decide about the tariff based on rules set by the Government.

68. UNECE Guidelines, Page 46; *An Integrated Geo-Information System With Emphasis On Cadastre And Land Information Systems For Decision Makers In Africa,* p.36.

69. Ibid, p. 41.

(ii) in the third phase (full-scale implementation) the funding of the LIS organisation should gradually be based on collection of fees for registration, search and delivery of information, and from the sale of information to other authorities and the business sector. At the end of that third phase (3 years), the LIS organization should completely base its funding on user fees.[70]

Within the European Union, the policy is that charges applied should not exceed the cost of collection, production, reproduction and dissemination of data, together with a reasonable return on investment.[71]

However, the commentators who have examined the issue of LI data pricing in the African context have recommended a cautious approach until the LIS has firmly established itself:-

> *An issue affecting the administrative processes is the level of fees and charges that can be reasonably imposed to ensure the land administration system is at least self funding. Care must be exercised to ensure that the revenue objectives are balanced by the capacity of those participating in the market to pay. In the initial stages this usually means a period of subsidization until the critical mass of parcels needed to sustain a land market are registered and the land administration system has the confidence and support of the community.*[72]

The *Nigerian National Geoinformation Policy*, in a cautious policy, envisaged that at an appropriate time after operationalisation of the National Geospatial Data Infrastructure (NGDI), access to the NGDI could be driven commercially by demand. It was therefore considered appropriate to build cost recovery mechanisms into the NGDI. The declared objectives were to facilitate sustainable development of the NGDI and to promote development on a cost-recovery basis. On that basis, the Nigerian policy is that:-

(i) a reasonable fee should be charged for providing access to data—ie, a data search fee (on-line or off-line)—apart from payment for the data itself.

(ii) For community data, the guidelines for charges are:

- For Government-to-Government: the rate should cover only the cost of production and dissemination.

70. See also, *LIS - Preliminary Design and Architecture - Final Report*, p.14.

71. *EU DIRECTIVE 2007/2/EC of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)*, OJ L 108/1 25.4.2007 EN.

72. *Comparative Study of Land Administration Systems - Land Administration: Indicators of Success, Future Challenges*, p.19.

- For commercial/private use, the rate should not be less than the cost of production and dissemination.
- For data generated and owned by private organisations, pricing should be competitive.
- For value-added data, the rate should be not less than the total cost of value-addition plus the cost of the input datasets, with charges for the latter being remitted to the original owner/custodian.

In Finland, the Act provides that:[73]

Section 6: Supply of data as information service

The National Land Survey of Finland shall provide a free public access to the data included in the Land Information System and the possibility to take notes of the data at the Land Survey Office. Extracts, certificates and other documents are subject to charge, or these can be obtained through a technical user interface. Unless otherwise provided on special grounds, electronic copies of the data may be given subject to charge.

In Western Australia,[74] the land information authority has commercial powers.[75] The law establishes a set of *'Pricing principles'* which are based on the following policies:

1). Fees for core statutory services provided in accordance with legislation governing the transfer of land and the valuation of land (such as land title registration and certified extracts of the valuation roll) are set on a cost-recovery basis, by regulation.

2). Land information and related services, including intellectual property, what are for non-commercial use are provided on the following basis:

i) transfer of land information is priced at the cost of *'extraction and distribution'*, consistent with the existing whole-of-government policy;

ii) other land information and services provided to State Government agencies are priced on a cost-recovery basis.

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73. *Act on the Land Information System and Related Information Service (453/2002)*, Unofficial translation, Ministry of Agriculture and Forestry, Finland. See also *Legislation for the New Land Information System in Finland*, by Raimo Vajavaara, FIG XXII International Congress (TS1.2 The Practice of Surveying – Reform and Legislation), Washington, D.C. USA, April 19-26 2002, p.9.

74. *Land Information Authority Act* 2006, Western Australia.

75. Western Australian Land Information System (WALIS).

This does not, however, preclude other arrangements by agreement.

3). Where land information and related services, including intellectual property, are provided for commercial use and/or where they are provided in a contestable (or potentially contestable) market, they are priced on a commercial basis.

4). Where the land information authority provides "fundamental" land information to State and local government agencies, and to certain other parties (generally those who have functions of a public nature and will not use the data other than for education, research, or activities of a community or regional nature), the authority charges only the cost of extracting the information from its systems and providing it. "Fundamental" land information consists of core databases containing State-wide information on matters such as land tenure, land contours, and the location of roads and survey marks.

This somewhat resembles the system in Namibia. Under the Pricing Structure for Fundamental Data in the *Draft Spatial Data Sharing Policy for the Namibia Spatial Data Infrastructure*, no fee is payable for accessing digital fundamental data. In the Namibia NSDI:

i. "Fundamental data sets" are data for which there is a justified need for national consistency and development by many users inside and outside of governmental institutions, to enable them to meet their objectives. Fundamental spatial data include data about infrastructure, natural resources and environment, administrative boundaries, and population distribution at the national level; and

ii. The attributes of fundamental datasets in the land sector include local government/local government areas, land ownership/categories of land ownership, land control/categories of control over land, conservation/areas allocated and proposed for conservation, and land usage/type of land use.

In Cyprus, the pricing policy for land information is as follows:

> ***Charging policy.*** *The cost of extraction and distribution is the cost actually incurred in transferring information. It will generally include computer processing costs, cost of consumables, distribution staff costs and associated overheads. Such overheads might include royalties payable by the custodian to the data owner. The costs of collection, maintenance or upgrade of data are not components of cost of transfer. The charging of lodging an application through the Internet should be comparable to the charging of lodging an application manually. However, the DLS should encourage the use of services through Internet because visits in District Land Offices will be reduced and less working hours will be spent by employees.*[76]

76 . *Electronic Governance for the Lands and Surveys Department in Cyprus*, by Panayiotis Andrea Panayiotou, in TS6 – NSDI and Data Distribution, FIG Working Week 2004, Athens, Greece, May 22-27, 2004, at p.12.

On the whole, we consider that legislative models from developed countries may not be directly relevant in Uganda's socio-economic circumstances. We therefore prefer to base our recommendations on the design studies only, in addition to the following related observations.

We observed earlier that core land information legal issues tend to overlap. One issue that fundamentally affects data pricing is the allocation of liability for incomplete or incorrect information. We also observed that, with the establishment of the LIS, liability should extend to all cadastral component units that contribute to the LIS, including the functions of land administration, valuation, surveys, and land-use planning.

Assurance of Title — impact on liability and ultimately on pricing

Another issue is whether the price for information includes a component to be paid into the "assurance fund" that is available under the draft RTA Act 2010 (submitted with our Draft Final Issues Paper on Registration of Title) to compensate buyers or others who succeed in liability claims against the Government of Uganda. We have observed elsewhere in this Paper (and in our Issues Papers on the Registration of Titles Act and the proposed Real Estate Agents Law) that stimulation of an efficient land market requires a robust title guarantee framework (both legal and operational). The guarantee must be seen as an effective remedy.

Furthermore, according to the *Land Information System Preliminary Design and Architecture, Final Report Volume 1*, the financial sustainability of the LIS is linked to the financial sustainability of the district land information offices.[77] In terms of liability, this means that the District as a dataset contributor should be staffed at a level of professionalism that reflects the increased liability. The District will be the largest supplier of land information. We have noted elsewhere that perhaps only 5 or 6 percent of this country has current titles, mostly concentrated in urban areas and in Buganda.[78]

Pricing of land information in the context of decentralized services

There are difficult questions of how to handle responsibility for employees of decentralized units who produce data for the LIS, but who are not appointed, disciplined, supervised or trained by Government. How can the Government of Uganda be responsible for the quality of the work of such employees? Consider the situation where a District surveyor makes a survey, but its contents are inaccurate; a user then applies the inaccurate information—e.g. a building is constructed in a road reserve—and this results in legal liability. Should the Government set specific standards for all employees in the cadastral units which supply data to the LIS?

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77. See, Section 3.4.4. *Land Information Offices Sustainability issues*. The role of the Districts is also emphasized in Section 4.10 of the Report at pp. 46-47.

78. *Land Administration: Indicators of Success, Future Challenges*, Land Equity International Pty Ltd, October 2006, at p.6.

According to the Swedesurvey Study of 2004, *Report on the Review of the Status of Land Information Systems,*[79]

- An LIS cannot be established where legislation allows demarcation of land by unqualified surveyors.
- Each district has its own Land Board and is responsible for survey and mapping; but the survey records are scattered, with no central control. This directly affects an LIS, because a common identity cannot be established with scattered records.

The concept of a fee for assurance of title is already found in the current Registration of Titles Act, cap.230; see the provisions reproduced below. There is even provision for additional assurance of title (see below). Our Draft RTA 2010 also provides a state-guaranteed system of title, backed by a right to compensation for loss of land. Given the additional risk posed by the supply of decentralized land information services, the Government should consider factoring this risk into the pricing of land information data.

34. Fee for assurance of title.

(1) Upon first bringing land under the operation of this Act whether on a grant or consequent upon an application or dealing as hereinbefore provided, there shall be paid to the registrar as a fee in respect of the assurance of title the sum specified in that behalf in the Twenty-second Schedule to this Act; and in the case of freeholds brought under this Act upon a grant, the value of the freehold for the purpose of ascertaining that sum shall be deemed to be the price paid for the land; and in the case of leaseholds brought under this Act upon a grant, the value shall be deemed to be twenty times the annual rent reserved; and in other cases the value shall be ascertained by the statutory declaration of the applicant.

(2) If the registrar is not satisfied of the correctness of the value sworn to under subsection (1), he or she may require the applicant to produce a certificate of the value under the hand of a sworn valuer, which certificate shall be received as conclusive evidence of the value.

(3) Nothing in this section shall apply to any land included in a final mailo certificate whenever issued, unless prior to the application to bring that land under the operation of this Act it has been transferred to a person not an African of Uganda.

35. Additional assurance fee in case of imperfect title.

(1) Notwithstanding anything hereinbefore contained, the registrar may, after the

79. *A Concept for a National Land Information System in Uganda*, Swedesurvey / Ministry of Water, Lands & Environment, Uganda, at p.35.

publication at the applicant's expense of such advertisements as he or she deems fit, bring any land under the operation of this Act upon the applicant paying as an additional fee in respect of assurance of title a sum of money equal to 5 percent of the total value of the land as an indemnity by reason of the nonproduction of any document affecting the title or of the imperfect nature of the evidence of title, or against any uncertain or doubtful claim or demand arising upon the title.

(2) Where the registrar is not satisfied that sufficient evidence of title to any land has been produced, he or she may refuse to bring that land under the operation of this Act.

RECOMMENDATIONS

The long-term funding strategy for the LIS organization should gradually and progressively be based on collection of fees for registration, search and delivery of information, and from the sale of information to other authorities and the business sector. However, since it is the duty of the government to provide certain spatial information for national development, Government should subsidize certain key functions which may not be commercially viable. These functions may include production of a national base map. The capacity of the LIS organization to fund itself should be evaluated at the end of the third phase of the LIS implementation project.

Pricing policy should eventually be based on cost-recovery. At an appropriate time after operationalisation of the LIS, and when confidence has been built and a critical mass of transactions achieved, the cost of access to the LIS might be driven by commercial demand. An appropriate cost recovery mechanism should then be implemented.

The LIS Committee, in consultation with stakeholders, should develop the detailed pricing mechanism.

Pricing policy should also take into account the risks of liability posed by decentralization, particularly potential liability for the performance of DLO functions.

5.3.3 Admissibility of Evidence from Computerised Land Records

According to the two most up-to-date Uganda LIS Design Studies:

- ❒ The main objective of *phase one* of the LIS implementation should be the establishment of the basic land information infrastructure and transition from manual land registration to electronic land registration.[80] It is estimated that phase one would take 8 years to cover whole country.

- ❒ The main objective of *phase two* should be the consolidation of the results of the first phase and transition to electronic system of land conveyancing. The duration of the second phase would depend on economic conditions, as well as the development in Uganda of a legal framework that can support electronic conveyancing. [81]

The computerization of the land registry is therefore a vital element in achieving a complete and efficient land information system—a system which will deliver fast and accurate information to land users and to the community, expedite land transactions, and enhance development of the land market.[82]

Before this can be accomplished, however, computerized land records and electronic land information must be given legal status as records. Indeed, the Land Sector Strategic Plan 2001-2011 sees this as one of the reforms needed to the existing Registration of Titles Act (Cap. 205):

> *To provide for keeping, maintenance and networking of the Register using computers, and admissibility of evidence from computerised records.*[83]

With the use of computer technology in land information systems, there comes the need for a legal framework to:

- define the evidentiary status of land records stored or produced by computer or electronic means; and
- re-define the concept of the "Register" so as to embrace an electronic register of land records.

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80. *LIS - Preliminary Design and Architecture - Final Report*, July, 2007, p.12.

81. *LIS Final Report* (above), p.13.

82. *Moving from Analysis to Action: Land in the Uganda Private Sector Competitiveness Project II*, Rexford A. Ahene.

83. *Land Sector Strategic Plan 2001-2011: Utilising Uganda's Land Resources for Sustainable Development*, at p.28. See also, *Explanatory Memorandum and Comparative Tables: Draft Registration of Titles Act 2008*, Review of land Administration Laws, MLHUD, 2007-2008.

What is "evidence"?

A claimant must adduce evidence to establish his or her claim to land, and the respondent must likewise bring evidence to refute the claim, or to establish a superior right to the land. For both parties, the success or failure of a claim depends on evidence.

Land information is an indispensable prerequisite for resolving land disputes, comprising as it does records of rights in land—including ownership, usufructuary rights, possessory or occupancy rights, and other relevant spatial information. Courts and tribunals use that information to determine competing claims to land.

Evidence may be defined as something (including testimony, documents and tangible objects) that tends to prove or disprove the existence of an alleged fact.[84] Under section 2(1)(d) of the Evidence Act, Chapter 6 of the Laws of Uganda, revised edition, 2000,

> *"evidence" denotes the means by which any alleged matter of fact, the truth of which is submitted to investigation, is proved or disproved and includes statements by accused persons, admissions, judicial notice, presumptions of law, and ocular observation by the court in its judicial capacity.*

Where information is stored electronically, evidentiary issues immediately arise:

a) Current laws do not generally treat electronic media as a functional substitute for paper documents. Many legal rules in the Ugandan evidence law assume the existence of paper records, i.e., signed or original records. The law of evidence principally relies on paper records as well as oral testimony, although other kinds of physical objects may be produced in evidence. This law (which has been in place since 1906) was drafted without due consideration to the development of modern technology and the admissibility of information generated electronically.[85]

b) Evidence generated from computers differs fundamentally from conventional documentary (paper) evidence. Documents created electronically (e.g. by word processors or otherwise printed from a computer) have different attributes than traditional paper-based documents. Electronic data is stored in encoded sequence bits of ones and zeroes. These bits are stored on a magnetic medium such as tape or disk. Currently, the available range of electronic formats used to store or convey information includes: computer files on a floppy disk; computer files on a hard disk; compact disks (CDs);

84. *Black's Law Dictionary*, 7th Edition.

85. *A Study Report on Electronic Transactions Law*, (Law Com Pub. No. 10 of 2004), Uganda Law Reform Commission, Kampala, Uganda.

compact disks—read only memory (CD-ROMs); audiotape; videotapes; magnetic tapes; digital video displays (DVDs); and laserdiscs.[86]

> *By its nature, data of this sort cannot be directly interpreted by humans; they have to be transformed by the computer system into something a human can perceive, whether on a screen or on a piece of paper.*
>
> *The transformation of the information into a documentary format is an issue of concern in evidence law. The information is normally processed by a program and printed out, to produce what is called a "computer-generated document". The admissibility of this document in evidence thereby becomes an issue for determination by the courts. Is the printout a "copy" (secondary evidence) of the "original" electronically-stored version? A printout is based on information in the memory of a central computer; is the computer's memory therefore a "record" under the law? Is it an original or a copy? Is the printout then a "copy"? Can it be said a printout is "a new type of copy made from a new type of record"? Alternatively, can't the printout itself be the record in as much as it is a transformation or collation of information originally placed in the computer memory.*[87]

c). There are also issues of *'chain of custody'*, the prospect of errors, and the integrity of electronic records. In general, an organization or custodian of computer records needs to be able to prove that the content of a particular electronic document or data file has not changed since the time of storage. If the data file is an electronically-stored image of an original paper document, an organization, data custodian, or other user relying on the information/document, must be able to prove that the electronic data is a true representation of the original.[88]

Additionally, it has been observed in the context of Geographical Information Systems, that computer systems inherently carry the possibilities of input errors, hidden inaccuracies caused by hardware or software problems, and flawed modeling concepts. This applies equally to computerized land information systems. Further, electronic or digital information may be altered more easily and with less trace than information held on paper documents. Thus, *"the legal reliability and stability of data from computerized*

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86. See generally, *The Receipt of Evidence by Queensland Courts - Electronic Records*, Issues Paper WP No 52, Queensland Law Reform Commission, 1998. http://www.qlrc.qld.gov.au/wpapers/wp52.htm

87. ULRC, Law Com Pub. No. 10 of 2004, p.28-29.

88. *Electronic Image Storage and the Law*, available via www.productivepeople.co.uk

land information systems have become important issues for users and potential users of such systems".[89]

In Uganda, as with most other jurisdictions, the capacity of courts or tribunals to receive information is regulated by rules of evidence. The rules govern:

- the way in which the material can or should be presented to the court or tribunal, and
- the content of the material.

We now discuss briefly the rules relevant to this Draft Final Issues Paper.

Admissibility

Admissibility is the quality of being allowed into evidence in a hearing, trial, or other proceeding. In the present context, the issue is the admissibility into evidence of land information that is stored and/or conveyed by electronic means.

The basic rule of admissibility is that evidence must be "relevant" to the issues in a proceeding. Evidence is relevant if it tends to prove or disprove a matter in issue. Under Section 2(2) of the Evidence Act:-

> *One fact is said to be relevant to another when the one is connected with the other in any of the ways referred to in the provisions of this Act relating to the relevancy of facts.*

The Act outlines several rules which assist in determining relevance in certain circumstances. However, relevancy per se typically should not be an obstacle to admissibility of information that is stored and/or conveyed using computers.

An important aspect of the "relevance rule" in relation to documentary evidence, is that a document must be authenticated by an extrinsic source before it is admissible.[90] We survey this point further below.

Best evidence

Even where the contents of a document are relevant to the matters in issue, that evidence may still be excluded for breach of the "best evidence" rule. Under section 60 of the Evidence Act, the contents of documents may be proved either by primary or by secondary evidence; under section 61, *'primary evidence'* means the document itself produced for the inspection of the court.

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89. *Evidence Generated from GIS*, Harlan J. Onsrud, GIS Law, 1(3): 1-9, 1992. See also *Legal Issues Relating to GIS*, by Margaret Lynch and Kenneth E. Foote, http://www.colorado.edu/geography/gcraft/notes/legal/legal_ftoc.html

90. *The Receipt of Evidence by Queensland Courts - Electronic Records*, Issues Paper WP No 52, Queensland Law Reform Commission | August 1998.

These provisions in essence reflect the "best evidence" rule and its exceptions. Best evidence is evidence of the highest quality available, as measured by the nature of the case. It is sometimes termed *primary evidenc*e or *original evidence.*[91] Under the "best evidence rule", to prove the contents of a writing, a party must produce the original writing unless it is unavailable, in which case "secondary evidence" may be admitted. In the context of documents, it has been said that:-

> "...the chief illustration of the best evidence maxim has always been found in the rule which demands that *the contents of a document* must, in the absence of legal excuse, be proved by primary not secondary or substitutional evidence."[92]

The best evidence rule therefore requires the party adducing the evidence to produce the best evidence available to that party, which in the context of documentary evidence means the original document or the closest to the original document.

The purpose of the best evidence rule is to ensure the reliability or integrity of the record to be produced in evidence. However, this poses problems for electronic evidence, because:

> "…data records do not have a meaningful 'original', and certainly do not have an original that is distinguishable from their display on a screen or by printout."[93]

When a document is produced from an electronic record, what constitutes an 'original'? Each printout made from the electronic record is as 'original' as the other. It has thus been suggested that the 'original' probably resides in the computer that sends the message or the computer that receives the message, and ceases to exist when the computer is turned off.[94]

Moreover, it may be "easier to tell that an original paper record has been altered than to determine any alteration by viewing [an electronic copy]. In the electronic world, there may or may not be any original paper version of the electronic record".[95] If A holds information in electronic form, A can given a copy to B while still retaining the information.[96]

As the law stands, therefore, a document produced from a record stored in a computer may well not qualify as an original and therefore not satisfy the best evidence rule.

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91. *Black's Law Dictionary*, ibid.

92. *Phipson on Evidence*, 14th Edition, para. 7-17.

93. *Study Report on Electronic Transactions Law*, pp. 81-82.

94. *The Receipt of Evidence by Queensland Courts: Electronic Records*.

95. *Study Report on Electronic Transactions Law*, p. 82.

96. Dale & McLaughlin, *Land Administration*, Oxford University Press, 1999.

Electronic records as secondary evidence

If a document produced from data stored in electronic records cannot qualify under the best evidence rule, can it nevertheless qualify as secondary evidence?

We have already noted that under section 60 of the Evidence Act, the contents of documents may be proved by either primary or secondary evidence. Section 62 defines the nature and scope of secondary evidence. Under Section 63, documents must be proved by primary evidence except in the cases listed in Section 64, which specifies the instances in which secondary evidence may be given.

Essentially, the "secondary evidence" rule allows the production of substitutionary evidence such as a *copy* of the original document, in the explained absence of the original document, or oral testimony by a person who recollects the contents of the document. The secondary evidence rule was developed at a time when there were no computers, photocopiers or even carbon paper.

However, the rule's application to electronic records is clouded by the same difficulties as affect the best evidence rule. Unlike paper documents, the original and copy of which can usually be readily ascertained, electronic records must rely on some other device to reproduce the data they hold. This poses the same issues as considered above. What is the original of an electronic record, and what are merely copies? For example, for the purpose of admission of a document as secondary evidence, is the computer file or stored data an *'original'* document? If so, is a computer printout of that file a *'copy'* of that document?

In short, the creation of electronic data raises the issue whether the secondary evidence rule should apply at all in relation to electronic records and, if so, whether clarification is required as to what constitutes an original and what constitutes a copy of an electronic record.

Hearsay

The Study Report on Electronic Transactions Law for Uganda defines hearsay evidence as evidence which is not direct evidence, and which is not presented by the maker of the statement in question, but by another person or a document.[97] The Report states[98] that a document is hearsay because it is a second-hand representation of information about a matter to which the statements in the document relate, as opposed to statements made by an eyewitness who can be cross-examined. Hearsay is inadmissible unless it falls within statutory or common law exceptions.

Traditionally, testimony which is given by a witness who relates, not what he or she knows personally, but what others have said, and which is therefore dependent on the credibility of

97 . See, Glossary of terms, at p.174 of the Study Report.

98 . Study Report on Electronic Transactions Law, at p. 84.

someone other than the witness, is hearsay. Under the hearsay rule, no assertion offered as testimony can be received unless it is open to test by cross-examination, or at least open to an opportunity for cross-examination, except as allowed by certain exceptions. Out-of-court statements are not made under oath and are not subject to cross-examination.[99] The hearsay rule is directed to ensuring that evidence is given by way of oral testimony under oath and can be tested in court by cross-examination.

Electronic records and the hearsay rule: the problem

One expert has analysed the link between electronic records and the hearsay rule as follows:

> *The most frequently attempted method of excluding computer-generated exhibits, even though the exhibits may be relevant to an issue in dispute, is through the "hearsay rule". ... The hearsay rule states that hearsay is inadmissible unless the evidence qualifies under a hearsay evidence exception.*
>
> *Data files stored in a computer and printouts generated from those files are considered to be out of court statements and when offered in court for the truth of what they assert, they are deemed to be hearsay ...*
>
> *Computer generated printouts, maps, images, and models are seldom offered for other than proving "the truth of the matter asserted." Unless an individual happened to have designed and manufactured the computer hardware, wrote the GIS software, and carried out the product generation or database manipulation procedures involved in the dispute, a computer generated product (i.e. the written assertion by the individual declaring its truth) involves out of court statements by others and thus will almost always be deemed hearsay. Therefore, such products must almost always qualify under one of the hearsay exceptions.*[100]

Others have characterized the problem in a similar way:

> *Where electronic records are sought to be used as proof of the statements contained in them they may be inadmissible due to the hearsay rule. The hearsay rule makes inadmissible any statements made out of court which are tendered in court for the purpose of directly proving the facts asserted in the statement (Walton v The Queen (1989) 166 CLR 283, 288).*
>
> *The hearsay rule extends to statements made in written documents (Myers v DPP [1965] AC 1001) so that if a document is used as proof of the facts asserted in it, then it will be inadmissible hearsay (Forbes 2004, p300).*[101]

99. *Black's Law Dictionary*.

100. Onsrud, H.J., *Evidence Generated from GIS*. GIS Law, 1(3): 1-9, 1992.

In summary, computer-stored records will be admissible only if one of the exceptions to the hearsay rule applies.

There are some relevant limitations on the application of the hearsay rule. One is where an electronic record is sought to be admitted, not as evidence of the truth of the statement contained in the record but for some other reason (such as proof that the statement was made); in such a case, the hearsay rule will not prevent its admissibility.

Nor does the hearsay rule apply to output that is generated by a computer acting as a calculator or scientific instrument, such as where the output is generated automatically by the computer following previously programmed instructions without further human intervention. That is, the rule does not apply to data independently recorded by a computer without significant human involvement, such as data captured by a surveillance camera or breathalyzer.[102] However, where the electronic record is computer-stored rather than computer-generated, the hearsay rule will preclude the admission of the record as evidence of the truth of the statement contained in it, because computer-stored records are generated by humans and are therefore statements made "out of court".

There is also a *business records exception* to the hearsay rule. This allows business records (such as reports and memoranda) to be admitted into evidence if they were prepared in the ordinary course of business.

The business records exception is well established. In some jurisdictions it is enshrined in statute. An example is Section 9 of the Civil Evidence Act 1995 of the United Kingdom. This states that:

> *(1) A document that is shown to form part of the records of a business or public authority may be received in evidence in civil proceedings without any further proof.*

In the State of Victoria, Australia, the exception has also been enacted into law. There, the "*business*" aspect of the exception is defined to include public administration.[103]

In the USA, the business records exception is the hearsay exception most often applied in successfully admitting computer-generated printouts into evidence.[104] The vast majority of

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101. *Electronic Contract Administration – Legal and Security Issues, Literature Review*, Report No. 2005-025-A, Cooperative Research Centre for Construction Innovation, Brisbane, Queensland, Australia, 2006.

102. *Castle v Cross* [1984] 1 WLR 1372.

103. Section 55 of the Victorian Evidence Act. Victoria, Australia.

104. H. J. Onsrud, *Evidence Generated from GIS*. Available via the University of Maine Website: http://spatial.umaine.edu/. And also via Prof. Onrsrud's page at http://spatial.umaine.edu/faculty/profile.php?id=177

computer-generated documents reaching US courtrooms do so under the business records exception to the hearsay rule.

However, this exception is not without its problems. Generally, for a record to be admissible under the business records exception, the document must have been created in the ordinary course of business, and must contain information supplied by a person who had personal knowledge of it. Additionally, in certain cases, the person who supplied the information recorded in the document must be called as a witness in the proceeding. In the United Kingdom, a document is taken to form part of the records of a business or public authority if there is produced to a court a certificate to that effect signed by an officer of the business or authority to which the records belong.

This brings us to the question of authentication of electronic records.

Authentication

In the Ugandan legal system, as in many jurisdictions, courts of law are not generally free to gather information on their own. Courts depend on the litigants to present and build their case. This involves tendering and substantiating evidence in court. A document or other evidential object cannot authenticate itself. It must be introduced to the court by a human being, who must of necessity also verify its identity, nature, origin and relevance. In short, the evidence must be authenticated.

Evidence generated from computers is sometimes produced from the custody of a party who has an interest in a particular outcome of the case and therefore may be tempted to tamper with the evidence. If a document has been produced from a computer and printed for the purposes of the proceedings, any tampering with or alteration of the record will have occurred within the storage medium. Authentication of records generated from computers therefore raises questions of the security, reliability and accuracy of the system from which the document has been produced.

Currently, the authentication of certain paper-based land records is achieved by statute. For example, under section 5 of the Registration of Titles Act ('RTA') which deals with the seal of office of the Registrar "… *all certificates of title and other documents purporting to be sealed with such seal and to be signed by the registrar or by a deputy or assistant registrar shall be admissible as evidence without further proof"*. Again, Section 59 of the RTA (Certificate to be conclusive evidence of title), provides:

> *… every certificate of title issued under this Act shall be received in all courts as evidence of the particulars set forth in the certificate and of the entry of the certificate in the Register Book, and shall be conclusive evidence that the person named in the certificate as the proprietor of or having any estate or interest in or power to appoint or dispose of the land*

described in the certificate is seised or possessed of that estate or interest or has that power.

Section 59 creates key attributes which go to the very core of the Torrens system of land registration: indefeasibility of title. For example, it is not necessary to prove the preliminary steps taken to procure the transfer or certificate, and the certificate is not impeachable for irregularity in obtaining it, unless fraud is proved.

But a paper certificate under the RTA differs from an electronic certificate. Difficulties in the admissibility of electronic records may deprive electronic land records of the statutory evidentiary attributes given to paper records. And a key issue is the need for the electronic record to be authenticated by evidence that the computer system that generated the record was functioning correctly at the time the record was generated. With paper records such as the certificate of title, these additional authentication requirements are not necessary.[105]

In the USA, the necessary additional authentication requirements for computer records have been described as follows:-

> An illustration of authentication evidence for computer records conforming with the requirements of this rule is "...evidence describing a process or system used to produce a result and showing that the process or system produces an accurate result. ...
>
> This illustration has generally been understood by the federal courts to require that the proponent of the evidence must authenticate a computer generated business record by showing (1) the input procedures used to supply information to the computer, (2) the tests that were used to assure the accuracy and reliability of both the computer operations and the information that was supplied to the computer, and (3) the fact that the computer record was generated and relied upon in the regular course of business**".**

Similar authentication requirements have also been summarised in Australia:

> Where computer generated electronic records are sought to be admitted there generally must be testimony that the records are correct. The accurate working of a computer program may be proven by (Halsbury 1991, para 195- 4015):
>
> - evidence given by the programmer;

105. The SwedeSurvey Report 2004 entitled, "*A Concept for a National Land Information System in Uganda*", notes that the *Registration of Titles Act* will need to be amended to accommodate modern technology in verifying the authenticity of a certificate of title. With a new LIS an electronically generated seal with security marks may become viable; but is not provided for under the current law.

Similarly, under the *Registration of Titles Act*, the Registrar of Titles must sign and seal a certificate of title before it can be valid. Under a computerized LIS actual signature may not be necessary, but provision must be made for other means of authentication.

- evidence given by the operator of the computer program (*R v McHardie* [1983] 2 NSWLR 733);
- other evidence that the computer was competently maintained and that any malfunction has not affected the material produced by it (*Murphy v Lew* [1998] VR 791).

These authentication requirements place an onerous evidential obligation on data users who need to prove their case in court. And the difficulties affect the system as a whole. If data contained within the LIS is shown to be challengeable in court, confidence in the system will be lost. Decisions based on data from the system will no longer be considered reliable by the public and stakeholders. A legal framework must be established that will ensure the admissibility of evidence or documents retrieved from computers.

For the sake of completeness, we should note that the existing Evidence Act contains provisions on relevance and presumptions regarding maps and certified copies. But the presumption as to genuineness of certified copies (see S. 78.) applies only to a document which is (already) by law declared to be admissible as evidence of any particular fact, and which is then (or purports to be) duly certified by an officer in Uganda. A document or record stored in and retrieved from a computer would not qualify.

In relation to maps, Section 34 of the Evidence Act (Relevancy of statements in maps, charts and plans) provides that statements of facts, made in published maps or charts generally offered for public sale, or in maps or plans made under the authority of the Government, as to matters usually represented or stated in such maps, charts or plans, are themselves relevant facts. But this goes to *relevance*, not *admissibility*. Additionally, Section 82 of the Act (Presumption as to maps or plans made by authority of Government) requires courts to presume that maps or plans purporting to be made by the authority of the Government were so made and are accurate. But again this is a presumption, and it relates only to maps or plans. It does not relate to core cadastral records such as title deeds.

The weight of evidence to be accorded to computerised land records

The *Study Report on Electronic Transactions Law* correctly identifies as a key issue the *lightness* of evidential weight accorded to records derived or retrieved from computer systems. Evidential weight is the persuasiveness of relevant evidence in comparison to other evidence.[106]

Ordinarily, the weight to be accorded to evidence is a matter for the judge or jury. Thus, even though evidence has been admitted, the weight to be ultimately attached that evidence is still to be determined.

106. *Black's Law Dictionary*.

While there are no statutory prescriptions as to weight of evidence, the existence of the best evidence rule (which requires that the original of any record or document should be produced in evidence, if it is available) can mean that secondary evidence, even though admissible, may be given less weight.

In Australia, the uniform evidence legislation makes specific provision for the admissibility of digital documents, and combined with the Electronic Transactions Act, affirms that electronic/digital records are to have the same evidentiary "value" (weight) as paper-based records.[107]

The *Study Report* on the proposed Electronic Transactions Law also cites with approval Article 9 (2) of the UNCITRAL Model Law, which provides for both the admissibility and the *evidential value* of data messages in legal proceedings. Article 9(2) states that information in the form of a data message must be *given due evidential weight*.

The Commonwealth *Draft Model Law on Electronic Evidence* provides that nothing in the rules of evidence applies to deny the admissibility in evidence of an electronic record on the sole ground that it is an electronic record. It then goes on to modify the common law or statutory rules relating to authentication and best evidence:

Authentication	**5.** The person seeking to introduce an electronic record in any legal proceeding has the burden of proving its authenticity by evidence capable of supporting a finding that the electronic record is what the person claims it to be.
Application of Best Evidence Rule	**6.** (1) In any legal proceeding, subject to subsection (2), where the best evidence rule is applicable in respect of electronic record, the rule is satisfied on proof of the integrity of the electronic records system in or by which the data was recorded or stored. (2) In any legal proceeding, where an electronic record in the form of printout has been manifestly or consistently acted on, relied upon, or used as the record of the information recorded or stored on the printout, the printout is the record for the purposes of the best evidence rule.
Presumptionof Integrity	**7.** In the absence of evidence to the contrary, the integrity of the electronic records system in which an electronic record is recorded or stored is presumed in any legal proceeding: (a) where evidence is adduced that supports a finding that at all material times the computer system or other similar device was operating

107. *Electronic Records as Evidence, Public Record Office Victoria - Advice to Victorian Agencies*, PROA 03/08, May 2003, Version 1.

	properly, or if not, that in any respect in which it was not operating properly or out of operation, the integrity of the record was not affected by such circumstances, and there are no other reasonable grounds to doubt the integrity of the record. (b) where it is established that the electronic record was recorded or stored by a party to the proceedings who is adverse in interest to the party seeking to introduce it; or (c) where it is established that the electronic record was recorded or stored in the usual and ordinary course of business by a person who is not a party to the proceedings and who did not record or store it under the control of the party seeking to introduce the record.

The weight to be accorded to computer-sourced information is an important issue, if users are to have confidence in the storage of data in land information systems. Land market stakeholders need to be assured that the records are credible, admissible, and of adequate evidential value.

Uganda LIS Preliminary and Design Studies

The Government of Uganda has commissioned a number of feasibility and design studies on the proposed Land Information System.[108] A number of these have considered law reforms that

108. The studies include:

1.	Land Tenure and Agriculture Development in Uganda, by Makerere Institute of Social Research and the Land Tenure Centre of Wisconsin, USA. 1989;
2.	Report on the Land Registration Procedure and Land Registry In Uganda, D.W. Greenwood 1990;
3.	Rehabilitation and Development of Land Survey and Registration in Uganda, Gerhard Larsson 1990;
4.	A Base for a Land Information System in Uganda, Swede Survey 1996;
5.	Proposal for the Computerization of the Land Registry, by Computer Supplies Ltd in 1996;
6.	Design and Development of Geographic Information System, Including the Master Plans for the Development of the Ugandan Spatial Infrastructure, the Swedish Consortium June 2001;
7.	Technical Audit on Current Initiatives and Proposals for Securing Land Registry Records in Uganda, Swedesurvey 2003;
8.	A Review of the Status of Land Information Systems in Uganda, Sivest 2003;
9.	Detailed Plan for the Design and Implementation of LIS in Uganda, SwedeSurvey 2004;
10.	Securing and Upgrading the Land Registry and Implementation of a Land Information System In Uganda, Geo-Information Communication Ltd 2007;

would be needed to facilitate the *"keeping, maintenance and networking of the Register using computers"*, as stated in the Land Sector Strategic Plan (LSSP).[109] They have seen the need for a new legal framework to enable the admissibility of evidence and documents stored in computers.[110]

Analogous initiatives by the Uganda Law Reform Commission

We have already referred to the *Study Report on Electronic Transactions Law*, by the Uganda Law Reform Commission (Law Com Pub. No. 10 of 2004), which was released in September, 2004. The Study closely examined the topics of electronic commerce, the requirements for e-commerce legislation, as well as admissibility of electronic evidence. The Study culminated in the following three Bills:

a). the Digital Signatures Draft Bill;

b). the Electronic Transactions Draft Bill; and

c). the Computer Misuse Draft Bill.

However, and notably, land transactions were specifically excluded. Section 3 (Application) of the *Electronic Transactions Bill, 2004* states that:-

> (1) This Act does not apply to:...
>
> (d) documents that create or transfer interests in property and require registration to be effective against third parties.
>
> (2) Nothing in this Act limits the operation of any provision of any law that expressly authorises, prohibits or regulates the use of electronic documents.

According to the *Baseline Report*,[111] the rationale behind this exclusion of documents relating to land is not that such documents should not be created electronically. Rather, it is that land

11.	Securing and Upgrading the Land Registry and Implementation of a Land Information System in Uganda: the Baseline Evaluation Report, Ministry of Land, Housing and Urban Development/Geo-Information Communication Ltd, Kampala, Uganda, 2007;
12.	LIS - Preliminary Design and Architecture—Final Report—Ministry of Land, Housing and Urban Development/Geo-Information Communication Ltd, Kampala, Uganda, 2007.

109. LSSP, p.28.

110. See particularly, the *Baseline Report*, at pp. 49 and 54, and the LIS Final Report at p.44.

111. *The Baseline Evaluation Report*, MLHUD/Geo-Information Communication Ltd, Kampala, Uganda – May, 2007, at p. 110.

matters (and the other exclusions[112]) require more detailed rules and regulations, or more safeguards for users. Detailed provisions of this kind were considered not appropriate for the *Electronic Transactions Bill*, which were concerned more with ensuring universal access to internet connectivity and electronic transactions.

Nevertheless, as the *Baseline Report* consultants themselves note, transactions concerning land are properly part of e-commerce.

In other jurisdictions, similar justifications have been advanced for excluding land-related matters from electronic transactions law. Arguments include the following:[113]

i). The main obstacles to land transactions being carried out electronically are the various statutory requirements for writing, signature or the use of deeds.

ii). A key rationale for excluding electronic land transactions is the protection of unsophisticated parties. The exclusion avoids the danger that uninformed homeowners may be tricked into unwittingly parting with their property at undervalue through a clickwrap[114] contract. The typical homeowner is inexperienced in matters of commerce, including home sales, and is therefore vulnerable to deception.

We understand that real property has been excluded from the electronic transactions legislation of many other jurisdictions, but to varying degrees. Canada and New Zealand exclude only those instruments that require registration. Ireland excludes conveyancing but not contracts.

We do not find the explanations for exclusion entirely convincing, especially as any considered legislation must deal with the admissibility and evidential weight of electronic records. In our view, the *Study Report* in relation to the Uganda ETA Bill is not entirely clear or comprehensive on these matters. This is (in our view) reflected in a strong criticism in an Opinion in the *LIS Baseline Study* that:

- Legislators are not taking seriously the reality that land transactions are part of e-commerce.

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112. The other excluded matters are: wills and codicils; trusts created by wills or by codicils; powers of attorney; and negotiable instruments, including negotiable documents of title.

113. *Joint IDA-AGC Review of Electronic Transactions Act Stage II - Exclusions under Section 4 of the ETA: Consultation Paper*, LRRD No. 2/2004. "IDA" is an acronym for the Infocomm Development Authority of Singapore, and "AGC" for the Attorney-General's Chambers of Singapore.

114. See definition of *clickwrap* in the section on Access to Land Information. The ULRC Study Report on the Electronic Transactions Law defines "click through agreements" as follows: A merchant may offer products, data, software or digital content online, subject to a form agreement accepted by clicking on an "Accept" button. The user's conduct in downloading the content may constitute acceptance of the form agreement.

- The lack of an appropriate law to govern land transactions will pose difficulties for computerization of the land registry.[115]

It is clear that issues relating to electronic land records, and an e-conveyancing system, are complex and require review as part of an overall strategy for land-sector legislation.

Possible Solutions

The Uganda ETA Bill *Study Report* proposes dispensing with the "best evidence" rule in its usual formulation when applied to computer-generated[116] documents. It also proposes, in relation to computer-generated records[117] a statutory merging of the "original document" rule with the requirement for authentication. Finally, it proposes that the focus should be on the overall security and reliability of the computer system that produced the document.

Proposals from Australian jurisdictions have included reconsidering whether the best evidence rule, and the principles as to secondary evidence of the contents of a document, should apply at all in relation to electronic records, and if so whether clarification is required of what constitutes an "original" or a "copy" of an electronic record. A study in Queensland, reflecting studies elsewhere, has considered whether, rather than specifying exceptions to the best evidence rule, the rule should be abolished and replaced with a comprehensive list of ways in which a party may adduce evidence of the contents of a document.[118]

Technological solutions to legal problems

Besides the legal solutions mentioned above, technological solutions have also been suggested to the issues regarding the admissibility of computer-stored information. One is to place technical markers automatically on alterations made to a dataset, to improve the reliability of the data.[119]

Another is to improve the reliability of data captured by scanning. Careful scrutiny of the integrity and format of the scanning process can help ensure accuracy and credibility, and so help realize the full advantages of a modern LIS. To elaborate:

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115. P. 117.

116. We prefer to refer simply to "documents or records stored in computers". As seen earlier, the hearsay rule does not concern documents and records generated by computer without human intervention. Therefore the term *computer-generated* may be confusing.

117. See previous footnote.

118. See *Receipt of Evidence by Queensland Courts - Electronic Records*, ibid.

119. *Legal Issues Relating to GIS*, by Margaret Lynch and Kenneth E. Foote, http://www.colorado.edu/geography/gcraft/notes/legal/legal_ftoc.html

At the p**rocess level:** The scan must be produced through a process capable of ensuring the integrity of the record and maintaining it over time. Scanned copies are only as good as the process that produces them, and that process should include authentication and quality assurance.

As regards **format**: The scan must be kept in a format and environment that makes it readily available for subsequent reference. The electronic file must not require the courts or the user to search out obsolete or rare technology in order to read the file; it must be easy to access. For records that have long retention requirements, this implies either a continued active management strategy to migrate records, or the selection at the start of the process of a recognised long-term format.

Documenting the scanning process

The scanning process must be clearly documented. This might include the following:

• The name, business address and occupation of the person doing the scanning.

• The identity or description of the documents (if the documents are being scanned by file—a description of the file subject, file number, may be appropriate), where they came from, and their condition (ie damaged etc).

• The identify of the object/medium (disc etc) on which the scanned documents are stored.

• The day and time of the scanning.

• Stating (or noting, by a tick in a column or the like) that the scanning was done in the ordinary course of business, using apparatus in good working order.

• A signature by the person scanning the documents, attesting that the processes have been followed and information is true and correct. The signature should be dated.

All of this information could be included in columns of a log book.

Further, there may be need to ensure the continued integrity of the scanned form. This could be by storing the scanned form in a medium or by a method that prevents it being altered, or by maintaining detailed and automated audit logs.[120]

These integrity measures[121] can be promulgated in a handbook or in subsidiary legislation.

120. Automated logs are one of the means used by the Integrated Financial Management System Pilot [IFMS] to enhance security and to trace rogue actions.

121. Source, *Electronic Records as Evidence, Public Record Office Victoria - Advice to Victorian Agencies*, PROA 03/08 □ May 2003 □ Version 1P.

RECOMMENDATIONS (Computer Records as Evidence in Court)

In view of the technological challenges of setting up and maintaining a secure digitized LIS, and one that will inspire confidence in its integrity:

1. In the short-to-medium term:

a) The manual records should remain primary evidence of land transactions.

b) Digital evidence should be admissible as secondary evidence where the court is satisfied that:

i) the person seeking to introduce the evidence can authenticate the reliability and security of the computer system that generated, processed or stored the evidence; and

ii) the evidence is of the type and in the form of information which is acted on in the ordinary course of business.

2. In the longer term, after the computer-based LIS is fully operational and its use and reliability generally accepted, the Minister by statutory instrument may make rules accepting computer records as primary evidence.

5.3.4 Standards for Data, Metadata and Applications

The concept of "standards" is not new. They have been common in business and government for many years. One benefit of standards is that they are usually developed through a consultative process (with other "experts"), and provide a basis from which to develop national or discipline-oriented profiles. As standards become adopted within the wider community, software programs are often developed to help in implementing them.[122]

Standards are generally developed in a hierarchy. Global standards, such as ISO and OGC, are broad in nature. An example is ISO/TC211 which aims at standardising environmental metadata and is responsible for geospatial data standards.

Standards developed at regional level conform to global standards, but usually include more detail than global standards. National standards conform to regional standards, but are more detailed again. And so on, up to local government or corporate standards.

In many countries, the task of coordinating standards is the responsibility of government. When a new standard is to be developed, interested institutions are invited to participate in the process until agreed specifications are developed. In some countries, such as Sweden, a non-governmental organization (Swedish Standards Institute) coordinates standards development. In

122. See *SDI Cook Book,* ver 2 p 28.

Uganda, the Uganda National Bureau of Standards (UNBS), a Government Department, coordinates standards development.

Standards are necessary in the geospatial industry to ensure that datasets produced by government institutions or the private sector are inter-operable. Spatial data specifications—such as map projections, coordinate systems, units, map datums and other data qualities such as semantics (meanings of concepts in spatial databases)—need to be standardized. Standards are also required for applications designed to provide access to LIS data and other spatial data

Either because of lack of interest or scarcity of resources, the UNBS has not embarked on a development of geospatial standards. As a result, no such standards exist in Uganda. The Department of Lands and Survey, on the other hand, through a provision in the Survey Act, has been setting and supervising limited standards for the accuracy of cadastral surveys. Within a vibrant spatial data economy, there is need for standards for geospatial data, to ensure inter-operability between the various producers and users of spatial data. The LIS institution, in collaboration with UNBS, should be required to coordinate this role, by organizing various standards committees so that agreed standards for core geospatial datasets are developed. Standards should be developed for core datasets such as Roads, Administration Boundaries, Hydrography, Topgraphical Basemaps, Cadastral Data, Parcel Identification, Documentation of Datasets, and so on. Apart from spatial reference parameters such as projections, units, coordinate systems and datums, standards should also be developed for semantics used to develop the datasets.

In Uganda, governmental institutions and government agencies funded by donors are the major producers of spatial data. Therefore, they should play a key role in streamlining the standardization process. One practical way of fast-tracking standards development is to compel all institutions using public funds to capture spatial data to first seek guidance from the LIS institution on relevant standards for the production of data sets.

RECOMMENDATION

The LIS law should require the LIS institution to coordinate the development of standards for the LIS in Uganda. Standards should include geospatial data standards as well as standards for their metadata. All institutions intending to use public funds to generate spatial datasets should seek guidance from the LIS institution. In this way, the LIS institution can ensure that most datasets are developed to agreed standards.

5.3.5 Copyright and Land Information

Copyright is a branch of intellectual property law. Intellectual property law protects property interests in intangible things. Specifically for our purposes, it protects the property rights in creative endeavours of inventors and developers, and gives them certain exclusive economic rights, enabling them to profit from the creative rights or inventions.[123]

Intellectual property is a key issue in the context of spatial information. A land information service is engaged in compiling databases of land information, including map products. These efforts entail creativity, inventiveness and original endeavour. As already seen, the data content in land information may be expressed in graphic and textual form.[124]

Copyright is the exclusive right given to a creator to reproduce, publish, perform, broadcast and adapt a work. It is primarily concerned with preventing unauthorized duplication or copying of material. Copyright confers the exclusive right to control the distribution of the whole or a substantial part of the work, either in its original form or in any form recognizably derived from the original.

Our concern here is with intellectual property rights in land information. In our view, intellectual property laws should be enhanced so as to protect the interests of the data producers.

In Uganda, copyright law previously applied to *maps, plans and diagrams*.[125] However, there is no doubt that copyright law can be applied to many types of land and property information.[126] Indeed, all land and property-related information, both in text and in map form, may be subject to copyright.

Additionally, Geographic Information Systems, incorporating geographical data, involve hardware, software and duplicative procedures to support the capture, management, manipulation, analysis, modelling and display of spatially-referenced data.[127] To protect copyright to land information system data, legislation should protect data producers against the reproduction of that LIS data in any material form, including storage by electronic means. The legislation should cover data and compilations assembled by the LIS institution or contained in

123. *Geographic Information Science: Mastering the Legal Issues*, by George Cho, John Wiley & Sons, Ltd, 2005, at p.109, *et seq*.

124. Land registers have two main components: a textual description of each property; and a graphic representation or map, often containing dimensional information.

125. Under the repealed *Copyright Act*, Chapter 215, Laws of Uganda, Revised Edition, 2000.

126. Dale & McLaughlin, *Land Administration* (8.6 Intellectual Property Rights in Land and Property Information).

127. Cho, *Geographic Information Science: Mastering the Legal Issues*, p.131.

its registers. It should also cover the work of other people (including contributors of spatial data), as well as computer programmes, making copies, and any adaptation of original material.[128] That this can be done is now beyond doubt:[129]

> *After some initial uncertainties over the status of data stored in electronic form, it is now possible in many legal systems to protect intellectual property rights and investment in data through copyright law.*

Copyright law also allows data producers to protect their investment and to recoup some of the costs incurred in assembling the data. A substantial investment will have been made in creating topographic and cadastral maps, and in gathering and storing land-related data. In the case of Uganda, much of this investment will have been made by donor-funding or development partners. When the funds from these sources cease, the land information system must find other funding if it is to remain sustainable. While there are pertinent issues of accessibility to land information and data by the rural poor, there remains a compelling and overriding case for maintaining the LIS at a sustainable level. Consequently, the investment in data by data producers has to be protected through copyright laws, and the costs recovered through copyright fees.

Payment for the provision of land information is already an established practice in Uganda. For many years, there has been a fee for making searches and obtaining certified copies. The levying of fees (by whatever name the fee is called) for data is not a novel concept.

Protection of intellectual property in Uganda now flows from Article 26 of The Constitution which guarantees protection from deprivation of property. Also, Article 189 of The Constitution (Functions of the Government and district councils) spells out the functions and services for which Government is responsible. These are listed in the Sixth Schedule to the Constitution, item of 6 of which states that *copyrights, patents and trademarks and all forms of intellectual property* are the responsibility of the Government.

The legal and regulatory framework for copyright in Uganda is now contained in the *Copyright and Neighbouring Rights Act No.198 of 2006.* The purpose of the Act is to repeal and replace the Copyright Act, Chapter 215, Laws of Uganda, Revised Edition, 2000, and to provide for the protection of literary, scientific and artistic works and their neighbouring rights.

Section 5 (1) of the Act (Work Eligible for Copyright) lists the literary, scientific and artistic works that are eligible for copyright. Under Section 5(1)(e) they include computer programmes and electronic data banks and other accompanying materials. This would seem to extend to LIS databanks.

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128. See generally, Dale & McLaughlin, *Land Administration* (8.*6 Intellectual Property Rights in Land and Property Information*).

129. *Land Administration Guidelines*, UNECE, 1996, P. 48.

However, the general protection provided by the *Copyright and Neighboring Rights Act* is not in our view sufficient to protect data in the LIS. This, we consider, requires specific statutory protection. Furthermore, the copyright provisions have to be integrated with the inter-operability and inter-agency/custodianship relationships which are essential to a modern LIS requiring input of spatial information from numerous data producers.

Additionally, copyright protection must be balanced against:

i). rights of access to information, which are provided by the *Access to Information Act*, No 6 of 2005;

ii). the need to provide access to land information and data to the rural poor and others for whom access to juridical records is sparse and tenure security limited;

iii). the notion of the Land Register as a public record, as stipulated in the Registration of Titles Act;

iv). the openness and transparency provisions proposed to be included in the LIS Law; and

v). data-pricing policy.

This balance can, in our view, be achieved only in a stand-alone LIS Law.

Finally, we should note the provisions of the *Access to Information Act 6 of 2005*, as they relate to copyright. Under Section 4 (Interpretation) of the Act:

> ***"information"*** includes written, visual, aural and electronic information;
>
> ***"record"*** means any recorded information, in any format, including an electronic format in the possession or control of a public body, whether or not that body created it; and
>
> ***"proprietary information"*** means information relating to any manufacturing process, trade secret, trademark, copyright, patent or formula protected by law or by International Treaty to which Uganda is a party;

Section 5 of the Act confers on every citizen of Uganda a general right of access to information and records in the possession of the State or any public body.

But this general right is subject to the qualification in Section 3, which withholds access to *exempt records and information*. Then, Section 27(1) (Protection of commercial information of third party) makes proprietary information (as defined in section 4) exempt. However, Section 27(2) states that access to a record may not be refused under subsection (1) insofar as the record consists of information already publicly available.

At present, Section 201 (Searches and certified copies) of the Registration of Titles Act Cap. 230,[130] makes the information in the Land Register publicly available. The relationship between this provision and Section 27 of the *Access to Information Act* needs to be clarified, in view of our proposed data-pricing policies for cost recovery in the LIS law.

RECOMMENDATION

The proposed LIS law, by building upon Section 5(1)(e) of the Copyright and Neighbouring Rights Act No.198 of 2006, should provide for copyright in data in the LIS, protecting against access to or the reproduction of that data, including the storing of work in any medium by electronic means, in order to:

i). overcome any doubt in the existing copyright law about copyright to data in the LIS;

ii). protect the investment in the LIS, the SDI, and the data in them;

iii). help recover some of the costs of maintaining and/or enhancing the LIS, once established, including ensuring accuracy, volume and quality of data, at a sustainable level for continuity.

In short, the investment in data by data producers should be protected through copyright laws and the costs recovered through copyright fees.

The relevant legal provisions should be inserted in the proposed LIS Law, and not left to the Copyright and Neighboring Rights Act, 2006. The legislation must cater for the peculiar relationships and issues surrounding the capture, collection, maintenance, management, manipulation, analysis, modelling, display and disposal of spatially-referenced data by the LIS agency. The law should set out conditions under which certain information may be accessed by members of the public.

The LIS provisions on copyright should be harmonized with the licensing requirements proposed in relation to access to, custodianship of, and liability for and the pricing of, land information.

130. There is a similar provision in sections 177 and 178 of our *Draft Registration of Titles Act 2010*.

5.3.6 Liability for Land Information

The United Nations Economic Commission for Europe (ECE) observes in its *Guidelines on Land Administration* that as registers are increasingly computerized and linked into wide area networks, the law should define the extent of legal liability for data accuracy.[131] The Commission also observes that in the development of national land information systems, the organization that is chosen to manage the system must be able to adequately define the legal liability of both public sector and private sector data providers.

In many land administration systems, the practice has been for data to be guaranteed by the State. In our view, the same principle should apply in Uganda, while limiting the number of datasets that should be guaranteed. In our view, Government should guarantee both cadastral and topographical layers, since they are considered to be fundamental datasets. Our recommendations hinges on the consideration that without a Government guarantee of quality on such datasets, their value will be reduced and this will affect the usability of LIS in general.

The ECE also explores several prerequisites for the efficient handling of land information. It notes that to facilitate the use of land information databases for various land management applications, it is necessary to address a variety of administrative, juridical and organizational issues. Notably, one is legal liability for data.

The Commission gives the following brief description of the liability issues:-

> *"(d) Legal liability*
>
> *As increasing volumes of data become available and are used by both the public and private sectors in support of decision-making, liability for the accuracy of the data may arise. In some countries the State gives an unequivocal guarantee about the data held in the land registry so that if a mistake occurs, those who suffer in consequence will be paid compensation. The degree to which civil servants can be sued for negligence depends upon the jurisdiction."*[132]

Liability in law is a broad concept, embracing almost every type of duty, obligation, responsibility or risk arising by way of contract, tort or statute.[133] While a contract may regulate the extent of liability through agreed provisions, at common law, legal responsibility generally exists for an act or omission that causes harm to another person, including by negligence or

131. P. 32.

132. p.68.

133. *Black's Law Dictionary*, 7th Edition, 1999.

misrepresentation. Liability may also be created by statute.[134] Liability generally is measured against well established legal principles and standards.[135]

In Uganda, Section 5 of the *Access to Information Act, No. 6 of 2005*, gives citizens an entitlement to *accurate and up to date* information:

5. Right of access.

> *(1) Every citizen has a right of access to information and records in the possession of the State or any public body, except where the release of the information is likely to prejudice the security or sovereignty of the State or interfere with the right to the privacy of any other person.*
>
> *(2) For the avoidance of doubt, information and records to which a person is entitled to have access under this Act shall be accurate and up to date so far as is practicable.*

We note, however, that the Act does not make it clear whether any liability arises from breach of the entitlement in subsection (2).

The above discussion raises squarely the question: when does liability for land information/data occur? It is clear that an LIS organization may potentially be legally accountable for the accuracy and reliability of the information which it stores, sells or issues to the public. For example, potential legal liability could arise in the following circumstances:

i). Where harm is caused or economic loss sustained by a mistake in the land information (including a spatial or GIS dataset), or from a mistake not corrected once discovered.

ii). Where decisions are made on the basis of faulty land information, and the decisions cause harm or economic loss. Faulty spatial data or analysis can lead to poorly designed policies. Incorrect data entered into a GIS model may distort the results of an analysis, or a GIS analysis, while using correct data, may through poor reasoning or design result in spatial data inadvertently misrepresenting reality.[136]

iii). Where the information distributed leads to damage or loss, even if that information was used for purposes for which it was never intended. For example, maps are designed for specific uses, so that projections, scales, even different expectations of accuracy, make

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134. See infra, for discussion of provisions of the *Access to Information Act*.

135. Harlan Onsrud, *Geographic Information Legal Issues*, Harlan J. Onsrud, Department of Spatial Information Science and Engineering, National Center for Geographic Information and Analysis, University of Maine, USA, http://www.spatial.maine.edu/~onsrud/pubs/GILegalIssues.html#

136 . *Geographic Information Science, Mastering the Legal Issues*, by George Cho, Wiley, p. 359.

individual maps appropriate for only particular uses. At times, however, maps may be used in ways which were not intended by the data producer.

More basically even:

- users may simply be unaware of data errors or may not appreciate what the information represents;
- users of spatial data may not appreciate how the information has been derived from other data, or what computations have been performed on the raw data.[137]

However, it is clear that liability can arise generally for geographic data and information as well as for products from a land information system.[138] And it has been said that, in information systems, potential liability for harm or economic loss may result as much from use, misuse and inappropriate uses of accurate information as from decisions made using inaccurate information.[139]

This discussion makes it clear that liability under any proposed LIS in Uganda is a genuine issue. Important factors include:

- Existing staff are not (or have not yet been) exposed to LIS technology and administrative or service structures associated with a computerized LIS.
- Glaring inconsistencies exist in Ugandan land records. Reliance on the records can easily lead to loss. For example, at one time, a certain statutory corporation held freehold certificates of title for the bulk of Akii Bua Road, Nakasero, Kampala, which had been transferred to that corporation in the 1960s as part of its capitalization. Then in the 1990s when the policies of disengaging from housing civil servants were in progress, the Uganda Land Commission issued leasehold grants and the Titles Registry issued leasehold titles over many of the same properties. Similar inconsistencies were made for Solent Avenue in Mbuya. A search of the Freehold register would reveal the corporation as proprietor, while a search of the leasehold register would reveal various civil servants or former sitting tenants as proprietors.
- Society is becoming increasingly litigious. The propensity for litigation is increasingly fuelled by burgeoning information capabilities (including the internet).
- Fraudulent practices have been reported in the land registry, cadastral records, and other land administration records, and continue to bedevil land and real estate transactions in Uganda.

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137. *Legal Issues Relating to GIS*, by Margaret Lynch and Kenneth E. Foote, http://www.colorado.edu/geography/gcraft/notes/legal/legal_ftoc.html

138. George Cho, Wiley, p. 359.

139. Cho, above.

There is therefore a real need to protect the nascent LIS from the risk of liability claims which could seriously impede its development.

However, legal liability can be never be eliminated totally. In realisation of this, international practice is to seek to *reduce* liability through risk management strategies and sound business practices.[140]

One risk management practice is the appropriate use of exclusion clauses, disclaiming liability for certain actions. In the case of sale, distribution or disposal of spatial information, the relevant contract could incorporate a disclaimer of liability.

However, questions may arise about the efficacy of disclaimer clauses. Courts have developed rules protecting consumers against over-zealous exclusion clauses, so that not all clauses are legally enforceable.[141] Certainly they would not protect an LIS institution against complete non-performance of a contract. A party to a contract who does not carry out its basic contractual responsibilities cannot rely on an exclusion clause for protection.

A business practice that could help reduce exposure to legal liability, would be for the LIS authority to produce a handbook containing formal guidelines for dealing with the transfer of data both externally and internally. These guidelines could inform the LIS institution staff how to transfer data and what precautions to take before transfer. These guidelines could include details on:

- Circumstances in which data could or could not be handed out – e.g., if the data is subject to the Access to Information Act, or if privacy restrictions apply, and what forms are required. (Privacy, which is discussed elsewhere in this Paper, can impact on liability, e.g. when privacy or confidentiality is breached without legal justification or protection.)
- Restrictions on the use of information – e.g., if use is for academic purposes, the user could be required to sign a licence stating that the data, or any derived data, will not be passed on without the approval of the LIS institution. The LIS institution could also use the Guidelines to prohibit the on-selling of data to third parties—because if third parties are injured by reliance on the data, the LIS institution could be held accountable.
- Standard forms and/or licences should be used when distributing data.

The LIS law could also compel all data producers to supply metadata alongside the data. A minimum set of parameters of metadata should include positional accuracy, attribute accuracy,

140. See, for example, the risk allocation provisions of the *World Bank Standard Bidding Documents* for procurement, installation and maintenance of Information Technology.

141. In Uganda the Consumer Protection legislation is yet to be enacted and we are not aware as to whether a proposed/pending review (repeal and replacement) of the Contract Act will incorporate provisions for unfair contract terms, such as perhaps, the UK Unfair Contract Terms Act 1977.

date and method of collection, intended purpose, and recommended applications. These principles would require capacity-building among the producers and users of land information. The LIS institution should develop material in form of handbooks to educate and guide producers and users of land information on how to create, maintain and disseminate spatial information. This will minimise any errors or liabilities that may arise.

Liability-reduction and risk-management strategies should also be built into any licences or standard forms or web page notices, all of which should clearly spell out what a data user can and cannot do with the data. Limitations could include:-

- restrictions on use;
- restrictions on distribution to others (whether in electronic or soft form, or in derivative products such as printouts);
- copying of data.

Even in the case of freely available online software, such as PDF Acrobat Reader, or a number of websites containing freely-available resources (such as, in the land information area, GISDepot, ESRImaps, Africover, Global Landcover Facility-GLCF, OICRF),[142] an intending user must accept a user agreement before use is allowed. In the OICRF Website, for example, the intending user feeds in his or her name and e-mail, accepts the terms and conditions of use, and only then gains access to the document. Other sites require the user to provide an email address, and data is delivered electronically to that address only after the user has satisfied the access requirements—and the access requirements typically include the risk-allocation or liability-management requirements of the data producer. This facilitates the follow-up of any errant user.

These and similar functionalities can be incorporated into the LIS. We describe them here merely to illustrate potential solutions. They are not intended to replace any LIS system designs proposed by the System Consultants or supplied by the eventual provider of IT equipment and components at LIS implementation.

Other potential means of limiting liability could include provisions for:

i). *Force majeure*—excluding liability of the LIS institution for any event beyond its reasonable control, including circumstances for which the LIS institution may maintain disaster recovery.[143]

142. OICRF is a French Acronym for *International Office of Cadastre and Land Records (OICRF).* http://www.oicrf.org/

143. See, for example, the general conditions of the Standard Bidding Documents: Supply and Installation of Information Systems, The World Bank, March 2003.

ii). *Exclusion of liability for inappropriate use*—covering the use of information or data in a way which was not intended. This could be combined with a *"fit for purpose statement"*, where an explanation is given of the purpose for which the data was produced, so that it is not used out of its context.[144]

iii). *Capping limits of liability*—limiting the provider's liability to a stated amount. That amount could be the fees paid or payable by the data user for the data, on the basis that this is the maximum benefit that the data supplier derives from the transaction. If the supply is pursuant to a licence, then the liability for damages could be limited to the total fees paid by the licensee.

In information systems and transactions law, licences are the main medium for controlling access to and payment for a product. Licence agreements are designed to protect:

- the information from misuse;
- proprietary interests in the information;
- privacy and confidentiality in the information;
- the data producer from liability for the degree of accuracy of the information, or its subsequent alteration, modification or misuse;
- the content and arrangement of the data.

In terms of intellectual property rights, the licence is also a means of keeping the data out of the public domain.

The following are two illustrations of the use of licences to protect a land data provider from liability:

i). **Finland.** Section 6 (*Supply of data as information service*) of the Act on the Land Information System and Related Information Service (453/2002) provides that conditions concerning the search criterion, other use of the system, and related control issues, may be included in the licence.

ii). **Europe.** Article 14 of Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)[145] provides that an authority may require disclaimers or licenses before providing certain services, including:

(a) searches for spatial data sets;

144. *Australian Spatial Data Policy: Legal issues arising from data delivery via the Internet*, by Gypsy Bhalla, FIG Working Week 2007, Hong Kong SAR, China, May 2007. See also *INSPIRE Data Policy & Legal Issues Position Paper*, (paragraph *8.2 Liability & Fitness for Purpose*).

145. *Official Journal of the European Union*, L 108/1, 25.4.2007 EN.

(b) view services, making it possible, to display, navigate, zoom in/out, pan, or overlay viewable spatial data sets and to display legend information and metadata content;

(c) download services, enabling copies of spatial data sets to be downloaded and accessed directly;

(d) transformation services, enabling spatial data sets to be transformed with a view to achieving inter-operability.

An example of an extreme license limiting the product/service provider is the Limitation of Liability notice on the MapQuest Website:

> *UNDER NO CIRCUMSTANCES SHALL MAPQUEST, ITS PARENT, AFFILIATES, DIRECTORS, EMPLOYEES, DISTRIBUTORS, SUPPLIERS, AGENTS OR RESELLERS (COLLECTIVELY, THE "MAPQUEST GROUP") BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES THAT RESULT FROM THE USE OF, MISUSE OF, INABILITY TO USE, OR RELIANCE UPON THIS WEBSITE OR THE MATERIALS, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF USE, DATA, BUSINESS OPPORTUNITIES, OR PROFITS. THIS LIMITATION APPLIES WHETHER THE ALLEGED LIABILITY IS BASED ON CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR ANY OTHER BASIS...*

(See http://www.mapquest.com/features/main.adp?page=legal)

We would not go so far. An appropriate balance needs to be struck between liability-reduction and risk-management, on the one hand, and the need to assure users about the quality of the land information on the other. If liability for land information is too heavily disclaimed, its value in stimulating an efficient land market may be undermined.

Existing liability management practice in the Uganda Land Registry

Traditionally, the Land Registry has issued the following disclaimer:

> *As only personal searches are provided for under the Registration of Titles Act, this information is given on the understanding that no liability shall arise or be accepted from mistakes or misstatements therein.*

No similar disclaimer appears to be used in the Departments of Land Administration (including valuation), Surveys & Mapping, Physical Planning.

Section 22 of the *Survey Bill, 2005*, contains a provision for immunity from civil and criminal liability for the Commissioner, District Surveyors and authorised officers. The provision states that they are not, in a personal capacity, liable to any civil or criminal proceedings for any act done in good faith in the performance of their duties.

RECOMMENDATIONS

The proposed LIS law should provide a framework for responsibility for data quality, and liability for errors.

The Government should guarantee the fundamental cadastral layer, but with appropriate liability and risk management provisions to ensure that the cost of any liability claims arising out of the provision of land information does not undermine the sustainability of the LIS.

The LIS law needs to strike an appropriate balance between liability-reduction and risk-management on the one hand, and the need to assure users about the quality of the land information on the other hand. If land information is too heavily disclaimed, its value in stimulating an efficient land market may be undermined; but if the Government cannot guarantee quality, the value of the data is also undermined.

In order to reduce exposure to contractual legal liability, the proposed law should require the issue of a handbook containing formal staff guidelines for the transfer of data both externally and internally. These guidelines should inform staff of the LIS provider how to transfer data and what precautions to take before transfer. These guidelines may include details on:

- **circumstances in which the data can be released;**
- **restrictions on use, particularly in relation to on-selling data to third parties;**
- **standard forms and/or licences to be used when distributing data.**

Liability-reduction and risk-management strategies should also be built into any licence or standard forms or web page. Notices should clearly spell out what a data user can and cannot do with the data. Conduct regulated or prohibited can include:

- **restrictions on use;**
- **restrictions on distribution to others (whether in electronic or soft form, or whether by way of derivative products such as printouts);**
- **copying of data.**

Finally, providers of land information services (including all types of spatial data) should be compelled by law to provide meta-data, prescribing a minimum set of basic data description parameters.

5.3.7 Access to Land Information

Earlier, we emphasized the focal role of land-related information within Land Management, Land Information Management, and the overall Land Administration framework. Land Information Management includes the responsibility to ensure access to land information is adequately catered for. Matters relevant to land information include:

i. Physical access to land information, in the sense of search, retrieval, distribution and use. Distribution and use impacts on data-sharing, privacy and confidentiality, as well as on the legal protection of access to data.

ii. Pricing of land information, including issues of affordability and whether the information is priced beyond the reach of sections of the community.

iii. The distance which land information users have to travel to reach the nearest land information service.

The LIS law needs to prescribe rights of access to data. This includes prescribing who is authorized to enter or change entries on the registers; and who (if anyone) may use the information for purposes beyond those for which it was provided.

Privacy and confidentiality

Privacy and confidentiality are key issues which must be tackled in any significant review of access to land information.

Important considerations include the following:

i). Land information must be readily available, as it is crucial for the social and economic benefit of the community, including the operation of an efficient land market.

ii). However, confidentiality must be respected. The rights of land-owners (and other subjects of land-related information and data) must not be impinged upon by unnecessary intrusion, or by misuse of information.

Technological innovation has enormously expanded the potential uses of land information. This also increases the potential for abuse. Thus:

> *Geo-information is a double-edged sword, regarding its powers in providing instant access to vast amounts of data and the opportunity to abuse, to misinform, and to invade the privacy of individuals on a greater scale than ever before.*[146]

146. *Legal Aspects of Access to Geo-information within Indonesian Spatial Data Infrastructure*, by R. Abdulharisa , B. van Loenenb and J. Zevenbergenc, ISPRS Workshop on Service and Application of Spatial Data Infrastructure, XXXVI (4/W6), Oct.14-16, Hangzhou, China, quoting Cho, G., 1998, *Geographic Information System and the Law*, John Wiley and Sons.

While made in relation to *geo-information*, this statement is equally true in relation to LIS data.

Legislation is therefore required to balance the benefits of a modern land information system against the need to protect personal information.[147]

In Uganda the right of access to information flows from Article 41 of *The Constitution, 1995*. More recently, Parliament enacted the *Access to Information Act*, No. 6 of 2005 to give effect to article 41 of the Constitution, by providing a right of access to information held by organs of the State, other than exempt records and information.

The right of access to information under Act No. 6 of 2005 is, however, qualified. Specifically, the release of the information must not:-

- prejudice the security or sovereignty of the State; or
- interfere with the right to the privacy of any other person.[148]

Earlier, we noted the provisions of the *Access to Information Act*, No. 6 of 2005 as they relate to copyright. We will not repeat that discussion here, except to mention Section 201 of the *Registration of Titles Act* Cap. 230.[149] This section makes the information in the Land Register publicly available, by conferring a right of search.

There is a need to reconcile the publicity requirements for the Register with control of access. A key aspect of both land registration and cadastral legislation is that registers should be searchable by the public.[150]

> *The law should require a land register to be open to public inspection. This promotes a better property market performance and lower transaction costs.*[151]

147. *Issues in Land Information Management Paper No. 5: Privacy, Confidentiality and Access to Information in Land Information Systems*, Australia New Zealand Land Information Council, July 1992.

148. Section 5.

149. Elsewhere we have proposed replacing this provision with sections 177 and 178 of the *Draft Registration of Titles Act 2008* (now *Draft Registration of Titles Act 2010*).

150. *LIS Baseline Survey Report*, P.89-91. See also, http://www.unece.org/hlm/wpla/sessions/1st%20session/p7-99-5e.pdf

151. See also the Scottish perspective in '*Key Aspects of Land Registration and Cadastral Legislation*', by Ken Young, Registers of Scotland, *UNECE/MOLA Workshop on Managing and Developing Effective Registration and Cadastral Services*, September, 1999.

What constitutes personal information?

The *Access to Information Act* does not define *'personal information'*. However, Section 24 (Access subject to conditions) provides an indication of its meaning by allowing a request for information or records containing personal information relating to *the person requesting* the information. In so doing, it gives effect to the Individual Participation Principle, which derives from OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data.

Within the land information context, *personal information* may be characterised as information about an individual whose identity is apparent or can reasonably be ascertained from the information.[152] Land information systems generally collect and store information which can lead to a person's identification. This may include a person's name, and an identifier of the property in which that person has an interest (title reference, lot number, valuation number, street address).

A land information system must support dissemination of land information; but it must also respect personal information.[153] Achieving a balance can be difficult, all the more so when a land information system may provide material as extensive (and as revealing) as:

- the extent of a person's interest in the property (½ share, full owner, joint-tenant, etc);
- financial matters (mortgages and charges over the property), property values, rates and taxes, etc; and
- land use matters (developmental intentions, planning permissions, etc).

Emphasis on land-related data, not personal data

A fine line often exists between data that is perceived as personal and data that is perceived as non-personal. While it is inevitable that land information systems hold personal data (e.g. names, addresses) in order to function efficiently, the emphasis should be on land-related data. In our view, personal data should be held only as an adjunct to land-related data and to enhance the land-related data.

To illustrate different international practices,[154] in the Netherlands and Sweden the amount for which a property is mortgaged is treated as public information and can be seen by anyone who views the computerized registers. In England the information is regarded as private and is not publicly available; yet in Scotland that information (including also land price information) is

152. *Issues in Land Information Management Paper No. 5: Privacy, Confidentiality and Access to Information in Land Information Systems*, Australia New Zealand Land Information Council (ANZLIC), July 1992.

153. *Can International Lessons be learnt from the Development of National Land Information Systems?*, Martin Ralphs and Peter Wyatt.

154. *UNECE Land Administration Guidelines*, p. 32.

public.[155] In Uganda a search of the Register is usually done for due diligence purposes, to ascertain the existence of encumbrances on the land; and if a mortgage is registered, the searcher may obtain a copy.

What is the major concern, given that our Land Register has always been open?

Why should the continued provision of information, which has been publicly available for many years, be now seen as violating privacy standards? In our view, the need for concern arises from the powerful tools of the modern LIS. Land information can now be more vigorously collected, collated, updated and maintained, and accessibility is being revolutionized by ICTs. The volume of information now readily accessible is enormous, compared to the days of manual registers and manual searches. The power of the computer has revolutionized both the quantity of material and the ease with which it can be accessed and disseminated. Therein lies the threat to personal privacy. This is coupled with the additional possibility of manipulating digital information for improper purposes.

This gives rise to a related issue: when is supply or disclosure of information justified?

In our view, the proposed LIS law needs to reflect three key principles. They are:

i. Accountability

Land information managers should be accountable for any breach of measures that regulate access to land information.[156]

ii. Restriction of access to land information by direct marketers

Modern direct marketing techniques have the potential to misuse personal information. Land information managers should be required to withhold the supply of personal data from direct marketers or others who are trying to gain access to 'mailing lists'.

Preventing personal information from falling into the hands of direct marketers may be difficult, but should not be impossible. One way may be to require the person seeking information to state the purpose for which it is needed, or to request the enquirer to obtain the individual consents of the land data subjects.

iii Internal access controls

155. The Scottish perspective asks the question - *Should registers be open to the public?* in '*Key Aspects of Land Registration and Cadastral Legislation*', by Ken Young, Registers of Scotland, UNECE/MOLA Workshop on Managing and Developing Effective Registration and Cadastral Services, September, 1999.

156. See *Issues in Land Information Management Paper No. 5: Privacy, Confidentiality and Access to Information in Land Information Systems*, ANZLIC, 1992. See also Section 14 of the South African *Spatial Data Infrastructure Act* No. 54 of 2003.

The focus of access and privacy controls should not be limited to third parties who seek the supply of information. Internal access controls may be necessary, since an errant employee may access and abuse data, or supply and/or manipulate it for 'backdoor' marketing. The collusion of internal participants in the Land Registry has been much written about.[157] The Baseline Survey reports that:

> *Many previous studies ... confirm that Uganda did not avoid many of the problems indicated above. These are: the continuous degradation of land registers, "backdoor" corruptive practices, cumbersome and long procedure of land acquisition, title registration and as a result fraudulent certificates and frauds with the land rights are the realities of the land administration system in Uganda.*[158]

> *The overview of national press shows that some of the officials from the land registries and administration, local communities can be involved in such practices.*[159]

The Inspector-General's Report on Investigations into Alleged Mismanagement of the Land Registry in the Ministry of Water, Lands & Environment, March, 2007, also mentions internal collusion (see section 5.2.2, p.25, section 5.2.4.10 at p.32, and section 7.10 at p.52).

Controls will be needed within the LIS organization to ensure that information is not used internally in a way that impinges on privacy. One approach would be to publish the internal controls in the manual or handbook we have mentioned elsewhere, alongside managerial and ICT-access controls.

Handbook

We have already mentioned the concept of a handbook. Its provisions could be given legal effect by way of regulations or subsidiary legislation under the proposed LIS Law. The handbook could include such admonitions as:

a) Data collectors, custodians and users must not use or disclose personal information for any purpose other than that for which it was collected and provided.

b) Data provided must be adequate, relevant and not excessive in relation to the purpose for which it is requested.

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157. *Project Appraisal Document on a Proposed Credit to the Government of Uganda for a Second Private Sector Competitiveness Project*, Report Number: 29639-UG, dated July 7, 2004.

158. *Baseline Evaluation Report*, at p. 28.

159. Ibid, at p.50-51, section *5.3.3. Fraudulent practices problem in land administration.*

c) Data must be processed in accordance with the rights of the data subjects (ie, the people about whom information is kept); and those subjects should be protected from unauthorized or unlawful processing and against accidental loss, destruction or damage of information.

d) Data must not be transferred to a country outside Uganda or East Africa, unless that country ensures an adequate level of protection for the rights and freedoms of data subjects in relation to the processing of personal data.[160]

Use of License Agreements to regulate access

As mentioned earlier, licensing agreements can be used to curb access, and to prohibit re-organization, combination, manipulation and distribution of land information in a way that would contravene privacy or confidentiality concerns.

For example, real estate agents, or promoters of mortgage schemes, or developers of housing or building schemes, have the potential to obtain access to information collected and stored in land information systems, which can lead to the identification of individuals. Licensing agreements can provide useful protection here, in tandem with other measures in the legal and regulatory framework.[161]

Duties and obligations in licensing agreements could be backed up by incorporating a right of indemnity for the data provider, which could be enforced by civil litigation.

Developing user awareness of access restrictions

A land administration system is not primarily for the benefit of the authority charged with its implementation, but for the community as a whole. The community must therefore be made aware of how it works.

This awareness must feed into community participation in the system. For example, when land parcels are legally subdivided or when transfers of land or property take place, the authorities must be informed and the registers updated accordingly. This applies both to sales and inheritance. In many countries, merely passing laws to this effect is insufficient. The system is only kept up-to-date with the active support of the public.

When land reform occurs, those affected must be actively involved. Public meetings must be held to explain the reasons for the changes, and the media (such as radio and television) should be used to broadcast details.

160. For items (c) and (d), see *Baseline Evaluation Report* at p 107.

161. See also our *Draft Final Issues Paper on a proposed Real Estate Agents Law*.

We have seen how the growth of land information systems and the dissemination of information held in land and property registers threaten individual privacy. The public must understand the reasons for the level of information that is placed in the public domain, or else they may be tempted to find ways to keep the information off the registers. This could undermine the confidence that others have in the system, and significantly reduce the benefits of the system.

One mechanism for keeping the public informed is the distribution of leaflets explaining the system—how it works, and how the public should use it. More detailed "practice leaflets" may be issued to lawyers and other professionals, so that they may better understand the procedures they must operate.

It is essential that all parties concerned be aware of the costs, benefits and procedures to be followed in a land administration system. Promotion of the system requires careful planning. A land administration system requires effective marketing if its full benefits are to be realized.

Access and the distribution of Land Information Services

Lack of physical access to land information services is a genuine problem in a developing country such as Uganda. It can threaten the success of an LIS project. The facts are quite grim. For example, a land-user in Nebbi or Pader may not be able to lodge a caveat without first traveling to Kampala to have it embossed with stamp duty. In addition to lodgement fees and charges, travelling and accommodation costs will be incurred.

While this may be blamed on the revenue regulatory framework and its inefficiencies, a consequence is inefficiency in the land market and the dilution of its principal objectives.

Decentralization of the LIS in Uganda

The 2004 proposal for the design of a modern land information system for Uganda[162] laid out a plan for decentralization of the LIS in Uganda. The plan recommended a link between the sub-county land recorder and the districts. [163] That would allow the land recorder to get information from the system and also report changes to the district land office for updating the system.

The Land Act 1998 (LA98) established a decentralized system of land administration corresponding to the decentralization structure under the Local Governments Act, 1997. Below the District Land Boards and District Land Office, the LA98 established the institution of the Recorder to deliver land services at the sub-county/division level. The sub-county chief—the senior civil servant at sub-county level—is the land recorder, responsible for recording, for

162. *A Concept for a National Land Information System in Uganda*, Swedesurvey Project Team, March 2004.

163. Ibid.

example, certificates of customary ownership. But with some bleakness, the LIS Baseline Survey notes that:-

> *The land recorders are not functioning at all [and] although the sub-county chiefs are in place with other duties, they do not even know that they are supposed to act as recorders or what the role entails.*[164]

This has had detrimental consequences for land reform and land administration policies and frameworks established after The Constitution 1995. It has also contributed greatly to the failure of the dispute resolution mechanisms under the LA98. While it is not our task here to audit the success of reform and land administration policies and actions, we must record our view that the introduction of new (and in the case of the LIS, very expensive) projects and frameworks will not succeed if engineered only at the macro level. There must also be complete integration of the system at regional and local level. Only then will the goal of stimulation of a truly national efficient land market be achieved.

RECOMMENDATIONS

The LIS law must balance the benefits of a modern land information system with the protection of personal data.

In achieving the balance, the LIS law must also reconcile the need for openness and completeness of information with control of access to personal information, recognising that aggregation of integrated land and spatial data can result in infringement of privacy.

The LIS law must institute internal controls within the LIS organization to ensure that information is not used internally in a way that impinges on privacy. The internal controls could be published in a manual or handbook, along with managerial and ICT-access controls. The handbook could be given binding force by a statutory instrument made by the Minister.

The LIS law should make land information managers accountable for complying with measures which control access to land information, but without unduly obstructing the performance of their services.

The LIS law should ensure that land information managers withhold the supply of 'personal' data from 'direct marketeers' or from use for 'mailing lists'.

The LIS law should provide for licensing agreements to prevent licensees from re-organizing, combining, manipulating and distributing land information in ways that breach privacy or confidentiality.

The LIS law should address difficulties of physical access to land information.

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164. *Baseline Survey*, p. 19.

5.4 Technical/Technological Issues

5.4.1 Implementation Approach

Experience from other countries shows that implementation of an LIS is an expensive undertaking that requires considerable time and resources. In many countries, the process takes between 5-10 years or more, before a sizeable output is realised. During the implementation, innovative approaches may need be tested in small areas, before they can eventually be rolled out at national level.

Rather than embark on an ambitious project where a large amount of information is entered into the LIS causing data management challenges, we recommend an incremental approach, where priority and manageable information is entered first. More information can then be added progressively as the system matures.

In Uganda, the LIS priority should be focused on preventing further degradation of land records, by systematic scanning, digitising, rehabilitating and filing. This should be done in pilot districts, where the issues can be tested in a preliminary design of LIS. Pilot districts should be selected on the basis of: volumes of land records and transactions; land tenure systems; and accessibility to information communication technology infrastructure.

Recovery of records beyond pilot districts and data conversion should then follow, once a final LIS design has been reached. While developing the LIS, one priority should be evolving a Parcel Data Management System design that captures title registration data, including cadastral maps.

RECOMMENDATION

We recommend a phased implementation of the LIS that starts with securing and rehabilitating existing land records in pilot areas, with later implementation beyond the pilot areas after issues have been identified and addressed.

5.4.2 Parcel Identification

A uniform and consistent parcel identification number (PIN) is required to link all information in the LIS. Currently, a variety of systems are used for identifying parcels. In a land information system, variations in parcel identification may lead to confusion.

The need for a PIN is emphasized in the LSSP, and is recommended in all previous reports carried out in the Ministry. However, it has not yet been implemented.

While considering the format of a suitable PIN for the LIS in Uganda, major considerations are that the PIN must be:

- controlled by the system, unique, and not reusable;
- simple, user-driven, flexible and capable of being updated; and

- inexpensive to implement.

Given these qualities, some previous studies have suggested a PIN based on District-County-Subcounty/Township-Block and Plot Number. Although this PIN may be easy to remember, it may raise administrative issues. Administrative boundaries such as counties and districts change from time to time. However, this could be addressed by freezing political boundaries at some point in time, and basing all subsequent PINs on those fixed boundaries. (If necessary, the database could include an additional field to track later changes in administrative units.) We recommend this form of Parcel Identification Number.

RECOMMENDATION

The LIS law should implement a uniform and consistent Parcel Identification Number (PIN) to identify parcels across all registers and land tenure systems. It should be based on District–(County)-Subcounty/Township-Block and Plot Number.The PIN should be used by all the Departments in the Ministry of Lands Housing and Urban Development, Local Governments and other Institutions as the only method of identifying parcels for accessing information stored for each parcel of land.

5.5 Financing and sustainability issues

If a Land Information System is to be implemented in a sustainable manner, funding mechanisms must be in place to assist in the structuring of the short and long term financing of each component.

Successful implementation of an LIS to some extent depends on ability of the LIS institution/community on selling the benefits/gains of an LIS to the financiers. In developing countries, the main potential financiers of LIS implementation are governments, and international funding agencies, and (to a lesser extent) private users.

In developing countries it may be erroneous to assume that LIS activities should be funded purely from fees levied on private LIS users. This is because the private sector in developing countries is normally under-developed and utilization of spatial data is limited to a small community of users. Such a small community cannot finance expensive activities associated with LIS data collection. It is therefore inevitable that the government should fund specific aspects of LIS. Even in some developed countries such as France, mapping activities are still funded by government.

Recommendation:

We recommend that LIS funding mechanisms should initially be based on the consideration that LIS components are for the public good and hence require government funding.

6 Summary of recommendations

SUBJECT	RECOMMENDATION
Definition of Land Administration.	This issues Paper adopts the following definition of *Land Administration*: *"the process of determining, recording and disseminating information about ownership, value and use of land, when implementing land management policies"*
Definition of LIS	We recommend the following LIS definition: *a tool for legal, administrative and economic decision-making and an aid for planning and development. A land information system consists, on the one hand, of a database containing spatially referenced land-related data for a defined area and, on the other, of procedures and techniques for the systematic collection, updating, processing and distribution of the data. The base of a land information system is a uniform spatial referencing system, which also simplifies the linking of data within the system with other land-related data.*
Form of Land Information System (LIS)	*On the basis of the international best practice, our judgment and on the basis of recommendations in Government commissioned reports, we recommend that the Ministry begin with a parcel-based LIS, to be incrementally transformed into a multi-purpose cadastre or universal LIS.*
Governance Structure for the LIS organization - A statutory Authority or Semi-Autonomous Institution?	*We recommend the development of a semi-autonomous institution (Uganda Land Information Infrastructure—ULII) with a secretariat—The Uganda Land Information Centre (ULIC)—hosted by the Ministry of Lands, Housing and Urban Development. The Institution should be administered by a steering committee appointed by the Minister. Key staff of the Centre (Secretariat) could be hired on contract basis and given contracts that are pegged to performance.*
Running Parallel Manual & Computerized Land Recording Systems	*The paper-based manual records should continue to be the principal legal registers until the proposed computerised Land Information System has reached maturity. Until then, efforts should be made to ensure that both the paper-based records and the electronic records are accurate and are synchronized.* *The legal framework for establishing and maintaining an electronic register of titles has already been set out in the draft Registration of*

SUBJECT	RECOMMENDATION
	Titles Bill, 2010, which we submitted in conjunction with our Draft Final Issues Paper on Registration of Titles. In addition, however, the proposed LIS law should establish a legal basis for establishing and maintaining an electronic facsimile of the Valuation, Survey & Mapping, Physical Planning and other Land Administration records. *The proposed LIS law should also provide for the continuity of the powers, functions and responsibilities of the statutory officers in charge of the functions of Survey & Mapping, Physical Planning and Land Administration, and define the obligations of these departments towards the proposed LIS.* *The proposed LIS law should also authorize the conversion to electronic form (and maintenance in that form) of all documents and records that are part of the Land Register at the coming into force of the LIS Law. The same should apply to all records pertaining to land that are kept by or stored in the departments of, Survey & Mapping, Physical Planning and Land Administration. The object would be to ensure that, under the LIS law, the records could be maintained and organized electronically, and have full legal effect.* *The proposed LIS Law should also provide for keeping 'back-up' copies of registers.* *Finally, the LIS law should authorise the Minister to make subsidiary legislation for the detailed prioritization, phasing-in and other operational aspects of the transition, and any incidental and transitional provisions as may be recommended by the steering committee of the Uganda Land Information Infrastructure (ULII). The aim would be to make the transition to electronic record-keeping as smooth and convenient as possible.*
Correction of Errors resulting from Rehabilitation and Validation of Registers	*The LIS law should impose a statutory duty to examine and verify land records and data before the information is entered into the LIS. It should also provide for the Steering Committee to authenticate any exercise of scanning, geo-referencing, examination and verification of graphical and textual land records and data carried out in any ad hoc procedures before the LIS law comes into force. Where there is discrepancy between information verified on the ground and information in the register, the newly verified information should take precedence.* *Government should encourage voluntary submission of land records for verification. Voluntary verification can be encouraged by fast-*

SUBJECT	RECOMMENDATION
	tracking into the LIS and providing a fast-track desk for verified titles.
Updating of the LIS	*The proposed LIS Law should establish and detail the statutory duty to update the information in the LIS. The provision should include a framework for the custodians and the data producers who supply datasets to the LIS to update their databases. The statutory duty should particularly apply to data custodians and other producers of datasets who are either local governments or public authorities, or private persons who use public funds to capture data.*
Custodianship of Land Information	*The proposed LIS law should clearly define "ownership" and "custodianship" of land information and other spatial data and then provide for its custodianship. It should also provide for:* • *the duties and responsibilities of a custodian;* • *the interrelationship between various custodians, and the relationship between them and the LIS organization;* • *the protection of data in the custody of a custodian;* • *the interrelationship between custodianship of land information, copyright over land information, and liability in relation to land information;* • *any related matters.*
Funding and Pricing	*The long-term funding strategy for the LIS organization should gradually and progressively be based on collection of fees for registration, search and delivery of information, and from the sale of information to other authorities and the business sector. However, since it is the duty of the government to provide certain spatial information for national development, Government should subsidize certain key functions which may not be commercially viable. These functions may include production of a national base map. The capacity of the LIS organization to fund itself should be evaluated at the end of the third phase of the LIS implementation project.* *Pricing policy should eventually be based on cost-recovery. At an appropriate time after operationalisation of the LIS, and when confidence has been built and a critical mass of transactions achieved, the cost of access to the LIS might be driven by commercial demand.*

SUBJECT	RECOMMENDATION
	An appropriate cost recovery mechanism should then be implemented. *The LIS Committee, in consultation with stakeholders, should develop the detailed pricing mechanism.* *Pricing policy should also take into account the risks of liability posed by decentralization, particularly potential liability for the performance of DLO functions.*
Admissibility of Computer Records as Evidence in Court	*In view of the technological challenges of setting up and maintaining a secure digitized LIS, and one that will inspire confidence in its integrity:* *1. In the short-to-medium term:* *a) The manual records should remain primary evidence of land transactions.* *b) Digital evidence should be admissible as secondary evidence where the court is satisfied that:* *iii) the person seeking to introduce the evidence can authenticate the reliability and security of the computer system that generated, processed or stored the evidence; and* *iv) the evidence is of the type and in the form of information which is acted on in the ordinary course of business.* *2. In the longer term, after the computer-based LIS is fully operational and its use and reliability generally accepted, the Minister by statutory instrument may make rules accepting computer records as primary evidence.*
Standards for Data, Metadata and Applications	*The LIS law should require the LIS institution to coordinate the development of standards for the LIS in Uganda. Standards should include geospatial data standards as well as standards for their metadata. All institutions intending to use public funds to generate spatial datasets should seek guidance from the LIS institution. In this way, the LIS institution can ensure that most datasets are developed to agreed standards.*
Copyright and the Land Information	*The proposed LIS law, by building upon Section 5(1)(e) of the Copyright and Neighbouring Rights Act No.198 of 2006, should provide for copyright in data in the LIS, protecting against access to or the reproduction of that data, including the storing of work in any*

SUBJECT	RECOMMENDATION
	medium by electronic means, in order to: *i). overcome any doubt in the existing copyright law about copyright to data in the LIS;* *ii). protect the investment in the LIS, the SDI, and the data in them;* *iii). help recover some of the costs of maintaining and/or enhancing the LIS, once established, including ensuring accuracy, volume and quality of data, at a sustainable level for continuity.* *In short, the investment in data by data producers should be protected through copyright laws and the costs recovered through copyright fees.* *The relevant legal provisions should be inserted in the proposed LIS Law, and not left to the Copyright and Neighboring Rights Act, 2006. The legislation must cater for the peculiar relationships and issues surrounding the capture, collection, maintenance, management, manipulation, analysis, modelling, display and disposal of spatially-referenced data by the LIS agency. The law should set out conditions under which certain information may be accessed by members of the public.* *The LIS provisions on copyright should be harmonized with the licensing requirements proposed in relation to access to, custodianship of, and liability for and the pricing of, land information.*
Liability for Land Information	*The proposed LIS law should provide a framework for responsibility for data quality, and liability for errors.* *The Government should guarantee the fundamental cadastral layer, but with appropriate liability and risk management provisions to ensure that the cost of any liability claims arising out of the provision of land information does not undermine the sustainability of the LIS.* *The LIS law needs to strike an appropriate balance between liability-reduction and risk-management on the one hand, and the need to assure users about the quality of the land information on the other hand. If land information is too heavily disclaimed, its value in*

SUBJECT	RECOMMENDATION
	stimulating an efficient land market may be undermined; but if the Government cannot guarantee quality, the value of the data is also undermined. *In order to reduce exposure to contractual legal liability, the proposed law should require the issue of a handbook containing formal staff guidelines for the transfer of data both externally and internally. These guidelines should inform staff of the LIS provider how to transfer data and what precautions to take before transfer. These guidelines may include details on:* • *circumstances in which the data can be released;* • *restrictions on use, particularly in relation to on-selling data to third parties;* • *standard forms and/or licences to be used when distributing data.* *Liability-reduction and risk-management strategies should also be built into any licence or standard forms or web page. Notices should clearly spell out what a data user can and cannot do with the data. Conduct regulated or prohibited can include:* ▪ *restrictions on use;* ▪ *restrictions on distribution to others (whether in electronic or soft form, or whether by way of derivative products such as printouts);* ▪ *copying of data.* *Finally, providers of land information services (including all types of spatial data) should be compelled by law to provide meta-data, prescribing a minimum set of basic data description parameters.*
Access to Land Information	*The LIS law must balance the benefits of a modern land information system with the protection of personal data.* *In achieving the balance, the LIS law must also reconcile the need for openness and completeness of information with control of access to personal information, recognising that aggregation of integrated land and spatial data can result in infringement of privacy.* *The LIS law must institute internal controls within the LIS*

SUBJECT	RECOMMENDATION
	organization to ensure that information is not used internally in a way that impinges on privacy. The internal controls could be published in a manual or handbook, along with managerial and ICT-access controls. The handbook could be given binding force by a statutory instrument made by the Minister. *The LIS law should make land information managers accountable for complying with measures which control access to land information, but without unduly obstructing the performance of their services.* *The LIS law should ensure that land information managers withhold the supply of 'personal' data from 'direct marketeers' or from use for 'mailing lists'.* *The LIS law should provide for licensing agreements to prevent licensees from re-organizing, combining, manipulating and distributing land information in ways that breach privacy or confidentiality.* *The LIS law should address difficulties of physical access to land information.*
Technical/Technological Issues, Contents of Data for LIS and Implementation Approach	*There should be a phased implementation of the LIS, that starts with securing and rehabilitating existing land records in pilot areas, with later implementation beyond the pilot areas after issues have been identified and addressed.*
Parcel Identification	*The LIS law should implement a uniform and consistent Parcel Identification Number (PIN) to identify parcels across all registers and land tenure systems. It should be based on District–(County)-Subcounty/Township-Block and Plot Number.The PIN should be used by all the Departments in the Ministry of Lands Housing and Urban Development, Local Governments and other Institutions as the only method of identifying parcels for accessing information stored for each parcel of land.*

Appendix 1 : Disposition of comments of LRWG

This Appendix summarises our responses to the comments of the LRWG on our earlier Draft Issues Paper on LIS.

It will be seen that we have generally followed the LRWG's suggestions. Where we have not done so, reasons are given.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
12	Definition of Land Administration	*This Issues Paper adopts the following definition of Land Administration.* *"the process of determining, recording and disseminating information about ownership, value and use of land, when implementing land management policies"*		No action required
16	Definition of LIS	*We recommend the following LIS definition: a tool for legal, administrative and economic decision-making and an aid for planning and development. A land information system consists, on the one hand, of a database containing spatially referenced land-related data for a defined area and, on the other, of procedures and techniques for the systematic collection, updating,*		No action required

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		processing and distribution of the data. The base of a land information system is a uniform spatial referencing system, which also simplifies the linking of data within the system with other land-related data.		
21	Form of Land Information System (LIS)	*That the Ministry begin with a parcel-based LIS, to be incrementally transformed into a multipurpose cadastre or universal LIS.*	We agree with the recommendation because this is the practice. However, the mentioned multi-purpose LIS should be inclusive of issues of deaths, marriages, etc.	Recommendation modified as proposed. However, it may not be appropriate to bind future development at this stage by over-specific data. We have therefore included a blanket statement that does not limit the scope of LIS in terms of information that should be stored. [165]
31	Governance Structure	*We recommend the development of a semi-*	We recommend the LIS organization starts out as a semi-	We agree that the LIS should be a semi-autonomous

165. For information, we record that the LIS in New Brunswick (Service New Brunswick) operates four registries of public information:
- the Real Property Registry – deeds, wills, subdivision plans, etc. related to land parcels in New Brunswick;
- the Personal Property Registry – security interests, judgments, and other claims related to personal property such as automobiles, recreation vehicles, and furniture;
- the Corporate Affairs Registry – corporations, partnerships, and business names registered in New Brunswick;
- the Vital Statistics Registry – vital events data (births, stillbirths, marriages, and deaths), vital events certificates, change of name, churches/religious denominations seeking to perform marriages in New Brunswick.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
	for the LIS organization - A statutory Authority or Semi-Autonomous Institution?	*autonomous Institution (Uganda Land Information Infrastructure - ULII) with a secretariat - The Uganda Land Information Centre (ULIC) hosted by the Ministry of Lands Housing and Urban Development. The institution should be administered by a steering committee appointed by the Minister.*	autonomous department under the Ministry and on the basis of its performance; it can gradually become autonomous as recommended by the consultants. We have noted the financial & administrative implications involved.	institution under Ministry of Lands Housing and Urban Development. However, we suggest that it should not be a Department but semi-autonomous. The staff under the institution should be employed under different terms from civil servants of the Ministry. This change has been added and emphasized in our recommendations and draft Bill.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
37-38	Running Parallel Manual & Computerized Land Recording Systems	*The paper-based manual records shall continue to be the principal legal registers until the proposed computerized LIS has reached maturity. Until it achieves sustainability, the facsimile digital or computerized LIS under development should be used to enhance the efficiency and integrity of the paper-based manual records and to ensure that the paper-based records and the electronic records are at the same level of accuracy, and are synchronized.* *The legal provisions for keeping an electronic register of titles have been catered for by the draft Registration of Titles Bill, 2008 (now, Draft Registration of Titles Bill 2010). Nevertheless, the proposed LIS law should establish a legal basis and authority for the establishment and maintenance of the electronic facsimile records of the Valuation, Survey &*	We agree with the recommendation in principle, though both record systems should be left to co-exist. The integrity and accuracy of the two records should be maintained, i.e the paper-based and electronic records should bear the same information.	Concern noted; this action is catered for in our recommendations.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		Mapping, Physical Planning and Land Administration authorities. *The proposed LIS Law should also provide for the continuity of the powers, functions and responsibilities of the statutory officers in charge of the functions of Survey & Mapping, Physical Planning and Land Administration and define the obligations of these departments towards the proposed LIS.* *The proposed LIS law shall also authorize the conversion to and maintenance as electronic documents or records for all documents and records that were part of the Land Register as at the coming into force of the LIS Law and all records pertaining to Land that are currently kept by or stored in the departments of Valuation, Survey & Mapping, Physical Planning and Land Administration so that pursuant to the LIS Law they*		

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		may be maintained, represented and organized electronically in accordance with the LIS Law and have legal effect and be operative under the LIS Law. *The proposed LIS Law should also provide for the keeping of 'disaster' copies of registers.* *The Law should also provide for the Minister to make subsidiary legislation regarding the detailed prioritization, phasing or other operational aspects of the transition and any such incidental, supplemental, consequential and transitional provision as may be recommended by the steering committee of the Uganda Land Information Infrastructure (ULII), so to make the transition to electronic record-keeping as smooth and convenient as possible for both users and Land Registry.*	There is no department of valuation. It is a division whose functions fall under Land Administration department. There is no 'disaster' copy. We have 'back-up' copies, whether electronic or manual. Recommended to delete the last words "*<u>for both users & Land Registry</u>*" so as to avoid complications.	Noted and error corrected Corrected Complied
40	Correction of Errors	*The LIS law should impose a*	The verification process should	It is anticipated that these

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
	resulting from Rehabilitation and Validation of Registers	*statutory duty of examination and verification of land records and data before the information is entered into the LIS. These provisions should also provide for the authentication by the Steering Committee of any exercise of scanning, geo-referencing, examination and verification of graphical and textual land records and data which was carried out in any ad hoc procedures before the coming into force of the LIS Law. Where there is discrepancy between the information verified on the ground and the information in the register, the new verified information should take precedence.* *Government should present to the stakeholders the desirability of incorporating provisions in the LIS law for voluntary submission of land records for verification. The attractiveness of voluntary verification of land records can be reinforced by fast-*	be handled by technical persons from the respective departments having representatives in the steering committee, i.e. Heads of the various departments, e.g. land administration, land registry, Survey & mapping, physical planning and Uganda Land Commission.	user departments will be part of the steering committee of the LIS Authority. However, for clarity, we have specified them.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		tracking into the LIS and a fast-track desk for verified titles. This will also publicize the benefits of the LIS as well as increase the data-capture, take-up rate and consequently correction of errors or isolation of erroneous, flak or fraudulent records.	'Flak' should be replaced with a user-friendly word such as 'questionable'.	Complied
42	Updating of the LIS	*The proposed LIS Law should contain a provision establishing and detailing the statutory duty to update the information in the LIS. That duty should embrace the custodians and the data producers who supply datasets to the LIS. In this regard, the law should impose stronger duties on data custodians and other producers of datasets who are local governments or public authorities than it imposes on private sector participants.*	The consultant's recommendation should be simplified to state to the effect that the Law should specifically provide for un update of the LIS records by both the departments concerned as well as the public.	Text simplified and modified.
47	Custodianship of Land Information	*The LIS law should clearly define "ownership" and "custodianship" of land information and other spatial*		No action required

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		data and then provide for its custodianship. It should also provide for: *- the duties and responsibilities of a custodian;* *- the interrelationship between various custodians, and the relationship between them and the LIS organization;* *- the protection of data in the custody of a custodian;* *- the interrelationship between custodianship of land information, copyright over land information, and liability in relation to land information;* *-any related matters.*		
55-56	Pricing of Land Information	*The funding of the LIS organization should gradually be based on collection of fees for registration, search and delivery of information and from the sale of information to other authorities and the business sector. At the end of that third phase (3 years) the*	3 years is ambitious. We recommend looking at a long-term operational phase during a time at which the LIS Organization will reasonably believe it can function appropriately with the funds available.	This recommendation has been modified to allow a reasonable time for the LIS organization to assess whether it has achieved self sustainability. We have also recommended that Government should fund non-commercially viable

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		LIS organization should completely base its funding on user fees. *Pricing policy should also follow the cost recovery principle.* *The proposed LIS law should envisage that at an appropriate time after operationalisation of the LIS, and when confidence has been built and a critical mass of transactions achieved, access to the LIS might be driven commercially by demand. An appropriate cost recovery mechanism should therefore be build into the LIS.* *The LIS Committee, in consultation with stakeholders, should develop the detailed pricing mechanism.* *Pricing policy should also take into account the risks posed by the Districts and the decentralization structure due to the potential liability that can arise out the performance*		functions, at least in initial stages.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		of DLO functions and this factor be included in the cost of the data.		
72	Admissibility of Computer Records as Evidence in Court	*In view of the technological challenges of setting up and maintaining a secure digitized LIS, and one that will inspire confidence in its integrity, it is recommended that:* *1. In the short to medium term:* *a) The manual records remain primary evidence of land transactions.* *b) Digital evidence be admissible as secondary evidence where Court is satisfied that:* *i) The person seeking to introduce the computer based evidence can authenticate to the reliability and security of the computer system that generated, processed or stored the evidence in issue.* *ii) The evidence is of the type and in the form which has been*	In the spirit of harmonising the Cyber proposed laws (i.e Electronic Transactions Bill) with this recommendation, we suggest that manual records should be the only acceptable evidence in Court. The Electronic Transactions Bill is to the effect that "The Act does not apply to: . . . (d) documents that create or transfer interests in property and require registration to be effective against third parties."	In our view, by suggesting that manual records remain the only evidence, we would be undermining the process for computerization of the Land Registry and LIS. Therefore, we have retained our recommendation and hope that this will be further discussed by other stakeholders.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		consistently acted or relied upon in the ordinary course of business. *2. In the long run, and after the computer based LIS has been fully set up and its use and reliability generally accepted, the Minister can by statutory instrument make rules for the acceptance of computer records as primary evidence.*		
74	Standards for Data, Metadata and Applications	*The LIS law should provide for the LIS institution to coordinate the development of standards for LIS and geo-spatial data in Uganda. All institutions intending to use public funds to generate spatial datasets should seek guidance from the LIS Institution. In this way, the Institution will ensure that most datasets are developed to agreed standards.*	We agree with this recommendation but add that there is need for further details as to what standards are envisaged by the consultants. Standards are required for data and record storage and use. The PIN is one of the Standards.	More details have been added on what standards to develop
78	Copyright and the Neighbouring Rights Act	*We recommend that the proposed LIS law by building on Section 5(i) (e) of the Copyright and Neighbouring*	We have identified a weakness in this provision and agree that there is a need for protection of Spatial Data Information but	No action required in this Report.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		Rights Act No.198 of 2006 provisions for copyright to the data in the LIS, against the access or the reproduction of that LIS data in any material form, including the storing of work in any medium by electronic means in order to:- *i). avoid any doubt in the existing copyright law about copyright to the data in the LIS.* *ii). protect the investment in the LIS, the SDI, and the data therein;* *iii). facilitate the recovery of some of the costs of maintaining the LIS and or enhancing the LIS, once established, including the accompanying considerations like accuracy, volume and quality of data, at a sustainable level for continuity. Consequently, the investment in data by data producers be protected through copyright laws and the*	apparently the laws in this regard are inadequate. LIS works are copyrightable under sections 5 (1)(e) & (h) and 8 of the Copyright and Neighbouring Rights Act. Much as it was noted that public works are generally not copyrightable (sec. 7 – Copyright Act & sec. 201 R.T.A), it was agreed that the main purpose of copyrighting LIS works is to raise revenue. We suggest that the law should set out conditions under which certain information may be accessed by members of the public.	Modification made

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		costs recovered through copyright fees. *The pertinent legal provisions be inserted into the proposed LIS Law, as opposed to relying solely on the statutory framework in the general Copyright and Neighbouring Rights Act, 2006 so as to cater for the peculiar relationships and issues surrounding the capture, collection, maintenance, management, manipulation, analysis, modelling, display and disposal of spatially referenced data by the LIS agency. These relationships and issues are not appropriately and sufficiently provided for by the Copyright and Neighbouring Rights Act, 2006.* *The LIS provisions on copyright should also be harmonized with the licensing requirements proposed in respect of access to, custodianship of, liability for and the pricing of land*		

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		information.		
86	Liability for Land Information	*The proposed LIS legislation should clearly define a framework of responsibility for data quality and liability for errors.* *The Government should guarantee the fundamental cadastral layer but with a measure of liability and risk management provisions to ensure that the cost of liability claims arising out the land information does not derail the LIS. An appropriate balance needs to be struck between liability and risk management provisions and the need to assure users about the quality of the land information. If the land information is so heavily disclaimed, its value for purposes of stimulating an efficient land market may be undermined. If the Government cannot guarantee quality, this may reduce the value of the data.*		

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		In order to reduce contractual legal liability exposure the proposed law should prescribe for the issue of a handbook containing a formal set of guidelines to be established, not only dealing with the transfer of data externally but also internally. These guidelines should inform the staff of the NLIC how to transfer data and what precautions to take before transfer. These guidelines may include details on: *- under what circumstances the data could be handed out* *- restrictions on use.* *NLIC can also use these Guidelines to prohibit the on-selling of data to third parties, because if they are injured by reliance on the data NLIC could be held inconvenienced;* *Standard forms and/or licenses could be used when distributing data.*	We propose that for better implementation of the system, LIS Centre should issue a handbook to guide the users and producers on creation, maintenance and dissemination of information, so as to minimise any errors or liabilities that may arise.	Adjusted.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		Liability reduction and risk management strategies should also be built into License or standard forms or web page notices which clearly spell out what a data user can do and is not allowed to do with the data. The risk allocation or liability management proscription inbuilt into these functionalities can include:- *- Restrictions on use;* *- Restrictions on distribution to others (whether in electronic or soft form or derivative products such as printouts);* *-Copying of data.* *Finally, providers of LIS including all types of spatial data should be compelled by the law, to provide meta-data prescribing a minimum set of basic data description parameters.*		
94	Access to Land	*Legislation is required so as to attain (or at the least, make an effort) to strike the necessary*		**No action required**

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
	Information	*balance between the benefits of a modern land Information System, and the duty and obligation of protecting personal data. The LIS law should endeavour to achieve this balance.* *The LIS law should also endeavour to reconcile the publicity requirements for the Register, and the control of access. Publicity and openness of the Land Register is one of the key aspects of land registration and cadastral legislation, while the aggregation of integrated land and spatial data can result into infringement of privacy.* *The LIS law should emphasise that the land information system is based on land related data, not on personal data.* *The LIS law will require internal controls within the LIS organization to ensure that information is not used internally in a way that*		

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		impinges on privacy. A suggested approach is to publish the internal controls in the manual or handbook mentioned in the Liability section, alongside the managerial and ICT access controls. The handbook may be given legislative binding force via a statutory instrument made by the Minister. *The LIS law should make land information managers accountable for complying with measures which give effect to (or have been put in place for) controlling access to land information without unduly imperiling the performance of their services, as would demotivate or demoralize personnel.* *The LIS law and land information managers should withhold the supply of 'personal' data which is held in the system from 'direct marketeers' or where it is intended to be used for*		

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		'mailing lists'. *The LIS law should procure the use licensing agreements to curb the access, (including the further access beyond the second party) reorganization, combination, manipulation and distribution of land information in such way as would contravene privacy or confidentiality concerns.* *The LIS should address access in terms of physical distance, particularly in Uganda where Land Registries are not even available at the District level.*		
95	Technical/Technological Issues, Contents of Data for LIS and Implementation Approach	*The Consultants recommend phased implementation that starts with securing and rehabilitation of land records, validating existing records for four pilot areas and implementation beyond pilot areas after issues identified in a preliminary design have been addressed.*	The recommendation for four pilot districts should be more detailed with regard to why four areas have been chosen.	The number of pilot districts has been removed. Considerations for selection of pilot districts have been included.
96	Parcel Identification	*A uniform and consistent Parcel Identification Number*	The Uniformity in the PIN should also encompass	Change implemented.

Page	Subject	Recommendation By Consultant	LRWG	Action Taken
		(PIN) should be used to identify parcels across all registers and Land Tenure Systems. It should be based on District – (County)-Sub-county/Township-Block-Plot number.	surveying and valuation. It should fall within the standards set up.	

B) General recommendations from LRWG:

The consultants should have widened their consultations to involve other stakeholders such as Surveyors.	A number of surveyors were consulted in fact consulted. However, there will be further consultations during presentation of the Issues Paper to the stakeholders.
The definitions in the issues paper should be addressed at the drafting stage.	Noted. We have done this in our Draft LIS Law attached to this Paper – See Appendix 2.
The systematic Demarcation, Adjudication and Titling with a view of populating the LIS is a policy matter that needs serious consideration under the drafting of the National Land Policy.	Noted.

Comments

There should be some unit to take care of the infrastructure	The LIS centre will be responsible for the Infrastructure.
That the land registry being independent was not considered.	This Paper (and our Draft Final Issues Paper on Registration of Titles) considers the status of the Land Registry. The Land Registry will remain a Department in the Ministry.
The different departments feeding the LIS should not be removed from them.	We are not sure what is meant by this comment.
That all the departments should be connected to the system as it is done in the Ministry of Finance.	The proposed LIS is developed along the same principles as IFMS of the Ministry of Finance.
That the technical officers responsible for verification of records and steering them in the system should be people that the information can be relied upon.	We agree.
That the three year pilot project is okay and if it is stretched to 10 years then the programme will be overstretched	Noted.
That before going into LIS all land in Uganda should be first surveyed and marked	Systematic Demarcation should continue as the LIS is being developed. The data from SD will directly feed into the LIS.
That LIS is not a body, it is a system.	We consider that is has elements of both: it can be seen as a system, but it can also be a body or infrastructure.
That the quality checks should be done by the departments.	Noted.
That there is no bar to having two check ups.	Noted.

The consultants should give comparative studies i.e how it is done in other countries	We do in fact cite considerable literature from other countries.
The element of the district should not be left to the district. Districts are not efficient. Data bases should be developed at the district and fed into the main frame.	Noted. This can be done under our recommendations.
That there is need to rely on manual evidence than electronic evidence.	This is catered for in our recommendations, where manual evidence is considered to be primary evidence.
The issue of secondary evidence should be done away with.	This needs further discussion. Otherwise, we cannot justify computerizing land records.
If the law does not permit online search, then the system becomes useless.	We agree. The law should permit online searches.
That focus should be put on legalizing the system.	Noted.
The system should be implemented when the responsible officers are ready.	Noted.
Software capturing all the participants should be in place	Noted.
A further search [further research?] should be done. LIS should correspond with GIS.	We see these two terms as synonymous.
The consultants should look at the E-commerce Electronic Signature Bill.	OK
LIS should not give you the identity of the user.	This is open to debate. An open Register leads to greater transparency and confidence in the integrity of the system. Currently, it is easy to get the name of the property owner.

Appendix 2 : National Land Information Infrastructure Bill

THE REPUBLIC OF UGANDA

A BILL FOR AN ACT

ENTITLED

THE NATIONAL LAND INFORMATION INFRASTRUCTURE ACT

An Act to establish an institution to administer certain land information and provide and promote a modern, integrated, sustainable and accessible land information system, for and other connected or incidental matters.

BE IT ENACTED BY PARLIAMENT as follows:

PART 1 PRELIMINARY

1 Commencement

(1) This Act commences on a date or dates to be appointed by the Minister.

(2) The Minister may appoint different dates for different parts of the Act as well as for different parts of the country.

2 Interpretation[1]

In this Act except where the context otherwise requires:

(a) "ULII" means the Uganda Land Information Infrastructure established under section 4;

(b) "Committee" means the steering committee established under section 7;

(c) "Minister" means the Minister responsible for land;

(d) "land information" includes information about, or related to, any point, line, surface or space, the location of which is fixed by reference to the earth, whether or not it is wholly on, under, or above the surface of the land or any water;[2]

(e) "land" includes rights to land as well as the physical, economic, administrative and tenure aspects of land;

(f) "LIS" means the land information system provided for in this Act.

3 Objectives of Act[3]

The objectives of the Act are to establish a land information system that will:

(a) provide a modern, efficient, relevant and transparent land system which can satisfy the land information needs of Government bodies, business and the citizens of Uganda;

(b) facilitate the collection of land information through cooperation among relevant Government bodies, local authorities, and others;

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1 The interpretation section may be further developed, depending on technical inputs into this Draft.

2 This definition is deliberately wide, and is based on legislation in Western Australia. In addition to physical information about land, the definition encompasses a wide range of socio-political-economic and legal information about or related to land. This include: demography, value of the land, nature of interests pertaining to the land, encumbrances, information about planning use or restrictions on use (eg wetland, public roads etc). In short, the definition should capture almost any information that in some way relates to or about land.

An alternative definition, based on a (slightly revised) version of the International Federation of Surveyor's definition (and quoted Swedsurvey Report, 1996, p 2) is "a database containing land information and the procedure and technique for systematic collection, updating, processing and distribution of the information".) For consistency, we have substituted the term "*land information*" for "spatially land related data for a defined area" used in the IFS's definition.

3 These objectives are deliberately detailed, so as to highlight particular functions.

(c) promote the use and sharing of land information in support of planning and socio-economic development;

(d) eliminate duplication in the collection and use of land information;

(e) promote the development and documentation of consistent standards for land information in Uganda;

(f) facilitate the development of investments, land transactions and credit systems;

(g) improve security of tenure;

(h) facilitate the land rights of vulnerable groups;

(i) support the decentralization of land administration; and

(j) make land information more accessible on both the national and local levels for:

(i) better planning and administration; and

(ii) facilitating the development of land markets.

PART 2 THE UGANDA LAND INFORMATION INFRASTRUCTURE

4 Establishment of the ULII[4]

(1) There is established an institution to be called the Uganda Land Information Infrastructure (ULII).

(2) The ULII is a body corporate with perpetual succession and a common seal.

(3) The ULII is capable on its own behalf of:

(a) acquiring and holding property;

(b) suing and being sued; and

(c) doing all acts and things that corporate bodies may lawfully do or allow to be done.

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4 This section and the following sections establish an LIS institution, as recommended in the Draft Final Issues Paper on Land Information Systems, paras 5.1.2 and following. The final form of the LIS instituion—in particular, whether a government department, or a semi-autonomous statutory authority, or the ULII along the lines we recommend — is of course a matter for government decision.

(4) The ULII is under the general supervision of the Minister.[5]

5 Functions and powers of the ULII[6]

(1) The ULII is to implement the objectives of this Act, so far as finances and practicalities permit.

(2) The ULII's main functions are to establish, maintain, administer, and provide access to, land information systems as the laws of Uganda require, including information in relation to:

(a) land surveying data and maps;

(b) land registration and certification;

(c) land rights and obligations;

(d) allocation of public land or publicly-controlled land;

(e) land use planning and management;

(f) strategy plans, including environmental plans, disaster management plans, and infrastructure plans; and

(g) land values.

(3) Without affecting the generality of subsections (1) and (2), the ULII is to:

(a) perform the role of the main land information provider at the national level, and as a core element of the land and spatial information infrastructure;

(b) spearhead the development of computerised databases for land registration, cadastral surveying, land use planning, valuation, and land administration;

(c) develop strategies for providing land information services to clients, including the banking system, real estate companies, developers and investment institutions;

(d) assist the District Land Offices (DLOs), and similar bodies, in managing local land information databases;

(e) provide methodological support to DLOs and similar bodies in land registration and cadastral activities;

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5 This is deliberately vague at this stage. The final draft will depend on the status of the Institution and its relationship to Government, when that decision is made.

6 These functions may require restating, once decisions have been made on the scope and status of the Authority.

(f) maintain a LIS centralized database as a mirror copy of any decentralized databases;

(g) promote land information data exchanges;

(h) link all land information databases, so as to provide timely access to land information for users of land information; and

(i) build the capacity of relevant departments and organisations to implement and maintain land information databases;

(j) develop, in line with government policy, a computerized land information system, both central and decentralised, to facilitate:

  (i) fast, secure, efficient and technology-supported land information inquiry;

  (ii) land transactions;

  (iii) submission of documents; and

  (iv) the collection, storage, retrieval and accessing of land information held within the ULII and government departments;

(k) rehabilitate, maintain and update existing land records;

(l) update geographic information, and develop data standards for future definitions, content, spatial referencing, and accuracy;

(m) facilitate the collection and sharing of land information through cooperation among government bodies, local authorities, and other agencies and persons dealing in or with land-based information;

(n) eliminate duplication in the collection of land information among government bodies and local authorities;

(o) advise government on policies , procedures and processes of maintaining a modern, accessible and sustainable land information system;

(p) disseminate information on the LIS and promote pubic awareness of it;

(q) promote capacity-building by encouraging and facilitating training of key personnel in relevant information technology skills;

(r) charge fees for goods and services provided by the ULII in the performances of its functions under this Act or any other Act;

(s) grant exemptions from the payment of any fees for goods and services provided by the ULII under this Act or any other Act;

(t) coordinate and monitor the performance of the LIS;

(u) ensure observance of proper safeguards in the establishment of procedures, processes and guidelines for the LIS so as to minimize the instances of fraud and assure the integrity of theLIS; and

(v) perform any other functions or activities as the ULII may consider necessary or advisable or as the Minister may direct.

(4) The land information which the ULII provides under this section may contain information which it has no strict legal duty to record.

(5) The ULII may also provide and administer (and provide access to information in) land information systems other than those required by laws of Uganda.

(6) The ULII may recommend to the Minister regulations for the implementation of this Act, including (but not limited to) regulations in relation to:

(a) generating, processing, storing, sharing and accessing information;

(b) standards;

(c) pricing;

(d) legal liability for accuracy of information;

(e) copyright ownership; and

(f) any other matters the ULII considers necessary or appropriate to carry out its powers or functions under this Act.

6 Strategic development plan

(1) The ULII must develop and maintain a strategic development plan.

(2) The strategic development plan must contain the ULII's medium to long term objectives in performing its functions under this Act or any other legislation.

(3) When preparing the strategic development plan, the ULII must take into account (in addition to other matters the ULII may consider appropriate):

(a) the need to develop and modernize Uganda's land information systems in line with modern technology;

(b) the need to promote socio-economic development;

(c) the need to develop appropriate land information systems suitable for Uganda's circumstances and people;

(d) national strategic policies;

(e) directions given by the Minister; and

(f) views of stakeholders including investors, relevant professional bodies and NGOs.

(4) The strategic development plan must be prepared in accordance with the following procedure:

(a) Before each financial year the ULII must prepare and submit to the Minister for approval, a strategic development plan for the next 5 financial years.

(b) The Minister may from time to time by written notice to the ULII fix a date in each year by which a strategic development plan is to be submitted.

(c) If there is no date fixed by the Minister, the ULII must submit the strategic development plan not less than six months before the start of the following financial year.

(d) The Minister must make comments on the strategic development plan not later than two months after its receipt.

(e) The Minister may direct the ULII to consider or further consider or revise any matter in the strategic plan.

(f) The ULII must comply with the Minister's directive as soon as practicable.

(g) Once the Minister approves the strategic development plan, it becomes the ULII's plan for the relevant financial year; if the year has already commenced, it becomes the ULII's plan for the remainder of the year.

(h) The ULII must publish a summary of the strategic development plan after the plan has been approved by the Minister.

(5) The ULII may modify a strategic development plan with the approval of the Minister.

(6) The Minister may direct the ULII to modify a strategic development plan.

7 The Uganda Land Information Infrastructure Committee

(1) There is established a steering committee, to be called the Uganda Land Information Infrastructure Committee (the Committee).

(2) The Committee is comprised of up to 12[7] members.

(3) The Minister appoints the Committee members. In doing so, the Minister nominates one appointee as the Chairperson and another as the Deputy Chairperson.

(4) In appointing Committee members, the Minister is to ensure that:

(a) as a group, the appointees have the knowledge and experience needed to enable the ULII conduct its statutory functions effectively;

(b) the Committee is composed of, or represents the views and interests of, the consumers of land information, including:[8]

(i) government departments;

(ii) the commercial and finacial sector;

(iii) Ugandan citizens;

(iv) legal and real estate experts;

(v) academia.

8 Functions of the Committee

(1) The Committee is responsible for the discharge of the functions and duties of the ULII.

(2) Without affecting the generality of subsection (1), the Committee is to:

(a) prepare the strategic development plan referred to in this Act; and

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7 This number may need expanding as the scope of work and expertise of the body expands.

8 This list is not exhaustive; it reflects the views expressed in the Draft Final Issues Paper on Land Information Systems, para 5.1.3, but may need expanding.

(b) advise the Minister or relevant organ of state on:

(i) matters referred to the Committee by the Minister or any relevant organ of state,

(ii) matters regarding the capture, management, maintenance, integration, distribution and use of land information; and

(iii) matters the Committee considers necessary or expedient for achieving the objectives of the LIS.

(3) The Committee must submit an annual report to the Minister, reporting the activities of the ULII and making any recommendations for improving the functioning of the ULII.

(4) The Committee may appoint one or more subcommittees for the effective performance of its functions under this Act, and may:

(a) delegate any of its functions to a subcommittee;

(b) direct the subcommittee to perform the tasks the Committee considers appropriate;

(c) at any time revoke the delegation to a subcommittee;

(d) despite any delegation, itself exercise a delegated function;

(e) co-opt experts or persons with special skills who are not members of the Committee as non-voting members of a subcommittee; and

(f) designate a member of a subcommittee as chairperson of the sub-committee.

9 Eligibility as Committee member

A person is eligible to be appointed as a member of the Committee if he or she:

(a) is of good character and of high integrity;

(b) has never been convicted of a crime of moral turpitude or involving financial loss or fraud;

(c) has the relevant professional knowledge and expertise; and

(d) has no other duties or interests that might conflict with his or her position as a member of the Committee.

10 Tenure and terms of service of Chairperson and other Committee members

(1) The Chairperson of the Committee is to hold office for a term of five years and is eligible for reappointment for another term not exceeding five years

(2) The other members of the Committee are to be appointed for a term not exceeding three years, and may not serve more than two consecutive terms unless the Minister considers that appointment for a longer period will be beneficial to the Committee.

(3) Any other terms and conditions of service are as specified by the Minister, after consultation with the Minister of Finance, in the instruments appointing Committee members.

11 Removal from office of a Committee member

(1) A member of the Committee ceases to hold office if the member

(a) resigns by giving in writing one month's previous notice to the Minister;

(b) ceases to meet the eligibility requirements in section 9;

(c) is removed by the Minister for:

(i) gross misconduct, or infirmity of mind or body

(ii) incompetence;

(iii) inability to perform the functions of his or her office due to infirmity of mind or body;

(d) is declared a bankrupt; or

(e) is absent from two consecutive members of the Committee or of a subcommittee of which he or she is a member, without the permission of the Committee;

(2) A person also ceases to be member of the Committee if he or she is recalled by, or ceases to be associated with, the institution that he or she represented when appointed.

12 Meetings of the Committee

(1) The Chairperson presides over the meetings of the Committee. If the Chairperson is absent, the Deputy Chairperson presides.

(2) The second schedule to this Act applies to the meetings of the Committee.

(3) The Committee may appoint a person who is not a member of the Committee to attend its meeting as a consultant, but that person is not entitled to vote at the meeting.

13 Managing Director

(1) The Committee is to appoint a Managing Director to be responsible to the Committee for the day to day operations of the ULII.

(2) Without affecting the generality of subsection (1), the Managing Director is responsible for:

(a) developing strategic plans to guide the ULII in achieving its objectives and submitting them to the Committee for approval;

(b) developing management plans for the sustainable implementation of the LIS;

(c) developing economic, efficient, and cost-effective internal management structures, procedures and processes;

(d) developing existing, and establishing new, land information facilities at local and district level, in order to facilitate a national LIS;

(e) preparing estimates of income and expenditure to the Committee for approval;

(f) the administration and control of the other officers and staff of the ULII, subject to the direction of the Committee; and

(g) any other function that the Committee may assign to him or her.

(3) The Managing Director must at all time keep the Committee informed of the business and activities of the ULII, and must prepare quarterly and annual reports for the Committee.

(4) The terms and conditions of service of the Managing Director are to be specified in the instrument of appointment.

(5) The provisions of section 11(1)(a)-(d) regarding the termination of appointment of a member of the Committee apply equally to the position of the Managing Director.

14 Secretary

(1) The Committee is to appoint a Secretary to the Committee.

(2) The Secretary is responsible for:

(a) arranging the business of the Committee' meetings;

(b) keeping a record of the proceedings of the Committee; and

(c) such other duties as the Committee may direct.

(3) The terms and conditions of service of the Secretary are to be specified in the instrument of appointment.

(4) The provisions of section 11(1)(a)-(d) regarding the termination of appointment of a member of the Committee apply equally to the position of the Secretary.

15 Disclosure of material personal interest

(1) A member of the Committee who has a material personal interest in a matter being considered, or about to be considered, by the Committee must, as soon as possible after the relevant facts have come to the member's knowledge, disclose the nature of the interest at a meeting of the Committee.

(2) A member of a subcommittee appointed by the Committee who has a material personal interest in a matter being considered, or about to be considered, by the subcommittee must, as soon as possible after the relevant facts have come to the member's knowledge, disclose the nature of the interest at a meeting of the subcommittee.

(3) Subsection (2) applies to a member of the Committee who is a member of the subcommittee, even though the person has already disclosed the nature of the interest at a meeting of the Committee.

(4) A disclosure under subsection (1) or (2) is to be recorded in the minutes of the meeting.

16 Chief Registrar of Titles

(1) The Minister, on the recommendation of the Committee, is to appoint a Chief Registrar of Titles, who is to be an employee of the ULII.

(2) The Chief Registrar of Titles must carry out the duties and functions of the Chief Registrar of Titles under the Registration of Titles Act and any other relevant law, as well as ensure the integration of the Land Register into the LIS in accordance with the provisions of this Act.

17 Security of tenure of the Chief Registrar of Titles

(1) Subject to the provisions of this Act, the terms and conditions of service of the Chief Registrar of Titles are as specified in his or her instrument of appointment.

(2) The Chief Registrar of Titles may only be removed from office for cause on the recommendation of an independent commission of inquiry appointed by the Minister under the provisions of the Commissions of Inquiries Act.

18 The Commissioner of Surveys and Maps and Chief Valuer[9]

(1) The Minister, on the recommendation of the Committee, is to appoint a Commissioner of Surveys and Maps and a Chief Valuer as provided for under the Surveys Act the Registration of Titles Act respectively, and who are to be employees of the ULII.

(2) The Commissioner of Surveys and Maps and Chief Valuer must, at the time of their appointment, possess the qualifications and expertise as well as fulfill any conditions that may be specified in the respective Acts mentioned in subsection (1).

19 Terms and conditions of service of the Commissioner of Surveys and Maps and Chief Valuer

(1) The terms and conditions of service of the Commissioner of Surveys and Maps and Chief Valuer are to be as specified in their instruments of appointment.

(2) The Committee may only terminate the appointment of the Commissioner for Surveys and Maps or the Chief Valuer for:

(a) misconduct or incompetence;

(b) inability to perform the functions of his or her office due to infirmity of body or mind;

(c) conviction for a crime involving moral turpitude or fraud; or

(d) being declared bankrupt.

20 Functions of the Commissioner of Surveys and Maps and Chief Valuer

(1) The Commissioner for Surveys and Maps and the Chief Valuer must carry out all the functions and responsibilities given to them under the Surveys Act and the Registration of Titles Act respectively, this Act and any other Act.

(2) Without affecting the generality of subsection (1), they must, working together with other stakeholders, ensure the modernization, integrity

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[9] Since the functions of surveying and valuing are crucial to the process of land registration and generate a lot of land related data, they should be administered by the same Act (although different Acts may be governing their technical aspects).

and accessibility of the LIS by feeding into the LIS timely and accurate data from their respective fields.

21 Other officers and staff of the ULII

(1) The Committee may, on the advice of the Managing Director, appoint other officers and staff of the ULII as may be necessary for the effective performance of the functions of the ULII.

(2) The employees appointed under this section hold office on the terms and conditions specified in their instruments of appointment.

22 Employees of the Directorate of Lands and Surveys[10]

(1) The ULII must, on the effective date of its operations, accept into its employment every person who:

(a) meets the criteria to be set by the Committee in consultation with the Minister and Minister responsible for Finance; and

(b) was, immediately before the commencement of this Act, an employee of the Directorate of Lands and Surveys and was given an option to serve by the ULII, and has opted to serve as an employee of the ULII.

(2) A person employed by the Directorate of Lands and Surveys at the time of the commencement of this Act:

(a) ceases to be an employee of that Directorate; and

(b) is to be paid terminal benefits and pension in accordance with his or her existing terms and conditions of service.

(3) A person who is not accepted as an employee of the ULII is entitled to terminal benefits and pension in accordance with his or her existing terms and conditions of service.[11]

PART 3 FINANCES AND ACCOUNTABILITY

23 Funds of the ULII

The funds of the ULII are to consist of:

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10 Although technically this is a transitional provision, it seemed useful to deal in this Act with all matters relating to the staff of the Authority.

11 Another option would be for these persons to be absorbed elsewhere into the civil service.

(a) money appropriated by Parliament for the purposes of the ULII;

(b) fees charged for services rendered by the ULII under this Act;

(c) revenue earned from activities of the ULII under this Act;

(d) grants, gifts or donations from the Government or other sources made with the approval of the Minister responsible for finance; and

(e) any other funds received by the ULII in the performance of its functions under this Act.

24 Duty to operate sound financial principles

The Committee must, in discharging its duties in relation to the ULII, perform its functions in accordance with sound financial and commercial practices and ensure that revenue is sufficient to meet expenditure.

25 Power to open and operate bank accounts

(1) The Committee is to open and maintain such bank accounts as are necessary for the performance of its functions.

(2) The Committee must ensure that all money received by or on behalf of the ULII is banked as soon as practicable after being received.

(3) The Committee must ensure that no money is withdrawn from or paid out of any of the bank accounts of the Committee without the authority of the Committee.

26 Borrowing powers

The Committee may, with the approval of the Minister given in consultation with the Minister responsible for finance, borrow money from any source as may be required for meeting its obligations or for the discharge of the functions of the ULII under this Act.

27 Investment of surplus funds

Any funds of the ULII not immediately required for any purpose under this Act may be invested in a manner which the Committee may, after consultation with the Minister and the Minister responsible for finance, determine.

28 Estimates

(1) The Managing Director must, within two months before the end of each financial year, cause to be prepared and submitted to the Committee for its approval, estimates of the income and expenditure of the ULII, and the operating plan for the next financial year.

(2) The Committee must, within two months, cause to be submitted to the Minister for his or her approval, the estimates of income and expenditure submitted by the Managing Director under subsection (1) as approved by the Committee.

29 Financial year of the ULII

The financial year of the ULII is the period of twelve months beginning on the first day of July in each year and ending on the 30th day of June in the next calendar year.

30 Accounts

(1) The Managing Director must cause to be kept proper books of accounts and records of the transactions of the ULII.

(2) Subject to any direction given by the Minister, the Committee must cause to be prepared and submitted to the Minister and the Minister responsible for finance in respect of each financial year, and not later than three months after the end of the financial year, a statement of accounts, which must include:

(a) a balance sheet, a profit and loss account and a source and application of funds statement: and

(b) any other information in respect of the financial affairs of the ULII as the Minister responsible for finance may, in writing requires.

31 Audit

(1) The Auditor General must, in each financial year, audit the accounts of the ULII.

(2) The Committee must ensure that within four months after the end of each financial year, a statement of accounts described in section 34(2) is submitted to the Auditor General for auditing.

(3) The Auditor General must be given access to all books of accounts, vouchers and other records for the ULII, and is entitled to any information and explanation required in relation to those records.

32 Annual and other reports

(1) The Committee must, within three months after the end of each financial year, submit to the Minister, a statement of its activities in the preceding financial year, containing such information as the Minister may require.

(2) The Committee must also submit to the Minister, such other reports on its activities or on any other matter as the Minister may, from time to time require.

33 Service of documents

Any notice or document may be served on the ULII by delivering it at the office of the Managing Director or by sending it by registered post to the Managing Director.

PART 4 MISCELLANEOUS

34 Exclusion of liability

(1) Except where otherwise provided by this Act or any other legislation or by express agreement between the ULII and any other person, the ULII does not guarantee the accuracy of any land information supplied and is not responsible for any loss or damage resulting from the use of such information.

(2) A member of the Committee, or an employee of the ULII, or a person acting on the directions of such a person, is not personally liable for any act or omission done or omitted to be done in good faith in the exercise of the functions of the ULII.

35 Registration of Titles Act to prevail[12]

If an inconsistency or conflict arises between the provisions of this act and the provision of the Registration of Titles Act, the provisions of the Registration of Titles Act prevail to the extent of the inconsistency or conflict.

36 Review of Act[13]

(1) The Minister is to carry out a review of the operation and effectiveness of this Act as soon as practicable after five years from the commencement of the Act.

(2) In the course of review the Minister must consider and have regard to:

(a) the effectiveness of the operations of the ULII; and

(b) the need for the continuation of the functions of the ULII; and

(c) any other matter that appear to the Minister to be relevant to the operation and effectiveness of the Act.

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12 This is for more abundant caution, to ensure continued security of titles. It may be useful to extend this paramountcy to the Land Act as well.

13 Given the importance of this legislation, a compulsory review of the Act after 5 years seems appropriate. This draft is based on the provision in Western Australia.

(3) The Minister must prepare a report based on the review and as soon as practicable cause the report to be laid before Parliament.

37 General offences[14]

A person who:

(a) is found in possession of a certificate of title or any other document which has been fraudulently issued;

(b) without due authority, alters, moves, destroys or defaces any boundary mark set by an authorized surveyor;

(c) fails to sustainably manage, maintain and control any register mentioned in this Act in accordance with this Act;

(d) counterfeits or issues without due authority, any document or certificate of title or any other information provided for under this Act;

(e) submits false information at any stage of processing a certificate of title, cadastral map or any other document under this Act or any other relevant Act,

(f) intentionally damages any hardware or software being used in the LIS;

(g) counterfeits, alters, obliterates or defaces any stamp, mark, or sign on any certificate of title, map or any other document issued under this Act,

commits an offence and is liable to imprisonment of five years or a fine of forty currency points or both.

38 Penalties

A person who contravenes any provision of this Act for which no penalty is provided is liable:

(a) in the case of a first offence, to a fine not exceeding thirty current points or imprisonment for a term not exceeding five years or both; and

(b) in the case of a subsequent offence, to a fine not exceeding forty currency points or imprisonment for a term not exceeding five years or both.

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14 We are assuming that computer-related fraud/criminal activities are covered by the Penal Code; if not, they should be added to the list in this section.

39 Regulations[15]

The Minister may make regulations for the better carrying into force the purposes of this Act and may, in particular, make regulations for:

(a) the principles by which fees and any other charges for services rendered under this Act may be determined by the ULII or any other responsible body in consultation with the Minister responsible for Finance;

(b) guidelines for accessing the LIS at the national and local levels;

(c) guidelines for setting up the appropriate LIS both at the national and local level.

(d) the manner and specifications for the collecting of land information;

(e) the purposes for which land information provided by the ULII maybe used);

(f) legal protection of the copyright of the Government or any other person in land information in the ULII's custody

40 Amendment of Schedules

(1) The Minister may, by statutory instrument, with the approval of the Minister responsible for finance amend the First Schedule.

(2) The Minister may by statutory instrument amend the Second Schedule.

41 Transfer of Assets and liabilities of Lands and Surveys

All property and assets vested in the Directorate of Lands and Surveys before the commencement of this Act vest in the ULII, subject to all interests, liabilities, obligations and trusts affecting the property.

SCHEDULE 1

CURRENCY POINT

A currency point is equivalent to twenty thousand shillings.

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15 This provision, and the regulations themselves, will need refining once decisions are made on a number of matters in our Draft Final Issues Paper.

SCHEDULE 2

MEETINGS OF THE COMMITTEE[16]

1 Meetings of the Committee

(1) The Chairperson presides at all meetings of the Committee; and where he or she is absent from any meeting, the Deputy Chairperson or, where both the Chairperson and the Deputy Chairperson are absent, such other member as the members present may elect presides at the meeting of the Committee.

(2) Meetings of the Committee must be held at intervals of not less than three months at such place and time as the Chairperson may, from time to time, determine.

(3) The Chairperson must, if requested by notice in writing signed by not less three members of the Committee, convene a special meeting of the Committee within fourteen days beginning with the date when he or she receive that notice.

(4) All acts, matters and things authorised under this Act to be done by the Committee are to be decided by a resolution at a meeting of the Committee at which a quorum is present by a majority of votes of the members present and voting on the act, matter or thing.

2 Quorum

(1) At any meeting of the Committee, one half of the members constitutes a quorum.

(2) Every member of the Committee has one vote, and in the event of an equality of votes the person presiding at the meeting has a second or casting vote.

3 Validity of proceedings not affected by vacancy

The validity of any proceedings of the Committee is not affected by a vacancy in its membership, or by any defect in the appointment or qualification of a member.

4 Committee may regulate its procedure

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[16] See section 15(2) of Draft Act. The provisions of this Schedule are merely for illustrative purposes. The final provisions for regulating meeting of the Board will need revision in the light of decisions on various aspects of the Final Draft Issues Paper.

(1) Subject to this Act, the Committee may regulate its own procedure, including the manner in which matters subject to the determination of the Committee are to be determined by or on behalf of the Committee.

(2) A decision of the majority of the members present and voting at a meeting of the Committee is deemed to be the decision of the Committee.

5 Notices

(1) Notice of the time, place and agenda of every meeting of the Committee is to be served by or on behalf of the secretary on every member of the Committee either personally or by leaving it at his or her usual place of residence or at his or her business address:

(a) in the case of ordinary meetings not less than seven days before the meeting; and

(b) in the case of special meetings not less than twenty-four hours before the meeting,

but the accidental omission to serve the notice on any member of the Committee does not affect the validity of any meeting.

(2) Minutes of the proceedings of every meeting of the Committee must be regularly entered in a book to be kept for that purpose by the Secretary; and the minutes must be confirmed at the next meeting of the Committee and, when so confirmed, must be signed by the person presiding in the presence of the members of the Committee.

6 **Transaction of business by circulation of papers**

The Committee may, if it thinks fit, transact any of its business by the circulation of papers; and a resolution in writing approved in writing by all the members of the Committee is as valid and effectual as if it had been passed at a meeting of the Committee by the votes of the members so approving the resolution.

7 Byelaws

(1) The Committee may, with the approval of the Minister, make byelaws respecting the management and conduct of the profession of surveyors or any matter connected with the functions of or the proper exercise, discharge or performance by the Committee of its functions under this Act.

(2) Without limiting the generality of clause (1), the byelaws may provide for

(a) the manner in which books of account are to be kept by the Committee;

(b) the appointment, discipline and dismissal of officers, servants and employees of the Committee;

(c) the remuneration of officers, servants and employees of the Committee.

(3) Despite the Interpretation Act, unless the Minister otherwise directs, it is not necessary to publish by statutory instrument any byelaws made under this provision.

[End]