INTERNAL REQUIREMENTS FOR e-LAND ADMINISTRATION IN NEPAL

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March, 2011

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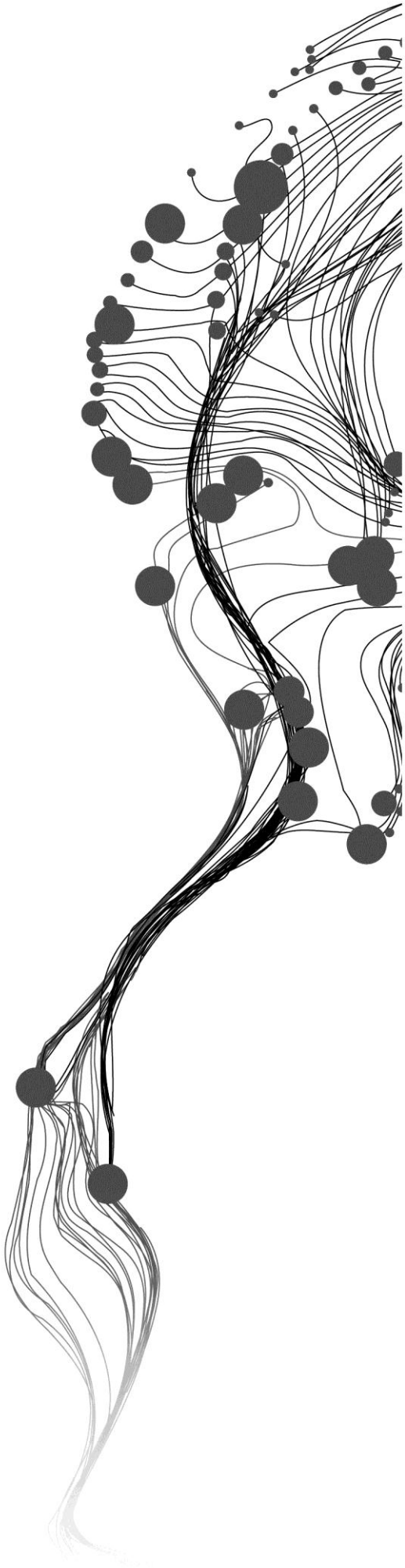

INTERNAL REQUIREMENTS FOR e-LAND ADMINISTRATION IN NEPAL

R.M.S.B. RATNAYAKE

Enschede, the Netherlands, March, 2011

Thesis submitted to the Faculty of Geo-Information Science and Earth Observation of the University of Twente in partial fulfilment of the requirements for the degree of Master of Science in Geo-information Science and Earth Observation.
Specialization: Land Administration

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Disclaimer

Dedicated to my Parents, Wife and Mother in law due respect

ABSTRACT

Improvement in the land registration system is a major challenge faced by many Land Administration (LA) organizations in the world, e.g. delivering reliable and timely services for adjudication, surveying, registration, storing, maintaining and supply of cadastral information . As Land Administration (LA) is an important sector of public service delivery, implementation of e-Government is applicable in this sector to achieve or deliver the services efficiently and effectively. The main objective of this research is to identify ways to improve e-LAS in Nepal based on user requirements for e-Government to provide better services to its users and improve the overall process of land registration.

This study focuses on identifying user requirements and finding out the reasons of the gaps based on different parameters and finally to provide recommendations for policy and decision makers to design a land registration system based on those requirements which is expected to minimise or eliminates the gaps in future. This is a qualitative type of case study research in which the data are collected from interviews, observations and documents and then analyzed using descriptive methods. Firstly, this research reviews the existing situation in LAS and then concerns an overview of the cadastral system in Nepal including institutional, registration, legal and data handling technology aspects. As an example of modern LAS, an internationally renowned cadastre organization from the Netherlands (Dutch Cadastre) has been reviewed, especially to get acquainted with the institutional and technical need for e-LAS including the aspect of cadastre updating procedure. Some of the users' requirements have been identified from the case study based on the existing registration process, expectations of citizens about LAS, prior knowledge and comparison of the land registration process in the Netherlands.

The requirements have been validated based on the supporting literature review and experts' opinion. Major gaps between G2G relations have been identified such as lack of data sharing practices, limited access to information, no demand driven organizations and delays in back response time. Similarly, major gaps between G2C interactions have been identified such as lack of efficiency of the process, lack of awareness about registration processes and service deliveries are far behind user requirements. Nineteen users requirements are identified which are classified into four main aspects of organizational situation, registration process, legal situation and data handling techniques. The main users requirements identified are a one stop shopping system, integration of land related products, lowest possible price, access to information, computerization of records, parcel-based systems and use of easy understandable identifiers.

The research reveals that the concepts of e-Government are important drivers for the transformation of public services delivery and at the same time as cadastral system moves towards e-Government. It will be possible to evolve into border land information which can ultimately support in the sustainable development (economic, environmental, and social). The research concludes that user requirements can be fulfilled and the gaps can be eliminated by designing and implementing an e-Governance based system through which the service delivery can be made faster and efficient compared to the existing system. Changes in the existing laws, organization structure and technology are the pre requisites for this implementation. Proper workflow management with quality control is the other need for the implementation of newly designed system.

Key words: Land Administration, e- Land Administration and User Requirements

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AS	Assistant Surveyor
BSc	Bachelor of Science
CCDM	Core Cadastral Domain Model
DBMS	Data Base Management System
DoLIA	Department of Land Information and Archive
DoLRM	Department of Land Reform and Management
DoS	Department of Survey
DLIS	District Land Information System
e-LA	e-Land Administration
FIG	International Federation of Surveyors
FINGIS	Finnish Geographical Information System
G2C	Government-to-Citizen
G2G	Government-to- Government
G2B	Government-to- Business
GIS	Geographical Information System
Geo-ICT	Geo-Information and Communication Technology
GML	Geography Mark-up Language
GPS	Global Positioning System
IBM	International Business Machines
IDMS	Integrated Database Management System
ICT	Information and Communication Technology
ISO	International Organization for Standardization
IT	Information Technology
LA	Land administration
LAS	Land administration systems
LADM	Land Administration Domain Model
LMTC	Land Management Training Centre
LIS	Land Information Systems
LRO	Land Revenue Office
MLRM	Ministry of Land Reform and Management
MCSD	Marketing and Customer Services Department
MS	Micro Soft
NSDI	National Spatial Data Infrastructure
OICRF	International Office for Cadastre and Land Records
SG	Survey General
SO	Surveyor Officer
VDC	Village Development Committee
PBGIS	Parcel-Based Geo-Information System
UPRN	Unique Parcel Reference Number
UN-ECE	United Nations Economic Commission for Europe
UN-FIG	United Nations-International Federation of Surveyors
XML	eXtensible Mark-up Language

1. INTRODUCTION

1.1. Background of the Study

Cadastral or Land Administration Systems (LAS) and in particular their central cadastral components are essential parts of countries' national infrastructures (UN-FIG, 1999). LAS are mainly concerned with the administrative and operational processes dealing with information about the tenure, value and use of land, and the cadastral component deals mainly with the ownership. While most LAS traditionally have the primary objective of supporting land market operations, they are increasingly evolving into broader land information infrastructures which support economic development, environmental management and social stability (Williamson, 2001). A land register is a set of records of rights of the land. It is the result of a process known as land registration in which the evidence of ownership of rights to the land is recorded and in many countries guaranteed. The function of land registration is to provide a safe and certain foundation for the acquisition, enjoyment and disposal of rights in land (Dale and McLaughlin, 1999). It creates security for title to land, facilitates and supports the wider land market. In many countries LA organizations are facing the major challenge to computerise their land registration processes.

Improvement in the land registration process is a major challenge faced by many LA organizations. Van der Molen and Tuladhar (2003) have described that "many land registration and cadastre offices have now tremendous pressures from various public and private sectors to improve their workflows of the systems for land registration and cadastral surveying [...]". A cadastre is a set of records about land that consists of two parts; a series of maps or plans showing the size and location of all land parcels together with text records that describe the attributes of the land. The function of the cadastre is to collect and make available graphic and textual information in support of title registration, property valuation and land resource management (United Nations, 2005). Lemmen and van Oosterom(2006) have observed that it gives an excellent start for implementing a cadastral model; however, it is a generic or abstract set of guidelines which must be further refined into a more specific model. They have proposed a standardized Core Cadastral Domain Model (CCDM) later called Land Administration Domain Model (LADM), covering land registration and cadastre in a broad sense.

One of the major changes since the 1990s has been the growth of 'e-government', which refers to the use by governments of information technologies that can change the way in which government agencies conduct business and relate to their citizens and other agencies (United Nations, 2005). e-Government aims to provide services that are government-to-government or government-to-citizens and inter agency communications in ways that are friendly, convenient, transparent and inexpensive. The key is not only in the technology but also more important is the handling of data and their availability in digital form. Over the past decades many countries have successfully converted their land registration and real property records from large collections of paper documents into a computerized form. Such records then need to be updated in a simple, straightforward manner using computers.

The next step is to make land information available online. Some countries have already converted all their land registration services into a fully computerized system, enabling the electronic retrieval of information so that banks, lawyers, notaries, etc. and members of the public can access to land related information by electronic means (United Nations, 2005). This development has to a large degree involved the computerization of manual routines. To obtain the greatest benefit, the role of registrars, notaries, solicitors and agents who participate in the transfer of land rights may change and the processes of land

transfer may need to be modified to take advantage of the new technologies. This can be done in different ways but the two basic computerized systems for transferring land rights are electronic registration and electronic land transfer.

Performance of such organizations can be increased by redesigning their business process; restructuring organization and adopting information technology are typically suggested to improve the performance of cadastral organization. User requirements should be considered while re-designing a system. According to the United Nations (1996) LA Guidelines, before altering an existing system or introducing a new one, […] a wide variety of user communities needs to be consulted in order to understand their requirements and the constraints under which they currently operate. The use of such technologies can improve the delivery of government services and results in more efficient government, greater empowerment of citizens, increased transactions, revenue and transparency, less corruption and lower operating costs (Kalantari et al., 2005a). Within the context of e-government for e-Land Administration (e-LA) not only the use Geo-ICT is an issue, but also consider actions in relation to organizational and legal frameworks taking stakeholders' needs in to account. At the same time transformation from LA to e-LA may require substantial changes in the existing laws, specifically to the acts dealing with the function of LA and acts dealing with the responsible organization (Lemmen and Van der Molen, 2004).

The many developing nations including Nepal, the establishment of a digital cadastral database and digital land registers has been on-going activities for some time. The existing land registration process (buying and selling) involves 37 steps. Documents are paper based and require verification from Land Revenue Office (LRO) and Survey Office (SO) located separately. As a result, data often are inconsistent and scattered, so it takes a long time to complete a single transaction. This research intends to analyze existing land registration system and to suggest how the process can be developed an e-LAS based on e-government to fulfil users requirements.

1.2. Research Problem

Land Administration System (LAS) is to serve users by statutory law to fulfil customers' requirement such tenure security and land transaction services in Nepal. There is no tradition of providing customer oriented services. The number of land disputes and complaints about administration matters on LA sector is more compared to total civil disputes, court cases and administration complaints. The main reason for this situation is the weaknesses of existing LAS. Most of LAS are still delivered traditionally and the systems are not transparent, so citizens have to consult various organizations to get services done. The service delivery system is not only time consuming but also expensive. Some transactions take place informally because lack of communication and integration among government organization in terms of spatial data sharing. Because of the above mentioned situation, there is a gap between the expectation of citizens from LAS and what they are providing, and the interaction among government organization to deliver the services.

e-government is the process whereby the use of ICT and services are deployed and employed by the government including local government in the delivery of services with the efficient interacted linkages in Government to Government (G2G), Government to Customer (G2C) and Government to Business (G2B) (Zhiyuan, 2002). These linking concepts using the tools offered by ICT provides support in achieving the objectives in efficient way in LAS. The core functions of LA are the accurate boundary survey of the land parcel and the registration of rights over that parcel. That is why focus needs to be given on improving the data quality, efficiency of services and accuracy of the geometry of the parcel and land register. GPS makes it possible to, quickly coordinate data points to centimetre accuracy, and computer technology will allow millimetre precision for coordinates. GIS can hold master datasets for information with engineering, modelling and design systems (As the cadastral dataset is a fundamental

layer for many other). Cadastre is the central component in spatially enabling government. Thus well design e-land administration is a pre-requisite for an effective land registration for all users and organizations to carry out their businesses with government more easily.

In many developing nations, including Nepal, the establishment of digital cadastral database and digital land registers has been on-going, activities are including digitization of their archives such as analogue field books, survey results and other documents related to the land parcels by scanning the related documents. The existing LA process involves many steps for a single land transaction. The land records are hand written and require verifications from LRO and SO located different places. As a result, data often are inconsistent and scattered, and it takes a long time to complete a single transaction. This research intends to analyze existing land registration system in Nepal and improve e-LA system accordingly based on users' requirement.

1.3. Research Objectives and Questions

Main objective: To analyze users requirements in the e-land administration system for land registration in Nepal.

Questions 1 What are the users' requirements for e-LA?
Questions 2 What are the gaps in users' requirements in existing service delivery?
Questions 3 How can the gap between user requirements and service deliveries are bridged?

Sub objective 1: To study how the existing land registration system is functioning in Nepal

Questions 4: What is the process of distributing information to various end users (G2G and G2C)?
Questions 5 How fast, cheap and easily the existing systems are providing services?

Sub objective 2: To analyze how registration process of the Netherlands is developed as e- LAS

Questions 6 What was the process of creating and updating land registration database?
Questions 7 What was the process of distributing information to various end users?

1.4. Conceptual Framework

The general idea for this research is mentioned in figure 1-1.

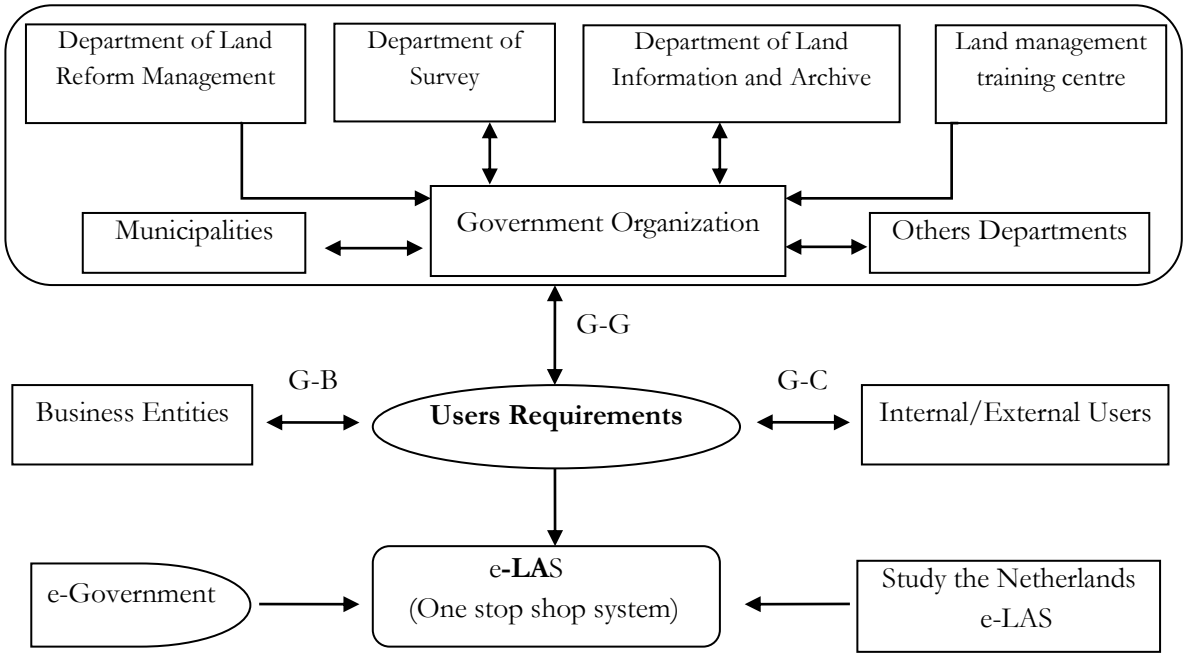

Figure 1-1 : Conceptual framework

This research first identifies the process of distributing information to various end users, and inter-organization relations between Government to Government (G2G) and Government to Customer (G2C) and .The results are presented in chapter 4. It also assesses the reason behind delivering particular services and identifies the situation to be improved in the existing LAS in Nepal (see chapter 4) and also to find out the user requirements (see chapter 5) and the gap (see chapter 5). Next to study the developed registration process in e-LAS with the Netherlands and get a comparative reference in Nepal. This study is included in chapter 2 for further improvement. Finally identify the element to be improved according to the e-government concepts to achieve the various end users requirements faster, cheaper, and more efficient services being provided by the e-LAS (see chapter 5).

1.5. Research Methodology

The aim of the case study at this research is to facilitate the understanding of the situation of land registration process within the country. The purpose of this study was to analyse user's requirements separately in four districts with differences in location and backgrounds. The case study method is an empirical investigation that looks into a contemporary phenomenon within its real life context, when the boundaries between the phenomenon and its context are not clear, and which multiple sources of evidence are used (Yin, 1994). This description fits appropriately to this research. According to Glesne (1999), case based research is ideal for the reason that it allows the use of various methods to obtain data, or in data analysis. Moreover, according to Scholz and Tietje (2002), embedded case study is preferred because it is a suitable method for studies containing many units of analysis, where the purpose is to combine details of each unit of analysis into one single research. According to (Yin, 2003), case studies are the preferred strategy when "how" or "why" questions are being posed, when the investigator has little control over events , and when the focus is on contemporary phenomenon within some real life context. Case study research has often been associated with description and with and theory development, where it is used to provide evidence fox hypothesis generation and for exploration areas where existing knowledge is limited (Cavaye, 1996).

There are 83 Land Revenue offices (LRO) and 83 Survey Office (SO) in 75 districts in Nepal. Kathmandu, Bhaktapur, Lalitpur and Kavre district are selected as study area in this research (see figure 1-2). They represent from different parts of the country and have process of implemented LIS and some office has some ICT infrastructure to scan and print field book and maps. As far as SO is concerned, there has been some effort to digitize the map without success. Kathmandu district were covered by three LRO and SO as namely in Kalanki, Dillibazar and Chabhil.

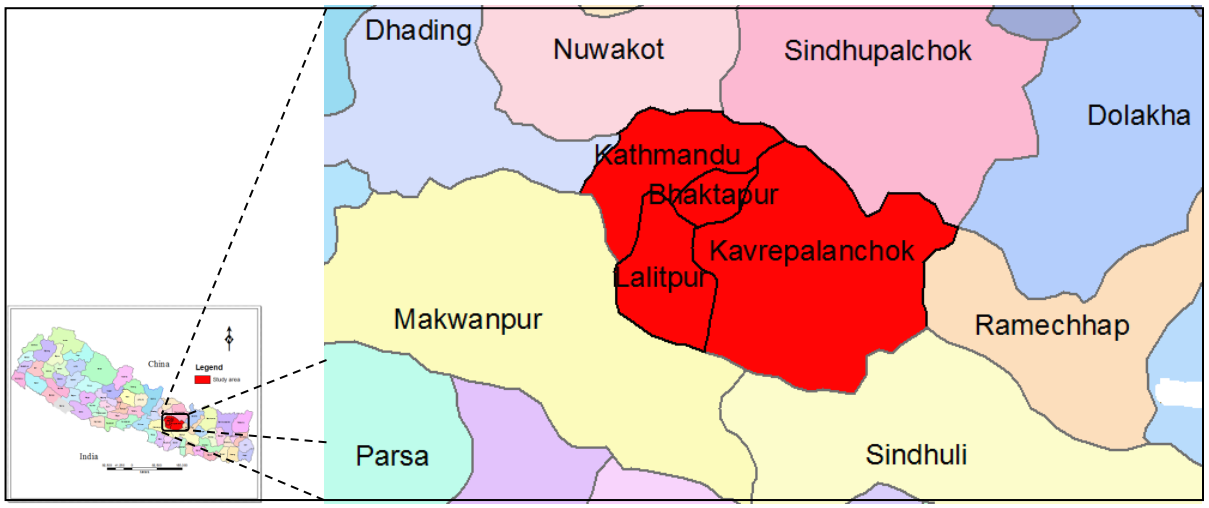

Figure 1-2 : Study area

Other three districts covered by one LRO and SO respectively in district level works. The case study approach is not restricted to any specific data collection method (Yin 1981). Data for this study were collected using qualitative and quantitative methods. In order to collect data from both primary and secondary sources, different techniques were applied.

Primary data collection researcher used interviews, questionnaires, direct observation and discussion. For secondary data collection other sources were used such as literature review, documented reports, acts and regulations. Data was collected during September 2010 in four districts in Nepal called Kathmandu, Lalitpur, Bhaktapur and Kavre. Those districts are covered by different SO and LRO and also groups of people in each office are selected for the interview. Those peoples are classified into four categories, as the internal users, external users, policy makers and other experts (figure 1-3)

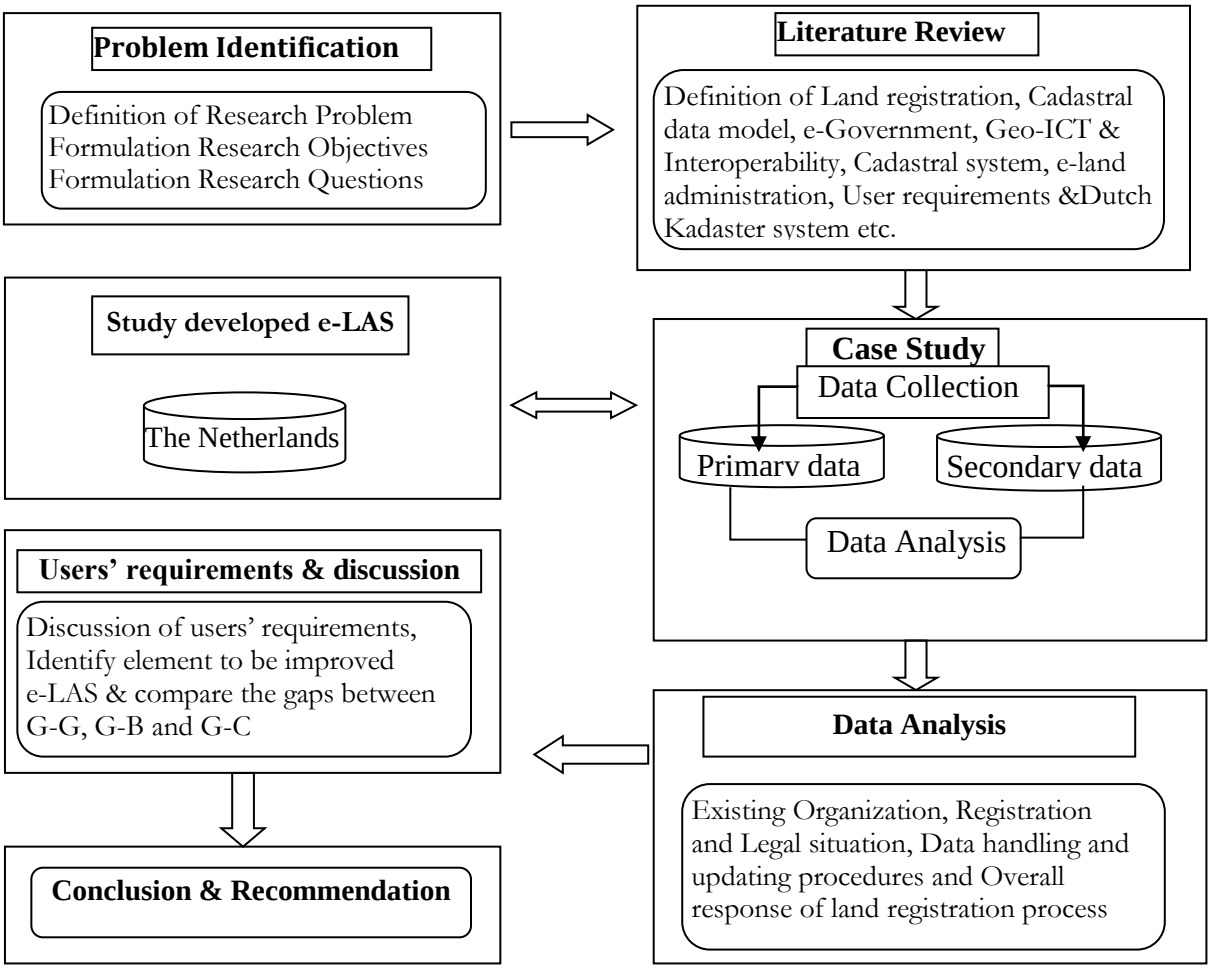

Figure 1-3 : Research design

The methodology of this research is mainly based on the approach of case study. Firstly researcher identified the research problem, formulating research objectives and questions, and then literatures are reviewed regarding the land registration including threats and opportunities, cadastral data model, e-government & Geo-ICT, Interoperability and user requirements. Thirdly the land registration system is considered as case study and carried out in Kathmandu, Lalitpur, Bahakpure, and Kavre district where the government had recently introduced computer based land information system and digital archiving of cadastral maps in Nepal. It includes collection and analysis of primary and secondary data and study the district level registration process and interrelation between organizations. The Netherlands land

registration process are also briefly discussed and compared as good practice with case study to support in finding out the best solution from them to improve the system. Then data were analysed with a form to four components organization, registration, legal situation and data handling. Next the user requirements are identified, presented and discussed to identify the elements to be improved in e-LAS, based on the discussion and experience acquired from case study. Finally conclusions are drawn from the whole study and recommendations are also included for further research.

1.6. Methods of Data Collection

The data collection for this research would take about three weeks (13 Sept. – 2 Oct. 2010) and the methods of data collection have been described as follows.

- Observations : The organizational structures, location of the office, coordination between organizations, management of backlogs and work load , current situation of land registration, short comings in the existing system and user requirements.

- Interviews : To get information about existing system from employees and stakeholders

- Secondary data: Mandate of the organization, acts, rules and regulations, copies of the field books & plots registers progress reports of last fiscal year, topographic map, cadastral and land registration data, legal rules and regulation etc.

The data collection includes preparation of questionnaires for interviewing of the staff in following organizations

1. Department of Land Reform Management(DoLRM)
2. Department of Survey(DoS)
3. Department of Land Information and Archive(DoLIA)
4. Trust Corporation
5. Land Management Training Centre (LMTC)
6. Ministry of Land Reform and Management(MLRM)
7. Land Revenue office(LRO)
8. District level SO, LRO in Kathmandu, Bahakpure, Lalitpur and Kavre districts
9. Internal Users –Employees of above offices
10. External Users – Vendors and buyers, real estate agent, municipality & municipal tax and valuation office.
11. Other Experts – Lekhandas (notary), civil society (NGO), bank and financial institutions

1.7. Research Phase

The research activities are divided in three phases: Pre-field work, field work and post field work. The details of each phase are given below:

In the pre-field work phase, the process includes study of land policy, mandate of the organization e-government concepts and current situation of land registration, short comings in the existing system based on literature review. Next preparation for fieldwork data collection schedule in Kathmandu, Bhaktapur, Lalitpur and Kavre district as follows and define the questionnaire, make appointment to stakeholders for interview and list of data to be collected etc..

Data collections during the field work phase are primary and secondary data.

- Primary data are collected from survey observation and interviews. The process of interview will involve employees, real estate agents, financial institutions, Lekhandas, banks and stakeholders in the study area.

- Secondary data collection will focus on finding the documents of mandates of the organizations, land policy, topographic map, cadastral data, land registration data, relevant legal rules and regulations etc.

In the post field work phase, data analysis has been performance to find out the users requirements for e-LAS. Then discussions and validation of e-LAS has been done and conclusion and recommendation for further research mentioned.

1.8. Stracture of the thesis

Chapter 1 – Introduction

This chapter provides the background information and discussed the research problem, research objectives and research questions, conceptual frameworks and research methodology.

Chapter 2 – Literature review

This chapter, discuss as about literature concerning concept of land registration and cadastre and principles of land administration, e-government concepts and models, threats, opportunities and challenges cadastral systems, cadastral system, e-land administrations, Interoperability in e-land administration and cadastral and land registry agency of the Netherland are discussed.

Chapter 3 – Field work data collection

This chapter describes the details about fieldwork preparation, data collection methodology, primary and secondary data collecting and observations, finally the data processing and discussion and limitations in field data collection are discussed.

Chapter 4 – Data Analysis

This chapter describes the general overview of existing land administration system in Nepal, organizational arrangement, land transaction details about the primary and secondary data, observation of the registration process where analysis in different ways in response of employee's and external users about existing organization situation, registration process, legal situation and data handling and updating procedures. Finally overall situation in land administration were discussed.

Chapter 5 – Users requirements and discussion

This chapter identifies the user requirements of four main topics organizational situation, registration process, legal process and data handling and updating process. Then gaps between government to government, governments to customer were discussed. Finally the one stop shop and web portal and examples were discussed

Chapter 6 - Conclusion and Recommendation

This chapter describes the conclusions drawn from the study and some recommendations for further researches are proposed in this field.

2. LITERATURE REVIEW

2.1. Introduction

This chapter reviews literature regarding the concepts of land administration, e-government, cadastre and e-LA. The review will be mode to access the LA in Nepal and it will be need for development of user requirements, and overview is given of in section 2.2 different aspects of land registration and cadastral, in section 2.3 concepts about land administration section 2.4, e-Government concept and models, in section 2.5 different aspects of cadastral system are discussed. Then definition and process of e-land administration are also presented in section 2.6. A briefly introduction of interoperability in e-LA are under section 2.7 and finally cadastral and land registry agency of the Netherland are discussed in section 2.8.

2.2. Land Registration and Cadastre

Land registration and cadastre has been defined by the various writers in different ways. According to Zevenbergen (2002), land registration has defined it as the process of recording legally recognized interests (ownership and use) in land. Dale (1988), has defined land registration is the recording of rights in land through deeds or as title. Henssen (1990) has defined it as "a process of official recording of rights in land through deeds or as title on properties. It means that there is an official record (land register) of rights on land or of deeds concerning changes on the legal situation of defined units of land. It gives an answer to the questions who and how". Thus, land registration is a process of recording legally recognized interests or rights in land by means of deed or title. Zevenbergen (2002), has defined cadastre "as an official record of information about land parcels, including details of their bound, tenure, use, and value". It usually refers to a predominantly technical registration, which contains information on where a property lies, what its boundaries are and how large it is. Land registration provides the framework and means for recognizing formalized land ownership rights and for regulating the transfer of these rights (Dale and McLaughlin, 1999). Land registries document certain interests in the land, including information about the nature and spatial extent of these interests and the names of the individuals to whom these interests relate. UN-ECE (1998) reports mentioned the following parties have an interest in an effective land registration system.

National governments: Administration, taxation, economic development, market information, and international harmonization;

Local governments: Spatial planning, land valuation & use, land management & information;

Companies and citizens: Security of rights, social stability, access to housing through mortgage finance, market opportunities and potential for investments and development, mobility and property transfer.

Besides a very basic oral agreement system, at least three basic types of land registration systems can be distinguished depending on the manner in which a transaction of land ownership rights is confirmed and documented: private conveyancing; registration of deeds; and registration of title (Zevenbergen, 2009) .

2.3. Land Administration

The UN-ECE (1996) Guidelines on Land Administration define the term as the process of determining, recording, and disseminating information on ownership, value and use of land when implementing land management. Van der Molen (2001) highlighted a growing importance of data communication as a supporting tool focusing on determining, recording and disseminating processes. The key to understanding LA is to recognise the relationship between people and land. In the early stages of human settlement, land was undisputedly the primary source of wealth and power. In that context, land administrations primary function was to record ownership interests and serve as a fiscal tool for managing the taxing system (Larsson, 1991). The processes of LA includes regulations of land and property development to control the creation of new interests in land, the use and conversion of the land, the

gathering of revenues from the land through sales, leasing, taxation and the resolution of conflicts concerning the social interests, ownership and use of the land (Dale and McLaughlin, 1988). LA facilitates all transaction concerning land, such as land development and makes such transactions easier and more secure. One consequence of land administration is the stimulation of economic interests in land and land markets. LA reduces disputes and litigation over land resulting in better social and people relationship (Van der Molen and Lemmen, 2006).

In land administration the three key attributes of land are ownership, value and use; Ownership defines who can use land while, conversely, the use influences the form and substance of the tenure. Similarly, the manner in which land is valued can alter the way in which it is used (Dale and McLaughlin, 1999). There is, therefore, a strong relationship between the three key attributes of land; tenure, use and value (Figure 2 1). The strong relationship between the attributes should be considered when determining future LA requirements. This also applies when designing e-LA and developing associated tools. The silo based data model of managing land attributes according to particular interests in land interferes with the proper communication, data exchange and interoperability of LAS. It also prevents the integrated management of increasing land interests by keeping them separate.

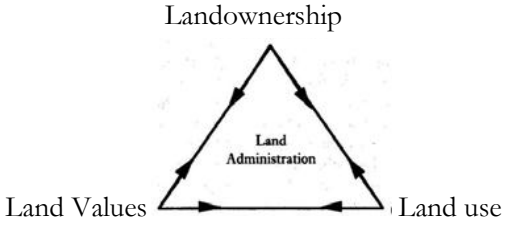

Figure 2-1: Relationship among land attributes (Dale and McLaughlin, 1999)

According to the definition of land administration and the key attributes of land, LA consists of three functions: juridical (for land tenure), regulatory (for land use), fiscal (for land value) with land information management integral to the three functions (Dale and McLaughlin, 1999).An examination of the definition of LA reveals three sub-processes: determination, adjudication, recording and dissemination. The determination sub-process is the identification of an interest in land, the demarcation, measuring and mapping of the interest's boundaries or spatial extent, and the assessment of its value. Cadastral surveys, for instance, are one of the tasks in the determination sub- process that may be carried out by governmental officials and private surveyors or a combination of the two (Larsson, 1991). The recording sub-process includes the checking or examination of the results of the determination sub-process and the entry of the information in LIS. For instance, after determining boundaries of a land parcel, a unique parcel identifier is allocated in the physical data model and databases. There follows an examination of land policy matters for instance, does the subdivision contribute to a suitable land use; legal matters, such as the right of the applicant to conduct certain land activities; and technical matters have the survey regulations been obeyed (FIG, 1996). Finally, the land parcel and associated information including interests, value and use are recorded. The dissemination sub process includes providing the key attributes of land to the public and private users. This process requires an infrastructure, including institutional and technical arrangements, to effectively distribute land information. For instance, spatial data infrastructures which aim at facilitating data collection, integration and sharing can be used as an enabling platform for the disseminating sub-process (Kalantari et al., 2005b). The way in which main attributes of land are determined directly influences how they are recorded in the LA data models and, consequently, their manner of dissemination.

2.4. e-Government Concepts and Models

Definitions of e-Government vary and an effort to incorporate all of them in one single statement seems impossible. However, a common theme is that e-government refers to the use of Information and

Communication Technology (ICT), particularly web-based applications, to provide access to and deliver information/services to the public, businesses, other agencies, and governmental entities faster, cheaper, easier, and more efficiently (Dearstyne, 2001). The nature of government functioning has been undergoing a rapid transformation in many countries the later part of the 1990's. Actually, the magnitude of technological change did not only alter the economy or society but also governments. Nowadays, public institutions around the world are shifting towards the online provision of services and the term 'e-government' has firmly established itself next to other, already more common, words such as 'e-business' (Devadoss et al., 2003). Computers put homes in remote areas of the world in touch with federal, state, or local government websites. High speed internet connections reduce time and make the web a convenient way to get into touch with the public sector. Among those things, e-government allows citizens to take over tasks themselves such as deciding what types of benefits or grants they should apply for that once where the domain of clerks (Salkever, 2002).

e-Government or digital government and online government is a governance method based on use of internet technology as a platform for exchanging information, providing services and transacting with citizens, businesses, and other arms of government (Wikipedia, 2010b). The primary models for e-government are as follows:

- Government-to-Government (G2G) model which is the online non-commercial interaction between government organizations, departments and authorities with other government organizations, departments and authorities (Zhiyuan, 2002).
- Government-to-Citizen (G2C) model which is the online non-commercial interaction between local and central government and private individuals. For example government sectors become visibly open to the public domain via a Web Portal. Thus making public services and information accessible to all as the main goal of this model.
- Government-to-Business (G2B) model which is the online non-commercial interaction between local and central government and the commercial business sector.

Within each of these interaction domains, following four kinds of activities take place (Navarra, 2009b);

- Pushing information over the Internet, e.g. regulatory services, public hearing schedules, issue briefs, notifications, etc.
- Two-way communications between the agency and the citizen, a business, or another government agency. In this model, users can engage in dialogue with agencies and post problems, comments, or send their requests to the agency.
- Conducting transactions, e.g. lodging tax returns, applying for services and grants.
- Governance, e.g. online voting, and campaigning.

2.4.1. Sub Benefits of e-Government

Improving quality of life for citizens is the main benefit of a good government and good governance method. Among many advantages of e-government concept, one can consider the following items as the most important ones (Hans, 1999; Navarra, 2009b) .

- ✓ Better and on time service to users
- ✓ Decreasing costs and administrative size of government
- ✓ Sound and smooth flow of information among citizens, private and governmental agencies
- ✓ More efficiency in organizational processes
- ✓ Effective, efficient and decentralized government
- ✓ Interoperability between service providers and customers
- ✓ Shorter distance between citizens and government
- ✓ Social equity resulted from availability of information for all

2.4.2. e- Government Requirements

Implementation of e-government idea requires lots of efforts in a systematic and designed plan. Obviously all of these requirements cannot be mentioned, but these plans must aim a defined target which could be considered as follows (United Nations, 2008).

- ✓ Using communication networks as correspondence highway between main government structure and lower levels of government agencies and customers of governmental services.
- ✓ Replacing current methods and processes with simple and efficient ones.
- ✓ Increasing the efficiency and affectivity of government agencies in management level by flattening their management pyramid.
- ✓ Improving responsibility against customers and interacting with them in order to provide better services.
- ✓ Cutting administrative expenses and complexity of work processes in governmental organizations by joining up the parallel systems and eliminating redundancy among them.

2.4.3. e-Government Policy

e-Government defined as the use of Information and Communication Technologies(ICT) to improve the activities of public sector organisations, of course impacts on the strategy and operations of agency (van der Molen and Wubbe, 2007). Definitions of e-government vary and efforts to incorporate all of them in one single statement seem impossible. However, a common theme is that e-government refers to the use of ICT, particularly web-based applications, to provide access to and deliver information/ services to the public, businesses, other agencies, and governmental entities faster, cheaper, easier, and more efficient (Biancucci et al., 2001).

2.4.4. Geo-ICT Development

Recent developments in Geo-ICT, such as information system modelling standards, database technology, global poisoning system, Internet technology development, wireless communication and acceptance of geometry standards have given push toward in both the development of new cadastral systems and in the improvement of or extension of existing cadastral system (Oosterom and Lemmen, 2002). The developments in Geo-ICT have been key drivers to change in cadastral organisations. On the other hand the developments in Geo-ICT are the main supporter enabling cadastral organisations to keep pace with the changing environment. Geo-ICT is closely related to most of the working processes in cadastral organisations i.e. data acquisition, data processing, data retrieval and dissemination of products. Introduction of new Geo-ICT into cadastral organisation causes significant operational changes. Oosterom and Lemmen (2002) points out the following Geo-ICT, which tremendously impact cadastral organisations:

- Geo-data infrastructure
- Open GIS standards and Unified Modelling language (UML)
- Geography Mark-up Language (GML) and eXtensible Markup Language (XML)
- Developments in database technology and location based service (LBS)

2.4.5. Advantages of e-Government and e-Land Administration

It is important to see that both governments and citizens/businesses benefit listed as follows:

- E-government offers great opportunities for establishing partnerships with the private sector. Governments could further allow the private sector to provide public services and to package these with commercial services; it reduces the specialization of jobs, moves responsibilities down the ranks, creates several paths for action, reorganizes workflows, and eliminates non-value adding controls. Therefore, it is viewed as a primary mechanism for creating more efficient and effective service organizations by increasing communication, eliminating redundancies and inconsistencies, and enhancing transparency (Navarra, 2010a).

- Successful implementation of e-government can increase the public's overall trust in the internet and thus have repercussions on e-business. Creating authentic or key registers, introduce of the Digital Identity Code (DigID) and unique individual numbers for citizens; in order to concentrate registrations and to avoid double work (van der Molen and Wubbe, 2007).
- The Internet has set the stage and continuous to increase the potential for radically shrinking communication and information costs on behalf of all participants involved. e-government maximizes speed, improves service delivery, broadens reach, and eliminates problems of distance (Navarra, 2010a). Today, computers put homes in remote areas of the world in touch with federal, state, or local government websites. Among those things, e-government allows citizens to take over tasks themselves such as deciding what types of benefits or grants they should apply (Salkever and Kharif, 2002).
- Electronic submission includes collecting all deeds at one virtual point, because there would be no need any more to submit the same deed to various offices when real estate located in various provinces was involved in the transaction (Lemmen and Van der Molen, 2004).
- Customer used to e-government, also will ask questions through electronic means, and preferably 24 hours a day. Customers receive their e-mail invoice it might be used as automated input in their own financial systems. Interesting for Kadaster is that because of avoiding costs of mail and printing, the payback time is less than two years (van der Molen and Wubbe, 2007).
- Market pull and technology push don't leave the existing organization unchanged. Electronic submission of deeds, automated updating of databases, on-line data dissemination, land surveyors working from home, make the necessity of regional offices obsolete. Theoretically all the work can be done in one and the same office. Less staff, less offices, will reduce the cost level and will improve cost efficiency (Van der Molen, 2007).
- Contributes to better transparency in the real estate market. It improves G2C activities, mainly between organizations and professionals; it improves efficiency and could decrease transaction costs representing an economic value (Van der Molen, 2003b).
- E-LA, as core of SDI supports in easy access to data, increasing use of the data and thus generating more revenues, it attracts new services. A single window contributes to improved customer satisfaction; the same is valid for value added products (Akingbade et al., 2006).
- Intervention of officer, Information update through a customized simple application. Restriction information to be shared nationally and checks to be done automatically. Long transaction will be available and managed by the modern IT (underlying DBMS)(Acharya, 2009b).
- Elimination of duplications, Secured access only to authorized users with passwords. Information will be shared to authorized stakeholders such as courts, private surveyors and banks for good decision with up-to-date information(Adhikary, 2007).

2.4.6. Threats for e-Government and e-Land Administration

According to Adhikary (2007) observations regarding the functioning of the existing system in Nepal, researcher has summarized the authors' findings that the institutional set ups are too heavy and not effective. There is a lack of co-ordination among departments/divisions within the ministry. LAS are oriented towards generating revenue instead of developing land and facilitating land management in an integrative way. Land information is poor and it is paper-based therefore storage is difficult and there are chances of losing land records. This problem is becoming heavier day by day as the volume of land records are increasing. The land registration system is not well developed and not transparent. There are overlapping claims, false claims and land disputes related to area, boundaries, and access. Since the land market is informal, brokers illegally deal with land selling and buying as a result, there are disputes. Administrative boundaries among the related institutions are blurred; as a result, there are overlaps in power and authority

Sharma et al. (2004) observes that the number of land disputes and complaints about administration matters on LA sector is more compared to total civil disputes, court cases and administration complaints. The main reason for this situation is the weaknesses of existing LAS. Most of LAS are still delivered traditionally and the systems are not transparent, so citizens have to consult various organizations to get services done. The government loses revenues and also banks make losses if the valuation of the collateral is not proper. The government could not generate more revenues from the existing systems and also access to justice is poor in land related matters. Employees are especially threatened by the fact that information technology could make them lose their jobs since the online provision of services makes some positions obsolete. Building of LIS to cover the entire country involves high initial investment. Develop training program to improve the efficiency of staffs in various levels and accelerate continuously more awareness rising program. Develop technical & management training program to improve skills of staffs and carry research and development activities in cooperation with the expert in e-LA. (Tuladhar et al., 2002)

SO and LRO are maintaining land records (cadastral maps and ownership records) at their district offices. Realizing the various problems in handling land records, the ministry has put considerable efforts into building Land Information Systems (LIS) to support the efficient management of scarce land and resources. The current activities do not work properly because of the following shortcomings the legislative framework has not yet been developed regarding the various activities(Tuladhar et al., 2002).

- Lack of a comprehensive land policy at the national level.
- Poor quality of available data sources (both registers and the maps),
- Inappropriateness of investment in building LIS to cover the entire country,
- A lack of rigorous strategic planning and vision towards building, operating and maintaining LIS,
- Computerization without analysis of the current LAS (specially data and processes),
- Lack of standard data models and standards,
- Inappropriate processes for data collection, checking, maintenance, sharing and archiving
- The traditional mechanisms for delivering the information and services are unsatisfactory.
- Poor co-ordination and participation among the various departments and stakeholders,
- Lack of a nation-wide system architecture to fulfil the user requirements,

The approach has to be taken up with appropriate solutions with regards to institutional, legal, financial and technical issues, and should include a fully-fledged and structured strategic planning including analysis of existing systems and user requirements. Since the task is huge and complex, modern techniques such as Geo-ICT infrastructure and active participation including commitment on the part of all departments play a determining role in the successful implementation of LIS (Tuladhar, 2003)

2.4.7. Opportunities in e-Government and e-Land Administration

Global changes and ICT megatrends, in addition to analysis of surveys and strategies, are defining the following phenomena as characteristic of the next generation e-Government trends (van der Molen and Wubbe, 2007; Azad and Faraj, 2009; Navarra, 2009b; Navarra, 2010b):

- Connected governance – whole of government approach, consisting of government enterprises involved with highest level of cooperation
- Participatory governance – sharing more power with citizen in decisions and policies
- Regulatory government – taking increasing regulatory role in the economy
- Ascendancy of local e-Governance – emphasis increasingly shifting from national-level to local level e-Government in order to deliver benefits to the bottom of the pyramid
- Mobile and ubiquitous government – providing public services anywhere, including on the move
- Globalizing government – delivering services that enable citizens and businesses participate in regional and global economy.
- Authentic registers - streamlining key data concentrates on two goals communal use of data and joint use of data

ICT-based connected governance aim at improved cooperation between government agencies, allowing for an enhanced, active and effective consultation and engagement with citizens, and a greater involvement with multi stakeholders regionally and internationally (Navarra, 2010b). Participatory governance is characterized by the use of ICTs to broaden and deepen citizen participation by enabling them to connect with one another and to their elected representatives. Mobile government is defined as a strategy and its implementation involving the utilization of all kind of wireless and mobile technology, services, applications and devices for improving benefits to the parties involved in e-Government including citizens, businesses. Private sectors have started focusing on the GIS and therefore the skills are available in private sectors such as contribution to the good governance, environment management and sustainable development. With the increasing trend of ICT, there is an increased demand of digital land information. Capitalize the demand of land information in multi facet use and growing land market (Tuladhar et al., 2002; Lemmen and Custer, 2007). An authentic register is defined as 'a high quality database accompanied by explicit guarantees ensuring for its quality assurance that, in view of the entirety of statutory duties, contains essential and/or frequently used by all government agencies and, if possible, by private organizations throughout the entire country (van der Molen, 2005).

2.4.8. Challenges for e-Government and e-Land Administration

The idea of a fully integrated e-government assumes perfect coordination, communication, and collaboration among both different levels and functions of government and is therefore more theoretical concept than in reality (Navarra, 2009b). As with other sectors, the public sector faces power conflicts, differing goals, functional boundaries, self-centred thinking, etc. As stated in the disadvantage section, an out-of-date e-government does not add any value. Hence, it will require significant resources first to provide valuable information and services that are continuously updated and expanded in order to meet customer needs and second to keep customers informed through marketing initiatives (Navarra, 2009a). Another challenge will be to overcome issues and concerns of privacy and confidentiality. As with online shopping citizens still feel uncomfortable with providing personal data on the web and are concerned about its usage and storage. One important challenge of the internet system is the problem of security of information and internet fraud. The model should ensure the security of personal details submitted online and secure the online payment system from possible hackers (Azad and Faraj, 2009). Accelerate LIS activities to support growing land markets, improve the LAS, and meet the diverse land information demands (Lemmen and Van der Molen, 2004). Develop the effective and fully supportive organizational structure and get it implemented. Design & develop an effective central archiving system. Develop realistic government private partnership model to encourage the involvement of the private sectors. Further develop the system with centralized database concept by using new developments in ICT (Tuladhar et al., 2002). The introduction of e-Government services in the area of land administration is not only desirable but necessary. However, efforts should be made to address the challenges that are likely to adversely affect the smooth operation and delivery of the system.

There are many challenges and obstacles that e-government establishment process in Nepal will face with. They can be categorized in social, cultural, legal, IT infrastructure, and security aspects that among them the following items must be carefully considered (Navarra, 2009a).

- ✓ Insufficient PCs and internet connections in organizations as well as public access.
- ✓ Low speed networks.
- ✓ Lack of efficient banking system.
- ✓ Unwillingness of management level to accept new initiatives particularly to e-government concept
- ✓ Resistance against change.
- ✓ Shortage of computer literacy and IT knowledge among officials and citizens.
- ✓ Lack of coordination among organizations.
- ✓ Separation between classified and unclassified information.
- ✓ Vast investment needed for establishment of IT network and data banks

The nature of government functioning has been undergoing a rapid transformation in the latter part of the 1990's (Devadoss et al., 2003). Undoubtedly, the magnitude of technological change did not only alter the economy or society, but also governments. Nowadays, public institutions around the world are shifting towards the online provision of services and the term 'e-government' has firmly established itself next to other, already more common, words such as e-commerce or e-business

2.5. Cadastral Systems

The basic building block in any LAS is the land parcel as identified in the cadastre. The International Federation of Surveyors (FIG, 1995), defined a cadastre as "a parcel based, and up-to-date land information system containing a record of interests in land (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 (valuation and equitable taxation), legal purposes (conveyancing), to assist in the management of land and land use (planning and other administrative purposes), and enables sustainable development and environmental protection(Van der Molen and Lemmen, 2003). However, the concept of "cadastre" is difficult to identify. Basically, a cadastre is just a record that identifies the individual land parcels/properties. Today, most cadastral registers around the world are linked to both land value/taxation and to the securing legal rights in land (Van der Molen and Lemmen, 2003). These systems or infrastructures include the interaction between the identification of land parcels, the registration of land rights, the valuation and taxation of land and property, and the present and possible future use of land. The role and purpose of cadastral systems is shown in Figure 2-2 below.

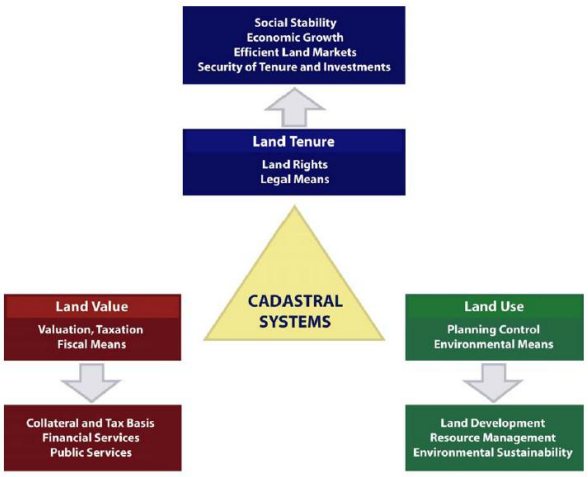

Figure 2-2 : Cadastral systems facilitate administration of three main areas (Enemark, 2005)

Throughout the world different organizations of cadastral systems are apparent, especially with regard to the land registration component. Basically, two types of systems can be identified; the deeds system and the title system (Zevenbergen, 2002). The key difference is found in whether only the transaction is recorded (deeds systems) or the title itself is recorded and secured (title systems). Deeds systems provide a register of owners focusing on "who owns what" while title systems register properties presenting "what is owned by whom". Even though cadastral systems around the world are clearly different in terms of structure, processes and actors, their design is increasingly influenced by globalisation and technology towards multipurpose cadastres (Van der Molen and Lemmen, 2003).

The core of cadastral domain model developed in the European context includes (Oosterom et al., 2006)

- The subject: group ownership with non-defined membership
- The rights: the recognition of types of non-formal and informal rights

- The object: units other than accurate and established units

Cadastral data refers to all data related to these three components in the subsystems. The data component includes items such as data modelling, database design, data capture and data exchange (Roux, 2004; Lemmen and van Oosterom, 2006), and data catalogue. Cadastral data must be able to be updated and kept current (Meyer, 2004). Although recent advantages in data capture technology make this easy, these initiatives are made in 'isolation' and no common view is formulated for the handling of cadastre and their related data. Consequently the data sets cannot be easily integrated and shared because of the lack of harmonization between them (Radwan et al., 2005).

The cadastral database should join the attribute and spatial data and present them in an integrated portal, because attributes are as important as spatial information for decision support (Meyer, 2004). However the integrated portal does not necessarily allow attribute data and spatial data to be put together. They enable the user to access various distinct databases using a unique portal. Systems architecture design changed in response to the growing need to access data sets which were developed individually but simultaneously from various distinct databases within various divisions of large organization; these datasets increasingly have to be accessed at an integrated level (Vckouski, 1998). Introduction of new systems architecture facilitating access to cadastral databases whether spatial or non-spatial should be recognised in cadastral data modelling to achieve an e-LA. Data will provide linkages to more detailed information that can be obtained from data producers (Meyer, 2004). The catalogue is a way to provide consistent descriptions about the cadastral data. The objective of the cadastral data catalogue is to develop a description of each object class, including a definition a list of allowable attributes and so on (Astke et al., 2004). An expanded cadastral data model including a data catalogue facilitates data publication across a network.

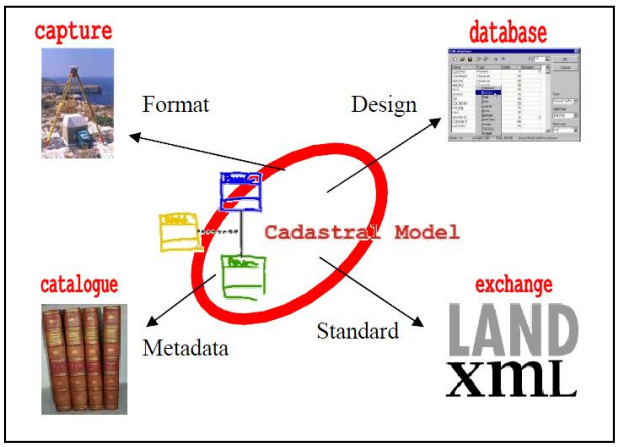

Figure 2-3 : Role of cadastral data model in data management (Kalantari et al. 2005)

Figure 2-3 illustrates the role of modelling data management. It formulates the proper way of capturing spatial and non-spatial cadastral data. Database design is based on data modelling. Data modelling is a conceptual level of modelling which underpins the design of logical and physical models of the database. The modelling component allows the data catalogue to fit metadata in the proper position whether it is separate or integrated with the other data. Also modelling introduces standards for the exchange and conversion of data among the various services for different organizations.

2.6. e-Land Administration

Early land administration activities adopting digital technologies were often intended to enhance the performance of specific government programs or activities. Various LA agencies established computer systems for land record keeping, service delivery, internal work flow management and so on. However, developed in isolation within agencies, these systems were generally standalone, that is, agencies often developed their own internal computer systems that were independent of and not interoperable with other

systems. Meanwhile, confluences of ICT that began in the mid 1980s and extended to the graphic based web in 1994, have brought the potential for an ICT enabled LA (Aldrich et al., 2002). In addition to the expectation of an e-LA one could consider whether e-LA is the provision of what citizens want or conversely e-LA is what agencies want. This raises another question for e-LA, that is, the reengineering of current LAS using ICT (Aldrich et al., 2002).

e-LA is defined as the capacity to transform LA through the use of ICT. e-LA includes the coordination of various subsystems of LA including front office operations like online customer services and private partnership services, and back office operations like internal workflow processes and database management through interoperable mechanism and tools as well as inclusive land information (Lemmen and Van der Molen, 2004). This definition covers two different perspectives (Williamson et al., 2006). One is the sum of all electronic communication between LA agencies, the private sector and citizens that is interoperable. The other perspective is the sum of electronically provided land information that has to be available to the public due to LA objectives. To establish an e-LAS, five phases are suggested (Aldrich et al., 2002): the first is internet-based LA. This includes delivering organizational information to customers over the internet and via intranets to the LAS staffs on private internal networks which is as far as most LAS today has gone. The second phase is transacting with customers over the internet that is the organisation offers products and services to their customers over the Internet. The third phase is integrating services with transactional e-LA by connecting internal enterprise applications and transactional e-LAS. The fourth phase is external integration with partners and suppliers through connecting internally integrated applications to the enterprise applications of external partners. The final phase is conducting e-LA by undertaking real-time monitoring and understanding of the e-LAS (Figure 2-4).

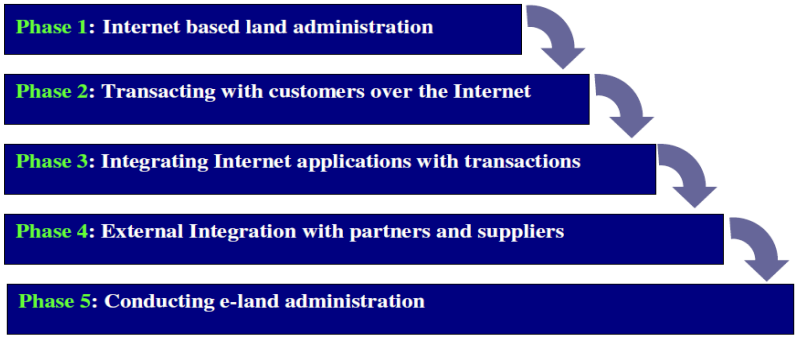

Figure 2-4 : Developing e-land administration from phase one to phase five

Land administration systems create a website due mainly to pressure from the media, technology educated employees, demanding clients, and competition with the other organizations to get their services on the net. Many LAS initiatives on web development and online services belong to this stage (Aldrich et al., 2002). Toward the end of this stage, mostly pushed by clients' demands, LAS begin to establish index pages or a localised portal site for their services in which scattered electronic documents and data are organised so that clients can search for and view detailed related information (Steudler, 2004). e-LA initiatives will focus on connecting the internal systems to online interfaces and allowing clients to transact with the LAS electronically. At this stage, e-LA efforts consist of putting database links onto online interfaces, so that, for example, citizens may ask for a certificate online (Ismail, 2009). As LA websites evolve, the value of the internet as another service channel for clients is realised. Clients demand to fulfil service requirements online instead of having to go to a specific location, for instance land registry, to complete paperwork. Electronic transactions offer a better hope for improved efficiency for both the client and the subsystem than simply providing information online. While the first phase helps clients find appropriate services, this phase presents LAS on the other side of the internet as an active respondent. It

is now a two-way communication (Steudler, 2004). Clients transact with government online for example by filling out forms and LA responds by providing confirmations, receipts and so on.

LAS will be pressed to integrate their systems with these web interfaces, or in some cases, build online interfaces directly connected to their functional intranet. Clients' demands and technology evolution push LA to go further as the critical benefits of implementing e-LA are actually derived from the integration of internal processes with online transactions (Ismail, 2009). By having online transactions and internal process integrated, clients will see LA as an integrated service provider. Such integration will facilitate one-stop shopping for clients. If a client conducts a transaction such as a vendor certificate with the land registry, the transaction information will be propagated to land mapping. These various levels of systems talk to each other so that the results of transactions from one system can be interchanged with another system. Physically, this may be integrated as a central database or a connected web of databases communicating with each other. Once online transaction services become integrated with internal processes, prevalent and mature, in this phase a natural progression will be the integration of scattered services with different LA partners and suppliers. LA subsystems, external suppliers and partners are expected to connect or at least communicate with each other online (Ismail, 2009). While some subsystems' websites currently provide links to other partners at different levels, functional integration goes beyond this simple interconnection. In this respect, many interoperable data models will emerge. These data models may not be located physically at one place or be physically one, but by talking to each other, the connection will become more transparent. Implementing the fourth phase of e-LA makes the interoperability issue more outstanding.

Having implemented the four first phases, e-LA is now in place. The last phase will be dedicated to assessing, monitoring, and maintaining e-LA. There are various factors that influence the efficiency of e-LAS. Maintaining e-LA requires identification of these factors and a methodology to monitor e-LAS and analyse it using the identified factors (Aldrich et al., 2002). The assessment should consider factors such as performance, functionality, user friendliness and popularity. The main task in the last phase of implementing e-LA is developing methods and performance indicators to assess the services and standards of e-LA. In order to maintain e-LA services for the needs of clients, assessments should examine clients' needs, and their capacity to find and use relevant information. Assessments of e-LA should also investigate infrastructures that underpin the use of e-LA.

2.7. Interoperability in e-Land Administration

Interoperability in information systems is the ability of different types of computers, networks, operating systems and applications to work together effectively, without prior communication, in order to exchange information in a useful and meaningful manner (Wikipedia). In the domain of spatial information interoperability is cooperation the compatibility of an information system to run, manipulate, exchange and share the data of different organizations related to spatial information on, above, and below the earth's surface; for any kind of application to serve the society over networks (United Nations, 2008).
The complexity of LAS raises issues related not only to technical aspects of the subsystems' interoperability framework but also to the semantics, legal and intercommunity aspects which need to be addressed to achieve interoperable e-LAS. An interoperability framework in e-LA facilitates the ability to link LA subsystems cost effectively to share resources, find data, and deliver functions and processing to serve the public. Interoperability covers a wide scope, to be classified in various aspects. There are four aspects to the interoperability framework in e-LA.

LA is viewed from different perspectives. The lack of semantic interoperability and heterogeneity occurs where there is a disagreement about the meaning, interpretation, or intended use of the same or related data in various domains (Tuladhar et al., 2005). In other words, the different but related domains in LA

need to be harmonised, as within one domain such as the cadastral, there are already difficult to agree on concepts and semantics; it will be even more difficult then when dealing with other domains like registry, taxation and so on. A single standard might not be possible but a core standard based on common concepts should be achievable; there should be common concepts that allow talking across boundaries (Lemmen et al., 2005). Semantic interoperability represents harmonised terminology and the interpretation of concepts, for example, a unique definition for the third dimension of height in all LA organizations.

LA organizations have internal process and workflow management solutions. However, for effective administration across the related organizations, there is a need for a range of guidelines and policies. For example, to ensure the optimum use of space and to enable e-convincing to operate efficiently and effectively, there must be a framework of laws (United Nations, 2004) which facilitates legal interoperability among the organizations. Furthermore at the international level it is interesting to observe that property registration infrastructures remain mainly regional/local while banking infrastructures are global. The real estate market can, at least for a subset of society, become global as well (United Nations, 2004). The global land market needs internationally accepted policies. Legal interoperability will develop directives, rules, parameters and instructions for managing business work flow, considering information and communication incorporation in the business.

Intercommunity interoperability is concerned with the coordination and alignment of business process and information architectures that span people, private partnership and the public sector. Its leads LAS to be built on a basis covering the whole sector for LA, so users should not have to turn to a number of systems to get a complete picture of the services (United Nations, 2004). For example, multiple agencies with overlapping LA roles and responsibilities, each supported by empowering legislation, is a critical issue in some countries in Asia. Also coordination is a critical issue in Africa where there are major problems surrounding the flow of spatial information for LA purposes both within government, between departments at national level, between national and lower level tiers of government, and between government, the private sector and users (WorldBank, 2003). Intercommunity interoperability includes ensuring consideration of providing a unique portal to perform various tasks and application in LA. A simple and single portal instance for intercommunity interoperability is the Google account.

Many types of heterogeneity are due to technological differences in LAS, for example, differences in databases, data modelling, hardware systems, and software and communication systems. The differences in DBMSs are largely in data models which have direct impact on data structure, constraints and query languages (Radwan et al., 2005). Also, in order to satisfy market needs, the data must be reliable and timely for all users. In order to minimize data duplication, data sharing partnerships between data producers are coordinated so that there are fewer conflicts on their data standards (Tuladhar et al., 2005). Another example of technical interoperability is the benefit of web services for cadastral information, which is the ability to use functions between any kinds of platform regardless of programming language, operating system, computer type and so on (Hecht, 2004). Consideration of technical interoperability includes ensuring an involvement in the continued development of standard communication, exchange, modelling and storage of data information as well as access portals and interoperable web services equipped with user-friendly interfaces.

2.8. Cadastre and Land Registry Agency of the Netherlands (Dutch Kadaster)

There is deed registration system in the Netherlands. Land registration and cadastral mapping are tasks at national level, assigned by mandate to the Dutch Kadaster. The agency comprises a head office and 15 regional offices. In these offices the registers are kept, the boundaries surveyed, maps maintained and information disseminated. It is responsible for maintaining the registers on real estate, mortgages, cadastral map and the provision of cadastral information. It provides clarity about which a certain registered

property belongs to and what its characteristics are. The notary public plays a major role in the procedures of land transaction (van der Molen and Wubbe, 2007). Public registers in which notaries deeds are recorded as they come in and also are comparable with the land registers kept by the courts in other countries. The reason for filing in this order is the importance of the ranking of real rights. The employees of the agency extract the essential elements from the deed; these form on their turn the input for the cadastral registers and maps, providing registers on name, parcel, and street address. In essence the cadastral registers and maps are auxiliary registers to provide access to the public registers with analogue format; books with paper deeds, copied to microfiche. Both cadastral registers and cadastral maps are 100 % in digital format. In addition to the basic relationship men-right-parcel there are many attributes; land use, purchase prices, various legal essentially, parcel surface area, etc. (Van der Molen, 2003a).

Van der Molen (2003b) emphasizes six elements in order to make land registry and cadastre more structurally effective, namely the continuous awareness in customer requirements, products and services in compliance with the specifications, compliance with delivery schedule, rapid resolution of problems, settlement of complaints in a manner acceptable manner and the provision of support to customers in their use of the information they receive. He also provides a model for customer satisfaction with perception and expectations as key elements for satisfying customers of land registration and cadastre. The organization has been redesigned as a front office (Marketing and Customer Services Department-MCSD) with a back office operating (Production team) to support the front office requirements. The MCSD is responsible for all activities with regard to marketing, account management; customer services and shop sales for all products to customers through all possible means of communication are directed. The back office is responsible for registration, administration, land surveying, large scale standardized information production; all based on agree product specifications. The production of customized products is centralized and undertaken by the back office (Magis, 2002).

2.8.1. Procedure of the Land Transfer and Mortgages

A normal procedure of a land transfer is as follows. If a buyer and seller agree on a sale, a notary public (compulsory) will draw up a notary's deed of transfer, after verifying the right to dispose by the seller. After the signing of the deed by both parties and the notary, the notary public signs a copy as a true copy which is submitted to the agency. The land registrar of the agency checks some formal requirements, and records the deed and provides relevant evidence for this to the notary public (Woutersr, 2007). As the notary public is also the intermediate for the financial arrangements, the purchase price is kept by the notary public until the evidence of recording is received; only then the purchase price is paid to the seller. A similar procedure pertains to mortgages, which secure loans on land and buildings. In the case of the transfer of a subdivided land parcel, the land surveyor of the agency will survey the new boundaries, and allocate new parcel identifiers (Booij mba, 2003). In the Netherlands a system of licensed private surveyors, mandated to do the cadastral survey, does not exist. Land surveyors employed by the agency perform all boundary survey works. As such there is no involvement of the private sector. However, the private sector plays a role in the sense of being contracted to do specific jobs under the supervision and responsibility of the agency (Van der Molen, 2004).

2.8.2. Capacity Building

A lot of effort is spending on actual handbooks for the different working processes and on quality management. Some 50% of the employees are older than 45 year. So this is a special problem in education and training. In fact there is a growing need in internal technical training of employees. New (young and well educated) employees are mainly applied in the ICT division and in marketing. At university level the Delft university of technology offers education in geodesy in a full programme. At college level, the Hogeschool Utrecht offers B. Sc programme. At middle level land quite a few schools offer surveying as a post programme after civil engineering. At technician level private institutes offer special vocational courses, which are officially recognized by the government (Van der Molen, 2003a).

2.8.3. Good Characteristics

Some of the good characteristics of the Netherlands system are the following (Lemmen and Custer, 2007; van der Molen and Wubbe, 2007):

- The system adopts a computerized registration procedures and simplifiers the retrieval and process of data access, thus it can provide up to date information and timely available data to customers
- The system provides legal security in real estate transactions
- The system guarantees quality of data and products by adhering to the ISO standards and by implementing national triangulation network and ensuring authentic registration procedure.
- The Kadaster system has ensured sustainability of operation and existence by venturing into international consultancy and adopting a customer and market oriented posture with services-directed policy.
- The system has a sound product distribution strategy that adopts the one-stop-shop strategy providing ease and access to customers.
- Kadaster implements a coordination strategy and ensures good relationship with council of users maintains linkages with municipalities and maintains a Kadaster network.
- The Kadaster also institutes a program for staff development and warrants that staffs have open and flexible attitude.
- The system is protected and legally upheld by the Kadaster organizational act and the land development act.
- Compulsory registration of real estate transaction that guarantees the system is complete and reliable.
- Updates are based on notaries' deeds and land surveys.

There is good co-operation between Kadaster and academia. The academia is assisting Kadaster for the research works. Some senior executives of Kadaster are working in a university as a visiting professor.

2.9. Concluding Remarks

In this chapter, basic concepts about the LA, cadastral systems, e- government, e- LA, interoperability and different aspects of land registration were discussed. Main structure concepts including e- government and LAS for developing e-LAS were identified and discussed. Thorough e-government concepts variously defined, essentially embraces the use of ICT in public sector to improve internal function and process to make more transparency for citizens and businesses, increasing access to information provided by government and empower citizens. Introducing of e-government not only brings potential benefits but also brings some challenges and risks. Increasing efficiency and transparency, improving services delivery, empowering citizen and reducing corruption are the potential benefits of e-government which can be realised under certain conditions. In constant, there are many obstacles' including institutional weakness, human resources, funding, local environment, policy and technical issues in implementing e- government.

The Dutch Kadaster is a good example of e-government implementation for LAS. When transforming from traditional LAS to e-LAS, not only the use of ICT is required to provide better services delivery, but also citizen participation and changes in organisational structure need to be taken into consideration, however some components of land policy, marketing and registration can be found in each system. Cadastral data model and LADM provide some guidelines for the development of efficient and effective cadastral system. The land tenure for both urban and rural environments requires the development of a land policy that would guide the needs of citizens, while protecting and conserving land resources.

3. FIELDWORK DATA COLLECTION

3.1. Introduction

This research intends to analyze the existing land registration system in Nepal to find out what are the users requirements to implement the e-land registration system accordingly.Interview, questioner and observation methods are used in this study to acquire both quantitative and qualitative data. Reliable information on the current situation and the actual needs from user's perspective were collected from government agencies and private organizations. Research ethics take into consideration how the researcher behaves and treats the respondents as he/she conducts the research (Kenneth, 2007). The aim of the fieldwork is to collect data needed to the investigation of user's requirements, short comings of the existing manual system and the gaps. Interviews with the stakeholders included government and private organisations officers, and users such as financial institutions, real estate agents and land owners. This provided knowledge about organizations' structure and short coming of the existing system.

3.2. Fieldwork Preparation

Four districts were selected in the case study area for performing interview and observation. Before fieldwork, in consultation with the research supervisors, questionnaires are designed and the study area was chosen. In the meantime, the methodologies for collecting data are defined. At the pre-fieldwork phase, preparations were done as follows:

- Make a fieldwork schedule
- Make employees questionnaires and prepare the specific questions for each employee
- Select study area as Kathmandu, Lalitpur, Bhaktapur and Kavre in four districts
- Discuss with local supervisors
- Make an appointment with each department according to field work schedule
- Make reservation for accommodation in Nepal
- Make list of data to be collected

The questionnaires are designed four different groups namely the policy makers, Internal/External users and other experts involved in the field of LA system. All the questionnaires are designed with semi-structure questions on the basis of the main five categories of land registration process. See all questionnaire forms in Annex 6.

This questionnaire is intended to be an outline for a half to one hour interview. The interviewers do not need to fill it in advance. The format is flexible as it also contains open type of questions to get respondents' views. This research is interested in the respondents' views as an individual, which may or may not fully reflect the organization. The questions include detail to indicate the types of information which the investigator needs to prepare analyzing the registration process. Before starting the interview, all the respondents were informed about the purpose of the research which is purely for educational matters and explained what types of data were required, and also were asked whether they allow the recording of the interview. A small number of them did not like recording, so this was not done. Some of the questions were open-ended; so that they could answer freely and provide more information others are closed-ended questions. At the end of the interview, a chance was given to all the respondents to express their views on the issues not covered by the questions. Main points of discussion were noted in the interview diary. Finally, the interview note was discussed with them to know whether their views were stated correctly and thanks was given for providing time for interview.

3.3. Primary Data Collection

Researcher prepared separate questionnaires for the mentioned categories of interviewers in different domains such as organisational structure, registration process, legal situation and data handling methods, through some particular questions were the same. It was necessary to have separate questionnaires because, the respective land related organizations gave different roles they play and users gave their roles so the method of collecting data from organizations and stakeholders differ. The process of interview and observation is described below; researcher had 114 responses and the details are shown in the table 3-1.

The separate sets of questionnaires were used for each category in different fields to collect the data, though some particular questions were the same because of their respective roles they play in the organization were interrelated responsibilities. The questionnaires included both the closed ended and the open ended questions as well. The objective behind the open ended interview was to identify and acquire any hidden but important issues that otherwise will be missed with closed ended. Semi-structure interview were conducted with the employees of different organizations to acquire information on user requirements in the current situation and also users (internal and external).

Policy makers of MLRM

The separate sets of questionnaires were used for Survey General (SG), director general (LMTC), director general (DoLIA), director general (DoLRM) and joint secretary of the MLRM to collect the data. First researcher got appointment from the head of each department, so they reserved one hour discussion with researcher and conducted the meeting without any interference. Before the interview, researcher introduced himself, the objective of the research which is purely for educational purposes and explained the types of data required, and also asked if the discussion can be recorded. Researcher was privileged to be around and got some of the members to fill the questionnaires and for some of them the answers were recorded. The entire questionnaire for the respondents contained forty questions (figure 3-1).

Figure 3-1 : Interviewing policy makers

They assured me they have answered them genuinely because they were aware it was solely for academic purposes. This was not the first time for them to be contacted by researcher and they knew how such research will help them particularly to improve their land organization in the country. In total researcher received 5 responses from policy makers and the details are shown in the table 3-1 below.

Internal users of Land Revenue Office and Survey office

The interview was conducted at the premises of the LRO and SO of each district. The first interview was conducted with a land revenue officer; He is the senior officer in the Kalanki LRO in Kathmandu district according to the appointment made by the officer. Then researcher selected four other employees in the same office in different positions of hierarchy and started the discussion. The researcher gave questioners to the respondents and asked questions based on the prepared questionnaire. The conducted interviews were semi-structured and flexible; it took an average of one hour discussion with each employee. The discussion with the senior officer and the way of answering questionnaire was recorded with prior approval from officers. Then researcher selected 8-10 users like land owners, real estate agents and Lekhandas who are coming to the office to obtain some services, randomly the same day by giving them a prepared questionnaire and direct discussion with them and noted important points in my dairy(figure 3-2)

Figure 3-2 : Interviewing internal users

External users

The interview was conducted at the premises of the banks and municipalities and other related offices of each district. The first interview was conducted with a municipality's officer; He is the senior officer in Kathmandu district according to the appointment made by the officer. Then researcher selected two other employees in the same office in different positions of hierarchy and started the discussion (figure 3-3).

Figure 3-3 : Interviewing external users

Next researcher discussed with the three senior officers in different banks and two officers from finance company and five officers from real estate agent of Kathmandu and Bhaktapur district according to the appointment made from the different head officers in each organization mentioned. The researcher gave questioners to the respondents, asked questions based on the prepared questionnaire. The conducted interviews were semi-structured and flexible; it took an average of forty five minute discussion with each employee and noted important points in my dairy. In totally researcher discussed 13 responses from external users and the details are shown in the table 3-1.

Type	***Organization***	***No. of Interviews***
Policy Makers	Ministry of Land Reform Management (Joint Secretary)	1
	Land Management Training Centre (Director General)	1
	Department of Land Inform Arc view(Director General)	1
	Department of Land Reform Management(Director General)	1
	Department of Survey(Director General)	1
	Sub total	**5**
Internal Users	Survey office and Land Revenue Office at Kalanki District	15
	Survey office and Land Revenue Office at Chabhil District	15
	Survey office and Land Revenue Office at Dillibazer District	16
	Survey office and Land Revenue Office at Lalitpur District	15
	Survey office and Land Revenue Office at Bhaktapur District	15
	Survey office and Land Revenue Office at Kavre District	14
	Sub total	**90**
External Users	Municipality at Kathmandu	3
	Banks at Kathmandu	3
	Financial institution at Kathmandu	2
	Real estate agents at Kathmandu	5
	Sub total	**13**
Others experts	Civil society at Kathmandu	2
	District courts at Kathmandu	3
	University of Kathmandu	1
	Sub total	**6**
	Grand Total	**114**

Table 3-1 : Interviewing stakeholder's details

Other experts

The interview was conducted at the premises of the related organization in Kathmandu district. The first interview was conducted with two officers from the civil society in Kathmandu district according to the appointment made from the telephone separately. Then researcher selected two lawyers and registers from Kathmandu district court and started the discussion. Finally researcher discussed with one senior lecturer in Kathmandu University. All the discussions were held according to the appointment made by the same officer. Otherwise it was very difficult to contact the persons because they are always busy. The researcher gave questioners to the respondents and asked questions based on the prepared questionnaire and noted important points in dairy. The conducted interviews were semi-structured and flexible; it took an average of forty minutes discussion with each employee, in totally interviewed with 6 other experts from different fields and the details are shown in the table 3-1 above.

The researcher observed employees' activities of the respective LRO and SO as researcher went around their offices in all the four districts. This observation of real practice of land registration is another method of data collection applied in this research. A field work support letter from ITC was given to the LRO and SO at the beginning. Then the researcher directly observed the activities of the land registration, workload, management of queue, help desk, citizen charter, status of record management and the endeavour made by those employees to serve the users etc. The queue was not systematic; most people were waiting on chairs or standing in front of the office rooms, only few people were in queue. The employees were

generally following the queue. In some cases, researcher asked some questions from any member met for clarity about the situation which researcher couldn't understand. Some offices were in acceptable condition because they are equipped with computers and chairs and tables but some offices were not up to those standards which are established in rented private building. When researcher enquired, one member of the staffs told me the applications forms for registration were always on papers because the computerized system was not established. Comparatively, researcher realized that employees of some sections were more busy compared to some in other sections. The number is not enough as compared to work load, though this was a personal opinion, because everybody was too busy at any time researcher visited the office premises. Still the target set to complete the registration process couldn't be finished within one day, because of the number of applications received in a day, lack of computerized system and many steps to be followed by users. Findings from the observation were noted in the interview diary. A check list for observation (Annex 7) was prepared and approved by the supervisors before going to the field and observation details are shown in the (annex 5).

3.4. Secondary Data Collection

Secondary data were obtained from district level LRO and SO for this research in order to cross check and understand deeply the existing registration process. Details of secondary data are shown in table 3-2. Check lists of documents need to be collected was prepared before the field work and approved by supervisors

Organization	Data Received
Survey Office	Mandate of the organization, Acts, Rules and Regulations, Copy of field books & plot registrars, Progress reports of last fiscal year, Topographic Map, Cadastral data of Bhaktapur district
Land Revenue Office	Mandate of the organization, Acts, rules and regulations, Land ownership records, cadastral data and land use data, Field data collection forms, Progress reports of last fiscal year

Table 3-2 : Secondary data collected from SO and LRO

3.5. Data Processing and Discussions

After designing the methodological framework as well as the data collection techniques, there was need to prescribe an appropriate approach to help analyze these data that was gathered vis-à-vis the research objectives. There were two issues involved in the information generated from the interview surveys. The primary quantitative data collected from the respondents in the questionnaire were entered into Statistical Package for Social Sciences (SPSS) software (closed ended questions) and used in statistical analysis by using SPSS and Microsoft excel for the presentation of results. The analysis of the data was based on the user's requirements and how they perceived them in terms of existing situation of land registration process and legal/administrative activities. The open ended questions amongst the questionnaires were managed using the clustering and coding method in such a way that different users are grouped in accordance with their organization and profession. The qualitative and quantitative data were encoded manually using the thematic approach. The different themes were identified from the research questions and encoded. Answers from the respondents which were similar from my perspective were grouped. The encoding was done along the lines of organization, registration and legal situation, data handling and updating procedures and user requirements

The primary quantitative data collected from the respondents by using closed ended questions were entered into SPSS software. Data processing was conducted using the same software and in some cases excel was also used. Much of the analysis was based on descriptive statistics to summarize survey results. This was used in statistical analysis, though the respondents 114 were involved in four categories in land registration process; hence the qualitative aspect was reliable for the analysis. This was necessary because

of the various responses from different land related agencies involved in the registration process. The answers from the interviewers were grouped into categories to enable quantitative measurements, because some questions were common to some of the interviewers and in order to compare the respective answers, the researcher used this method. This was guided by the research objectives and questions for the study. Apart from the same or common questions, interviewers answered questions pertaining to their duties or responsibilities in each organization because the researcher believed if interviewee was more involved in a particular duty it was reasonable to ask questions related to that for qualitative information. For the overall results, comparative analysis was done to investigate user's requirements and answer the rest of the research questions for the study.

3.6. Limitations in Field Data Collection

Interviews with financial institutions had to be rescheduled several times. This made the field work difficult in visiting banks which keep changing appointments because the officers are all ways busy. Making a follow up of questionnaires with peoples was difficult as some respondents were not available at the time of collecting because most of the respondents spent their day time running from one organisation to another one due to their departmental activities. Due to time limitations the proposed Kaski district was not met but instead of Kaski researcher selected Kavre district to conduct interviews.
During the fieldwork data collection we had some barriers, those are mention as follows:

- **The language**; Interviews' in state and private organizations can be conducted in English well but difficult for communication with the local people in communities; we had to get the assistants from Nepali language translator for data collection.
- **The weather/climate**: The weather during data collection is still in monsoon season, it makes difficult to travel into case study area. And also have to be aware of the risk of some diseases, such as mosquitoes.
- **Travelling**: Travelled by taxi for data collection in all four districts, because most of the main roads were blocked by landslides and traffic.
- **The accommodation**: Kathmandu city areas are much more expensive than the other places in Nepal, due to tourist attraction place.
- **Limited time period :** Three weeks were not enough to cover the four districts and other institutions involved in land matters such as banks, micro finance organizations, civil societies etc.

3.7. Concluding Remarks

The field study followed a structured methodology to collect information regarding the land registration, institutional and technical situation, affecting LA in Nepal. The methods of communication and observation were used for data collection. The primary data was collected using the methods of questionnaires, interview and observation of existing situation. The secondary data was collected from existing documentation and archival records. The stakeholders' preferred decentralized updating of cadastral information. The human resource, ICT support and physical infrastructure are not sufficient for decentralized LAS. Public and private (lakendras and real estate agent) partnership for cadastral data collection and updating was not efficient. In this research, a case study of land registration at district level in Nepal was carried in order to find out the problem of existing situation. The primary data collection is done by interviewing 5 employees in high level management in deferent LA organization as policy makers , 90 respondent as internal users, 13-respondents as external users and 6-respondents as others experts. The information about registration process and surveying activities (LRO and SO) were observed without participating during secondary data collection. The different themes were identified from the research questions and encoded. The encoding was done along the lines of organization, registration and legal situation, data handling and updating procedures and user requirements are used in statistical analysis by using SPSS and Microsoft excel for the presentation of results . In overall, the fieldwork provided sufficient information on the current situation as well as the users requirements.

4. DATA ANALYSIS

4.1. Introduction

In this chapter the results of the data analysis based on SPSS is presented. The analyses are focusing on the findings in the process of the distribution of information to various end users in G2G and G2C, and also identify the reasons of the gap between government organization and the citizen based on the above findings as answer to sub objective 1 of this research. The data for the research were collected from four districts (six SO and six LRO) of Nepal. Most of the data are based on interviews with employees from all the levels in their hierarchies and the customers of the organizations. The responses were open and independent without any pressure. Researcher observed that their answers were representative in most of the levels in the organization. Respondents were informed about the purpose of the study before the interview, all the questions asked were open-ended, to allow them to answer freely and provide more information than in the closed-ended questions. Before presenting the results of the fieldwork, a description of the existing land registration system including interaction between G2G and G2C, the citizens' expectations from LA organization was presented. Researcher analysed the data mainly related to the organization situation, the registration process, legal situations and data handling, this allowed me to identify gaps and reasons and finally this chapter ends with concluding remarks.

4.2. General Overview of Existing Land Administration System

In Nepal LAS is uniformly established from central level to district level. It is carried out through a hierarchical structure of two administrative management levels including central and district levels. Each level has a mandate and responsibility in dealing with the land management function.

4.2.1. Organizational Arrangements

The Department of Survey under the Ministry of Land Reform and Management (MLRM) is responsible for cadastral survey and preparing field books to maintain cadastre. Updating cadastral maps is undertaken by SO in district level; whereas land registers are updated by LRO of the Department of Land Reform and Management (DoLRM) under the same Ministry. The Department of Land Information and Archives (DoLIA) is responsible for the automation of land registers and maps, which is also under the same Ministry. Beside this, a Trust Corporation is handling the records and collects the land revenues from trust land in separately. Therefore, there exists some kind of organizational duplication or overlap for similar work (ADB, 2007)see figure 4-1.

Private sector consulting firms sometimes perform cadastral mapping, however the documents have to be legalized after checking and inspecting by the survey department. There are three professional associations namely Nepal Surveyor Society, Nepal Surveyor's Association and the Nepal Association of Chartered surveyor society. However, their activities in the professional development in the country lag very far behind. There is one Land Management Training Centre (LMTC) under the same ministry for training surveyors and which has commenced academic degree course in Geometrics Engineering since August 2007 in collaboration with Kathmandu University. There are many private training institutes which provide GIS training. However such courses and trainings concentrate more on use of one or other GIS software package rather than developing and managing computer based Geo-ICT projects (Acharya, 2009a).

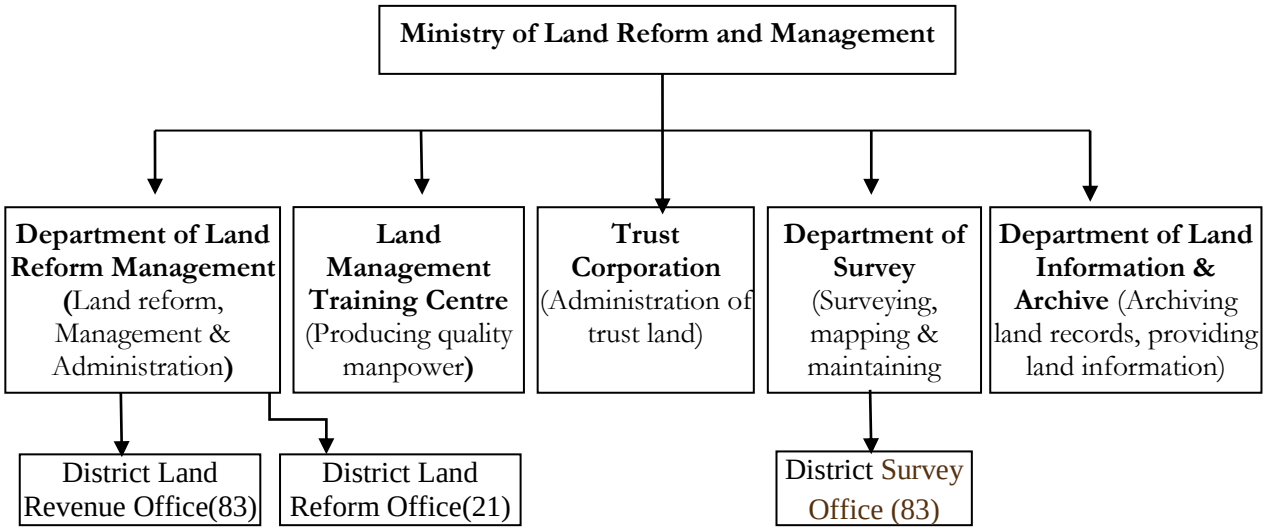

Figure 4-1 : Organizational structure of department involved in the land under MLRM(Acharya, 2011)

Central organizations level

- Ministry of Land Reform and Management (MLRM) is the responsible ministry of the Government of Nepal to look after policy, planning and overall management of organisational and institutional management for LA and management issues in the country.
- Department of Survey (DoS) is responsible for carrying out cadastral survey for the first registration to establish cadastre and updating of cadastral map and related documents, among others, through Survey Office (SO) at district level. The department facilitates MLRM in policy issues, supplies necessary resources to the SO, and supervise and monitors the activities throughout the country.
- Department of Land Reform and Management (DoLRM) is responsible for land registration activities, land reform, management & administration through LRO and land reform office at the district level; the department facilitates MLRM in policy issues, supplies necessary resources to the SO, and supervise and monitors the activities throughout the country.
- The Department of Land Information and Archive (DoLIA) is responsible digitizing the cadastral maps and land records, and ultimately developing land information system in the country.
- The trust cooperation is responsible for administration and management of trust land. The cadastre related to the trust land is prepared by the SO.

The District level organizations

The central organizations have a role in policy issues and providing resources whereas district level organizations are responsible for providing services. The survey office (SO) is responsible for cadastral survey to prepare land records for establishing cadastres and updating of the cadastral maps and related documents. LRO are responsible for land registration activities and updating land registry at the district level. LROs further deal with LA and management activities at the district level with the technical support from SOs. The district level organizations are representative and accountable for the corresponding department at the central government.

The local authorities, Village Development Committees (VDC) and Municipalities, are responsible for issuing a letter of recommendation, in needed, for transfer of ownership, certifying the availability of infrastructure like roads, and issue a letter of restrictions, if any. The land and property taxes are collected the local authorities. Therefore, tax clearance certificate from the authorities is also required for land registration. Thus, the process of registration is divided into following steps. A simple transaction process

mediated by the real estate agency and financed by bank or financial institutions is considered in describing the registration process.

4.2.2. Land Transaction in Nepal

Here below an overview is given of the land transaction process in Nepal. The description of the land transaction process is based on interviews in Nepal. During the interviews translations were needed. The persons who have been interviewed knew the formal procedures on land transaction within their organization. But the overview below includes all organizations concerned. The main goal of the description below is to clarify that the transactions on land concern inter-organizational workflows. The vendor and buyer have to go to different offices, not to one. The formal procedure may be slightly different compared to the description below. A comprehensive overview of the process can be found in MSc thesis on designing a user oriented business process for land registration in Nepal (Subedi, 2009).

Step 1: **Contacting real estate agent:** The land owner makes his intention to sell his land known to the real estate developer
Step 2: Advertisement: The real estate agent checks documents, property and advertisements for sale.
Step 3: Inspection of property and examining crediting options: Potential buyer contacts the real estate agent and inspects the property. Finds credit options if interested.
Step 4: Examining creditworthiness and promises for loan: Financial institutions inspect the property and examine its creditworthiness. Promises loan if satisfied.
Step 5: Agreement on conditions of sale: The vendor, buyer and at times the real estate agent discuss conditions of sale, including the price of property, terms of payment, and deadline for registration.
Step 6: Signing pre-contract paper: Upon agreement, they prepare a pre-contract paper, either themselves or with the help of conveyor. The pre-contract paper is signed after an advance is paid, including two witnesses.
Step 7: Submitting application: The land owner submits application to the concerned municipality to obtain the valuation report. Sends it for valuation and then brings the certificate of ownership to buyer for full payment.
Step 8: Verification and preparation of documents: Municipality office prepares the documents. The application is registered and sent to the section responsible. The technician verifies records and inspects the property in the field. A valuation report is prepared. In case of payment of land revenue, he verifies the records and prepares receipt.
Step 9: Payment of revenue: Now the land owner is requested to pay land revenue and taxes or fee (if any). He pays the revenue to the clerk of the tax section (tax invoice in municipality).
Step 10: Issuing document: After payment, the valuation report is verified by the officer or secretary. Then it is dispatched to the registry and receipt of land revenue is issued by the clerk.
Step 11: Preparation and signing of deeds: The buyer finds a conveyor and requests to prepare deeds. The vendor and buyer, representatives of creditor financial institutions meet in the conveyor's office. The conveyor checks the documents and prepares deeds of transfer and mortgage and includes all required documents such as the citizenship, ownership certificate, receipt of land revenue, valuation report and recommendation letter. Then he signs the deeds as well as the other parties, including two extra witnesses.
Step 12: Checking deed and documents: After receiving deeds, a junior clerk checks if all necessary documents are present. He brings to the attention of the conveyor any mistake for him to correct. Then junior clerk sends the deeds to the record section.
Step 13: Checking records: Verification done by junior clerk and sends the deeds to the registration section, if not verified returns to the conveyor. The conveyor includes required documents and submits the deeds again. If these documents are not provided, he returns the deeds and documents to the client.
Step 14: Registration of application: After verification of ownership and restriction records, senior clerk of the registration section checks whether all required documents are included and the deeds are written

and spelled correctly. He requests the conveyor for correction (if necessary). Then he registers the application in the register called Tokan Kitab.

Step 15: Order for parcel sub-division: In case of partial parcel, senior clerk issues for parcel subdivision order and sends the deed of transfer to the SO. In case of whole parcel, the process of identification as described in step 25 starts.

Step 16: Registration of parcel-sub division order: When the parcel sub-division order is received in the SO, office assistant registers it in the register called Likhat Darta Kitab and then submits it to the surveyor officer.

Step 17: Order to the concerning section: The surveyor officer orders it to the responsible section for parcel sub-division.

Step 18: Checking deeds: When an order for sub-division is received, Assistant Surveyor (AS) checks the deed whether the necessary details about the parcel is clearly stated or not. If not, he returns the deed to the LRO for correction.

Step 19: Parcel identification and area check: AS identifies the parcel in the cadastral records. Then, he checks the area. If there is any discrepancy he informs the survey inspector. It is further checked by the survey inspector and surveyor and approved by the surveyor officer. Then the SO requests the LRO for amendment in the records. LRO decides for amendment, updates records and informs to the SO to update in the cadastral records.

Step 20: Field verification: If the buyer wants to verify the boundaries in the field, AS informs him about the payment of field charge (invoice in SO). Then assistant surveyor invites the buyer and owners of the neighbouring parcels for boundary verification after payment. He prepares field notes also.

Step 21: Parcel sub-division and temporary update: After field verification, assistant surveyor prepares two copies of parcel sub-division plan, sub-divides parcel and assigns new parcel numbers. He temporarily updates the map and plot register.

Step 22: Checking parcel sub-division plan: Survey inspector checks the parcel sub-division plan to identify whether the parcel is divided correctly according to the received deed and if records are maintained correctly or not. He informs AS for correction (if any). Then the surveyor checks it again and signs if it is correct. He submits it to the surveyor officer for final approval.

Step 23: Approval of parcel sub-division plan: Surveyor officer checks the parcel sub-division plan. He requests the AS for correction if necessary. Then he approves the plan.

Step 24: Submission of parcel sub-division plan: Office assistant records the parcel sub-division plan and sends it to the LRO with received deed.

Step 25: Identification of vendor and buyer: After registration in the Tokan Kitab (in case of whole parcel) and receiving the parcel sub-division plan (in case of parcel subdivision) the process of identification begins. Senior clerk asks vendor and buyer whether they agree on the transaction. Then the vendor, buyer and guardian sign the deeds in his presence.

Step 26: Checking price: Junior Clerk checks the valuation record. If the value mentioned in the deed is less than the official one, he requests the conveyor to revise it.

Step 27: Collection of registration fee : Junior clerk calculates the registration fee and requests the buyer to pay. He issues receipts after payment and includes a copy with the deed (invoice in LRO).

Step 28: Registration in deed register: After completing the above mentioned procedures, senior clerk registers deed in the deed register and assigns registration number. Then junior and senior clerks sign the deeds and submit it to the LR officer.

Step 29: Registration: The LR officer checks whether the process is completed and all required documents are included or not. He interviews the parties to checks whether they agree on the transaction and the conditions of sale are fulfilled. If they agree, he registers the deed.

Step 30: Updating record and preparation of ownership certificate: After signing by the officer, the deed is sent to the record section. Junior clerk of the record section updates records and prepares

ownership certificate. If the records are computerized, the computer operator also updates records and prints ownership certificate. Then the records and certificate are certified by the officer.

Step 31: Issuing ownership certificate and registered deeds: After certifying by the officer, junior clerk of the record section issues ownership certificate and registered deed of transfer to the buyer and sends another copy including the attached documents to the archiving section. One copy of parcel sub-division plan is sent to the registration section.

Step 32: Archiving deeds: Junior clerk of the archiving section archives the registered deed and other documents.

Step 33: Inking order: Senior clerk issues inking order to the SO and sends one copy of the certified parcel sub-division plan with notification of the registration of deed.

Step 34: Inking and updating cadastral records: After receiving the inking order, assistant surveyor updates the cadastral records and inks the map.

Step 35: Registration of deed of mortgage: After completing the transaction, the conveyor applies for the registration of mortgage deed. The registration process for mortgage deed is also the same as that for deed of transfer but the process of parcel sub-division is not applicable in this case. The LRO registers the mortgage deed and issues the registered deed to the creditor. Then the financial institution issues restriction order. The record section updates the restriction records accordingly and notifies the creditor.

Step 36: Payment of purchase sum: After receiving the notice of restriction, the financial institution provides the purchase sum for the vendor.

4.3. Existing Land Administration Situation

4.3.1. Response on the LA Organization (G2G, G2C)

The junior and senior level employees working in the different sections of LRO and the SO who are engaged in the registration process was interviewed and their responses are presented in figure 4-2.

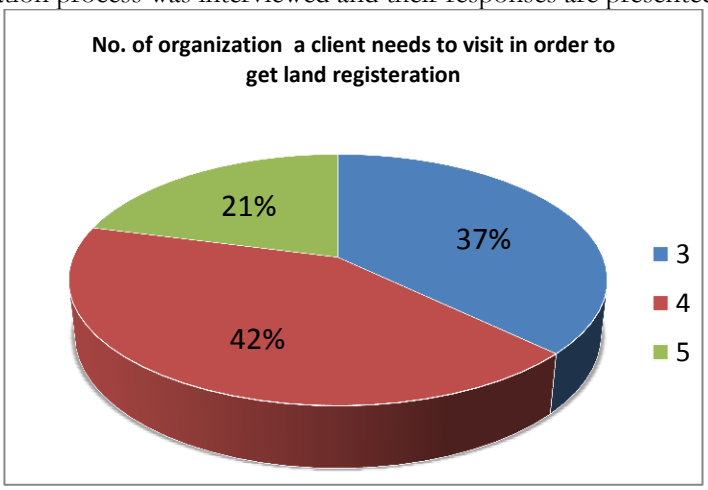

Figure 4-2 : Response about working procedures and organization situation

LRO are interacting (G2G) with four other organizations at district level such as SO, municipality, ward office and town development board for delivering LAS. The graph shows that the clients interact between (G2C) at least 3 to 5 organizations (municipality, ward office, town development board, SO and LRO) in order to get the property registration according to their requirements. According to the clients' requirement at least three to five employees (C2G) from different organizations are involved in the registration process; it is a very long way to provide services efficiently. In every land transaction, for the purpose of valuation of land and house, every land owner must provide a certificate from the municipality office (C2G) that the land is or is not adjoining to the road or track. The land has or has not a house constructed on it. To get this certificate from the municipality is very difficult because over works lord and lack of technical staff. From the field survey, it was found that the interaction between LRO and municipality (G2G) is lacking behind, because less skilled staff of municipality.

According to figure 4-3 most of the respondents have stated that there is a help desk, front office, back office and feedback mechanisms but not effective. During interview, the employees informed me that the clients were not using the help desk or complaint box and front office but follow their Lekhandas or asking other employees (C2G). However according to the response from operation staff, most of respondents said that the front office is only there for receiving applications, guiding citizens and returning results in the offices. Then citizens still have to go to another office such as survey, bank and municipality. From the field investigation, it was found that interaction between (G2G) with municipality brings overlapping responsibilities regarding the checking of cadastral documents when issuing recommendation letters.

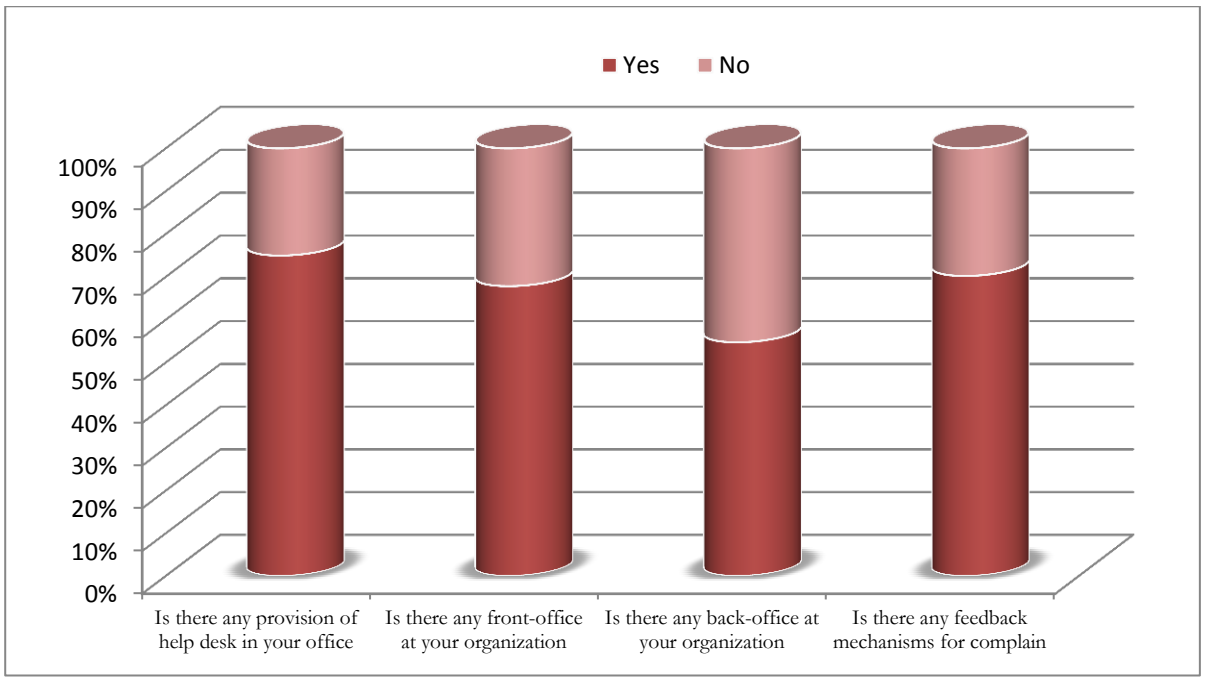

Figure 4-3 : Response about organization situation

For the other organizations, there is not any time limitation legally bound to get back the response, as the citizens themselves have to visit the organization to get their requirement. The efficiency of other organizations affects the efficiency of LRO. During the observation, it was realised that citizens were not satisfied with the services from LRO and SO but only talked with each other about it and did not want to file a formal complaints against organizations.

4.3.2. Response of other Users on the LA Organization (G2C)

Important attitude of the respondent of external users about organization situation are shown in annex 1. Most of the respondents are in favour of integrated organization structure and made coordination among LA organizations (G2G).

4.3.3. Response on the Registration Situation (G2G, G2C)

The figure 4-4 shows that most of the employees need to work 2 to 5 hours based on the client requirements. The records are mismanaged and wear and tear happens while handing and making frequent references by concerned persons. It is very difficult to search for records and get it easily in time. Therefore, archive of records is one of the more time consuming process. The unregistered cases of land are other problems continued for a long time the situation prevails throughout the country. Researcher observed that the employees involved with land registration activities have to face additional duties such as preparation of land registers, keeping records of files, petitions, monthly progress reports, archive records, accounts keeping etc.

Figure 4-4 : Response about organization situation

The office is always crowded due to delays in delivering land registration services, and people approaching unnecessarily to different sections of the office. Mostly, registration section is always heavily crowded due to the presence of at least three concerned persons (vendor, buyer and Lekhandas). Because of the above reason registration process cannot be completed within one day. From the responses of both operational staff and citizens' interaction with G2C it is clear that the 5 organizations which citizen need to visit to complete the requirements of registration process is inefficient and respondents informed me that they faced problems during this process.

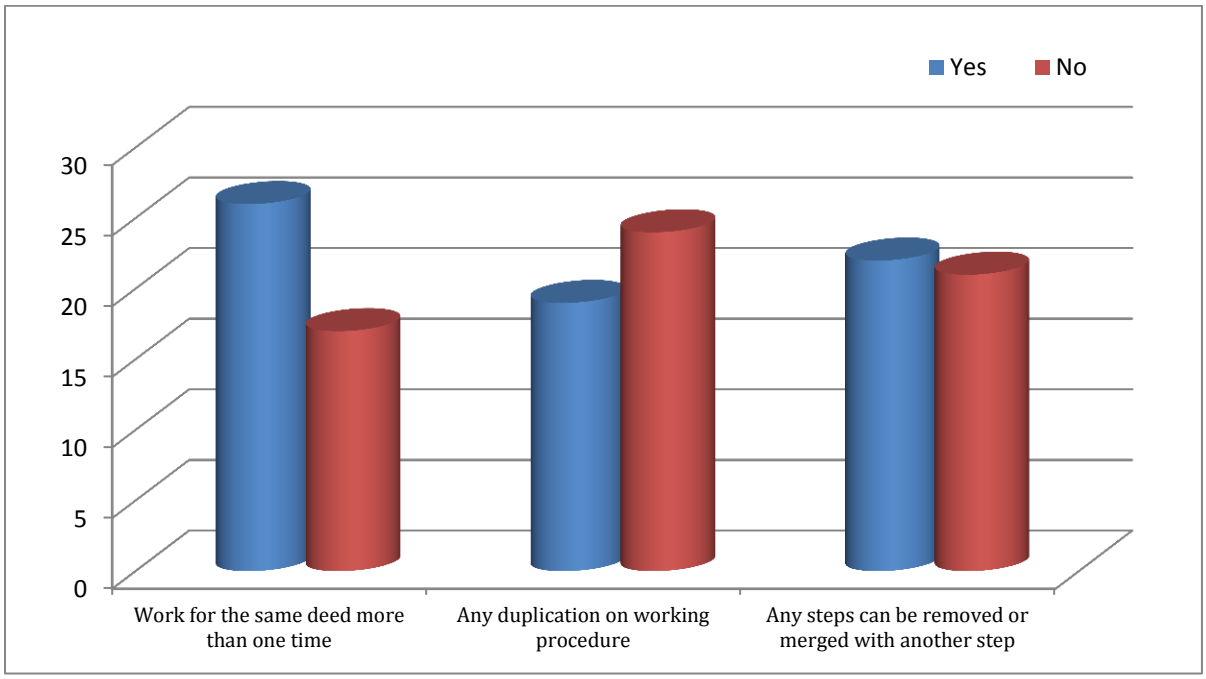

Figure 4-5 : Response about working procedures and organizational situation

The figure 4-5 shows that the most of the employees need to work more than once on a single deed. Twenty one respondents out of forty three have understood that there is duplication in working procedure so twenty two respondents out of forty three believe that some steps can be removed or merged with another step.

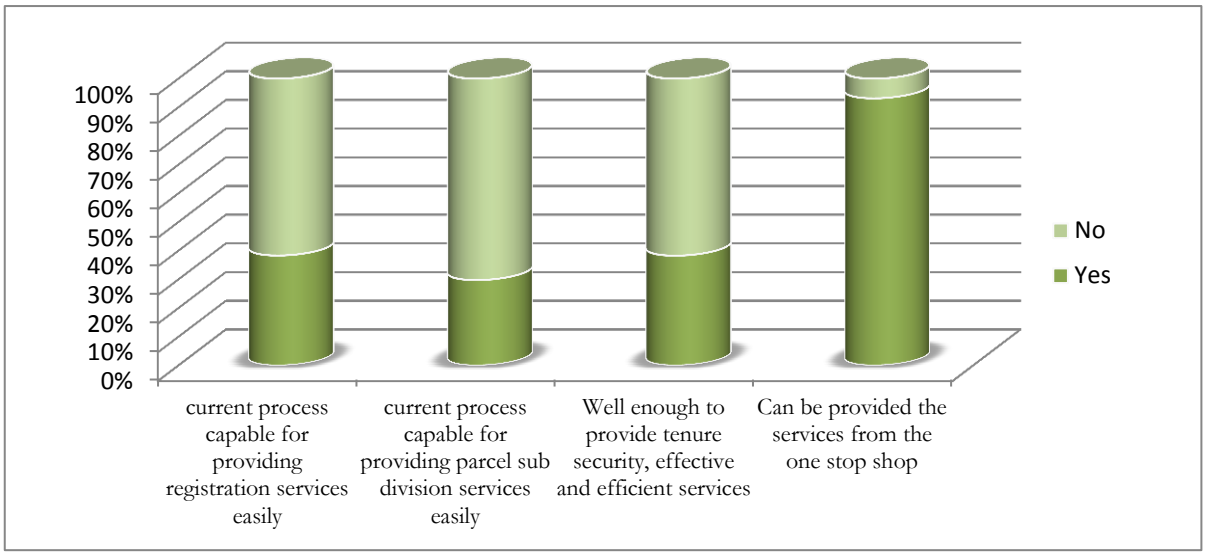

Figure 4-6 : Response about working procedures and organizational situation

Figure 4-6 shows that more than 56% of the respondents mentioned the existing land registration and parcel sub division process are complex for providing efficient and effective service because of the manual system. The more than 26% of the respondents believe that they are well enough to provide tenure security easily, but the existing process is more time consuming. Most of respondents are in favour of providing the service from a one stop shop.

4.3.4. Response of other Users on the Registration Situation (G2C)

The responses of the external users are presented in Table 4-1 and Table 4-2. Two types of questions asked and recorded separately. The tables' shows that most of the respondents couldn't get easy access to the restriction information about ownership and old deeds but the information about procedure, cost-fee and tax are easily available. Valuable archives records are kept in bags made of clothes and are placed in drawers. Compared to practices in many other countries, this approach cannot be qualified as being professional. These records also need to be computerized. Most of the users prefer to access online information on the computerized system and believe that the integration will help to improve the existing service delivery system, 62% respondents expressed that the current organization structure is not well enough to provide the services efficiently. 48% respondents say that the offices are not located in proper places. Kalanki, Chabhil, Bhaktapur and digital cadastral office are located in private buildings so the infrastructure and logistic support are not sufficient and it is difficult to run the office which does not suit proper layout comfortable services delivery. Some offices have their own land and hence it is only required to provide budget for construction of the building because yearly budget is not sufficient to manage the logistic of the office. There is mixed reaction about the introduction of the notary system.

	Manually	**Digitally**
How do you get the land ownership and cadastral information	95	5
How do you update them	92	8
How do you transfer the documents between other office	96	4

Table 4-1 : Response about registration process

Most of the respondents are in the opinion that the computerization of records and online information will make the process easier and faster. With computerization, good security and service can be provided to the people. The wear and tear of the records can be minimized and all the data can be kept in a small storage space. Archiving of the deeds and other documents will be easy and their retrieval will be fast. Therefore, computerization of the

records is very necessary. All of them are in favour of one stop shopping systems for providing the land registration service.

	Yes(%)	No(%)
Is the restriction information about ownership and old deeds easily accessible	15	85
Is the information about procedure, cost-fee and tax easily available	77	23
Would you prefer the information be accessible online	81	19
Do you think its integration of all department will help to improve the service delivery	86	14
Is the current organization structure well enough to provide the services efficiently	38	62
Are the offices located in proper places	48	52
Is the notary system of land registration applicable in the context of Nepal	62	38
Is there any provision of providing information for you directly from these organizations	79	21
Computerization of records, online information will make the process easier and faster	92	8
Do you prefer the task to be accomplished from a single place	90	10

Table 4-2 : Response about registration process

Responses about registration process are shown in annex 2. The actual process of registration is time consuming and is done manually, so there is a need to computerized the system and reduce the number of steps by creating a one stop shop, so that a good and secure service can be provided to all users efficiently and effectively.

4.3.5. Response on the Legal Situation (G2G, G2C)

The figure 4-7 shows fifty nine respondents out of eighty four says that the organizations mostly have some feedback mechanisms for complaints, however some employees said that those are not functioning well. Views of different person being interviewed about the legal aspect of the land registration process are depicted; forty nine respondents out of eighty four are of the opinion that most of organizations have their well-documented rule and guidelines for their service. But fifty three respondents out of eighty four have described that it is difficult to understand easily existing rules, regulation and procedures.

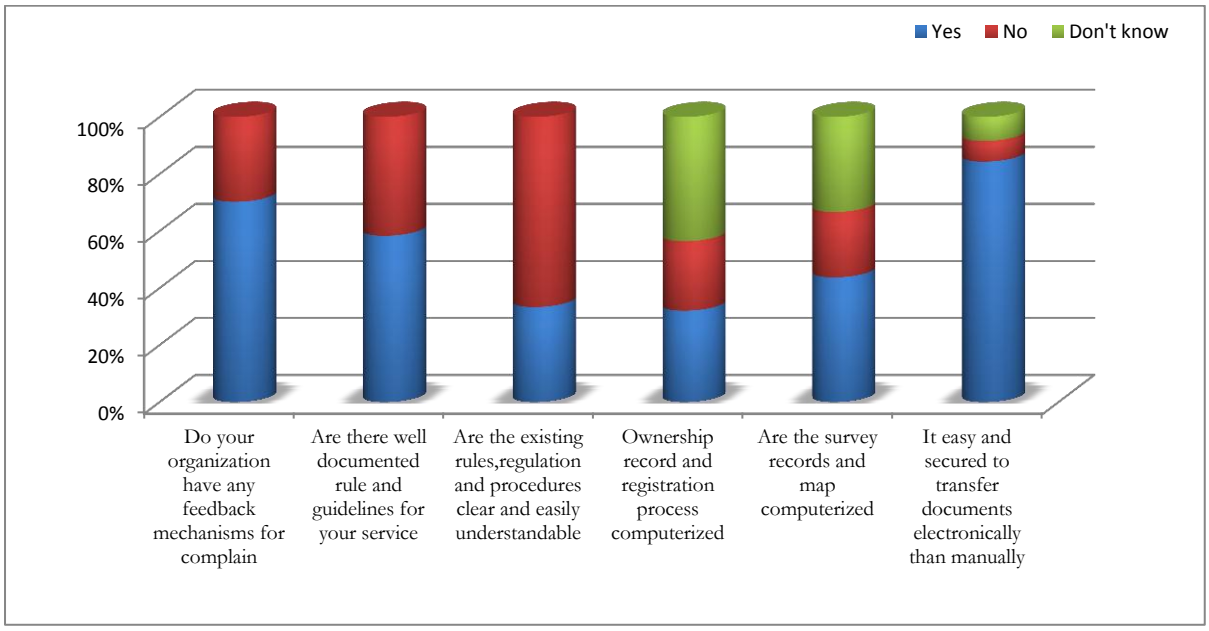

Figure 4-7 : Response about legal situation

They are of the opinion that existing rules and regulations are not in integrated form, they are not able to provide full security of tenure and there is no guarantee of registered title. Similarly, the digital data information is not accessible for other concerned people such as real estate agents, Lekhandas and financial institutions. According to the respondents, the ownership records and survey records are partially computerized because surveying technology is not appropriate and the existing software is not adequate to archive and integrate whole records. Almost all of them believe that computerization of records will make the registration process easier and secured they prefer to work with computerized system. Revision on existing rules and regulations in order to provide tenure security, integration of all land laws and access to information with all concerning parties is one of the user requirements in this regard because of incomplete laws and statutory arrangement.

4.3.6. Response of other Users on the Legal Situation (G2C)

Views of different respondents about the legal situations are shown in annex 3. There is a need to revise the existing rules and regulations in order to provide tenure security, integration of all land laws and access to information with all concerning parties is the main users requirements for the legal situation.

4.3.7. Response on the Data Updating Procedures (G2G, G2C)

The respondents' views of the data updating and handling are presented in figure 4-8. In most of the office, data updating and transferring documents were done within office and between other offices are done manually. Ownership records and cadastral maps are also not maintained well in record rooms, so updating records is a very difficult and time consuming process. According to them, it is difficult to retrieve the information since the citizenship number, land ownership number and parcel number in ward wise are not unique and the recording system is person-based.

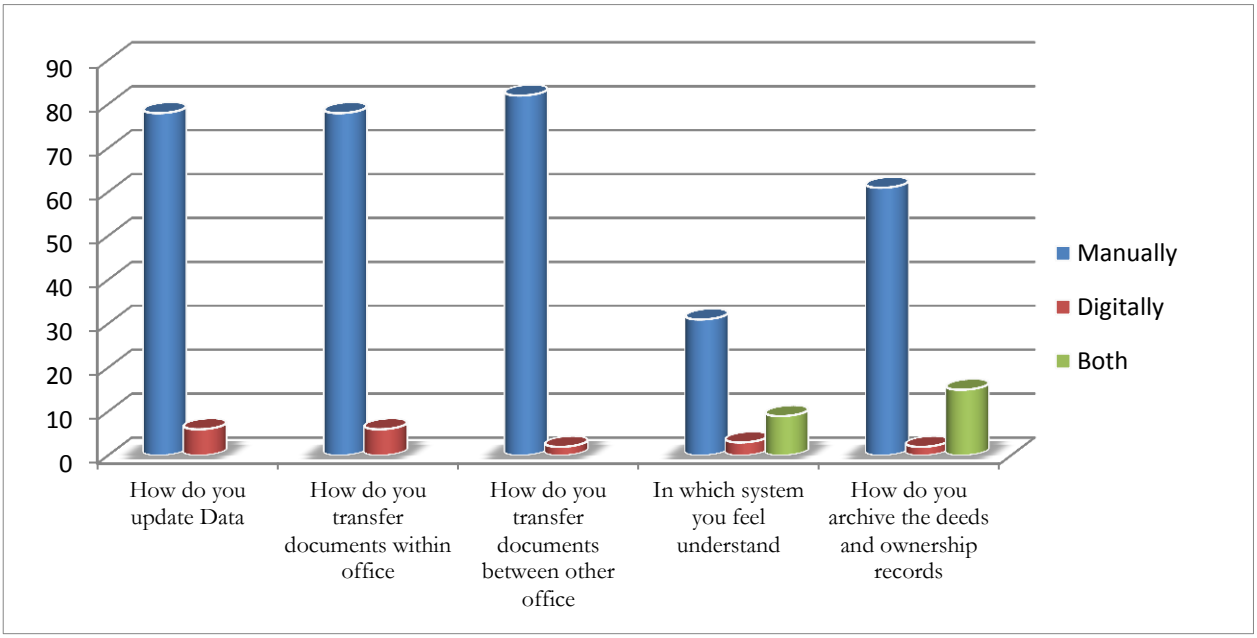

Figure 4-8 : Response about data handling and updating procedure

The municipality officials and Inland Revenue officials have mentioned that there is a difficulty in getting updated ownership records from the LRO. This situation reveals that there is gap in data sharing practices and proper mechanism of access to information between G2G in LRO and other government organization. The figure 4-9 shows that most of the organizations don't have any websites or databases and the employees are not using internet for their official work, so they cannot use any automated links with other concerning organizations for data sharing.

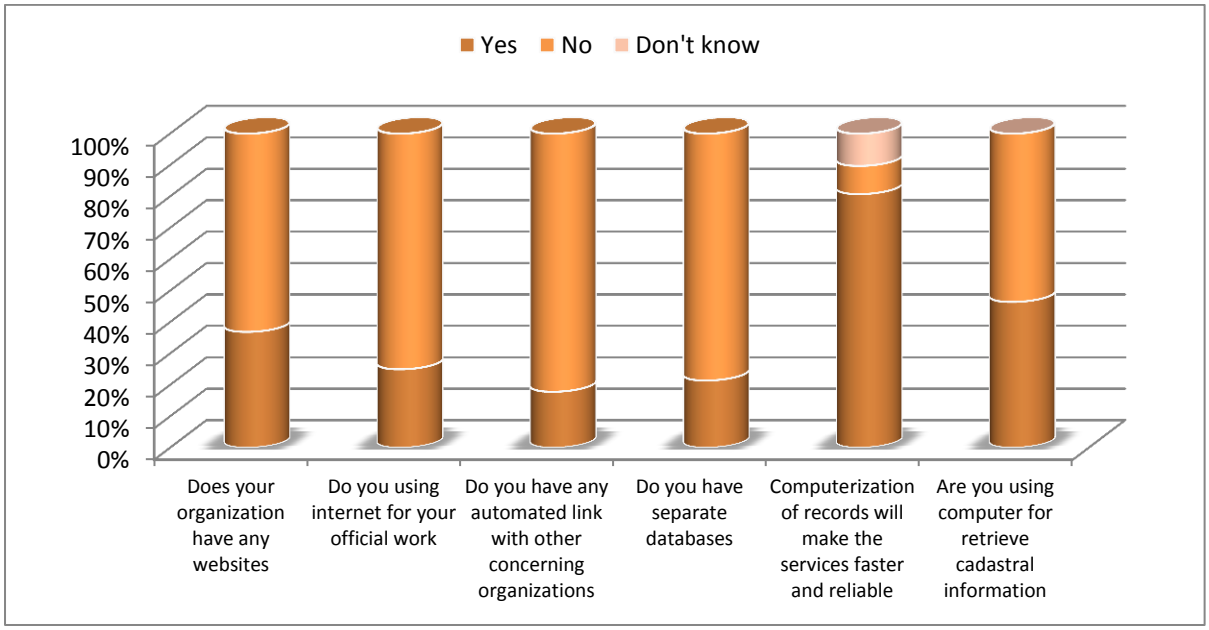

Figure 4-9 : Response about data handling and updating procedure

The opinions of the respondent's show that the computerization of records will make the registration processes faster and reliable and they prefer to work with computerized systems because computerization will be provide with good security. The wear and tear of the records can be minimized and all the data can be kept in a small storage space. Archiving the deeds and other documents will be easy and their retrieval will be fast. The employees have mentioned that it would be more secure and easy to transfer electronically than manually. During interviews, twenty six respondents out of fifty six mentioned that they are not using computer for retrieving cadastral information. This situation reveals that there is a gap within the organization regarding the data sharing practices and proper mechanisms of information between G2G.

4.3.8. Response of other Users on Data Updating Procedures (G2C)

Existing manual system should be change to digital one. The process may include computerization of records, online information systems, digital data transfer, digital data capture, updating and handling. Such systems will indeed the efficiency and effectiveness of the system. Detail is shown in annex 4.

4.4. Observation

The business process at LRO and SO of the selected four districts were observed by researcher visiting the offices directly. There is a provision for help desk and complaint box in some offices but the clients were not using it; rather they were following the conveyor asking other employees when they needed any information. The complaint box was fixed near by the door. The people were complaining to the officer. It seemed that the box is not used from a long time. The queue was not systematic; most people were waiting on the ground or in front of the office rooms. Only few people were in queue. The employees were generally following the queue. Archiving maps and field books in some offices was also in poor condition but others are satisfactory. Observation findings are in different views shown in annex 5. The documents were transferred manually within the office and between other offices. The LRO and SO are located in the same place in Dillibazar and Lalitpur district whereas in other districts they are not in the same place. Land related other organizations' offices are also not at same place they are scattered. The work was overloaded in some of the offices but in others, it is manageable. Most of the offices are run in private buildings. The maps are archived in racks. The data of the field books are computerized but not used. Some maps are scanned or digitized. The deeds were packed in a small sack. The ownership records were posted in the computer last year but not updated and not used for official purposes. Archiving

records is poor in some office. The documents are transferred by the staff, conveyor or citizen in most of the cases. The citizen charter is wall painted; it is easily accessible and visible for all. It is understandable for Nepali literate people. However, there is no special provision for illiterate people.

4.5. Overall Response of Land Administration Situation

Responses of all respondents about the registration process are presented in annex 1 to 4. The responses are related to the problems in the existing registration system, organization structure, legal procedures, data updating and handling procedures and user requirements. The annex 1 to 4 show that the following are the main problems in existing system

- Involvement of too many organizations in the registration process,
- It is difficult to adopt new technology due to the lack of trained manpower,
- Involvement of many employees in the registration process, traditional and complex procedures, much duplication in steps.
- Parcels sub-division done without field verification.
- The process of records verification and obtaining valuation report is time consuming in some office due to the lack of technical staff.
- Paper documents are increasing every year, and it is difficult to manage and retrieve them.
- There are technical problems in some cases, such as the map does not match to the reality on the ground.

The main users requirements are integration of LA product, lowest possible price and transparency in pricing, implementing a one stop shop system, removing or merging unnecessary steps, customer satisfaction services, develop laws and regulation suitable for the work done on district offices, keeping record up to date, compulsory field verification, Introduce private surveyors in making plans and subdivision process which will help in providing good security service. The wear and tear of the records can be minimized and all the data can be kept in a small storage space. Archiving the deeds and other documents will be easier and their retrieval will be faster. During interviews the customers at LRO mentioned that they are aware of the situation and their short comings and they also understood the situation was incomplete so they really want to get the situation improved. To meet users requirements it is suggested to make a link between attribute data and spatial data because it is easier to implement a one stop shop system in land registration processes. There is a mixed reaction about the introduction of notary system. The Lekhandas have strongly opposed this idea stating that they would lose their jobs after its implementation.

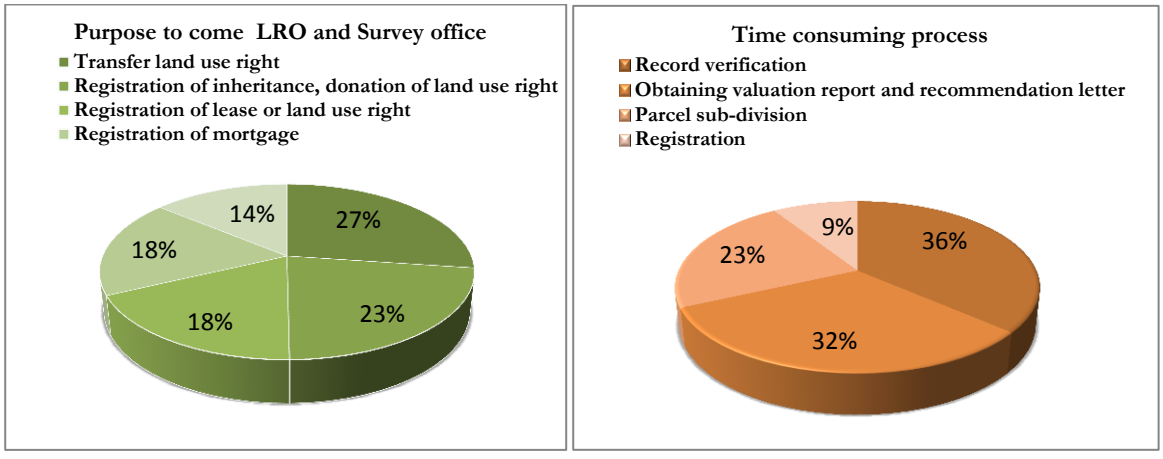

Figure 4-10 : Response about registration process and organization situation

The clients need to visit the above office several times but they have to pay once according to the service that they want from each office. The figure 4-10 left side graph shows that the purpose of users was to visit LRO and SO, according to the respondents there is a mixed reaction about their purpose. The figure

4-10 right side of the graph shows the time spent on the activities of registration process. Record verification, obtaining valuation report and parcel sub-division are considered as more time consuming processes..It can be observed as a result of analysis that the respondents have different answers on the numbers of rooms to be visited in both offices. The results also show that the time taken for registration process ranges from 1 to 3 days. The real estate agents have also mentioned that many employees are involved in the registration activities which have caused duplication and complexity. So the task should be assigned to the employees as less as possible.

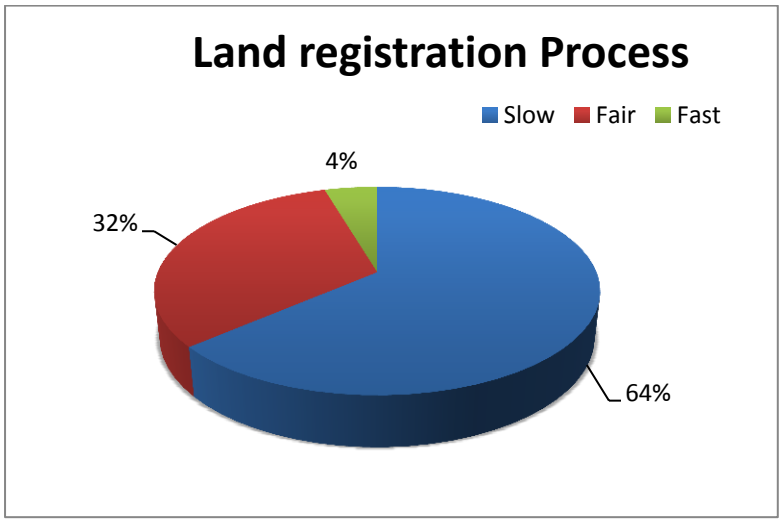

Figure 4-11 : Response about registration process and organization situation

The figure 4-11 shows that most of the respondents have noticed that the land registration process is slow where as 4% of them have stated it as fast. As a result of analysis it is observed that some respondents have stated that the job of collecting land revenue should not be given to the local authorities. However, some others have claimed that because of this provision, the people can pay the land revenue on local level and then they do not need to go to the district headquarters.

4.6. Concluding Remarks

Main organizations involved in the process of land registration on local level are LRO, SO and municipalities or village development committees. On the central level, the DoLRM, DoS and DoLIA are mainly responsible. The MLRM prepares plan, policy, monitors and evaluates the activities of all departments. My research was carried out in order to identify the user requirements regarding land administration in Nepal in order to achieve a cheap, fast and more efficient land registration. Both primary and secondary data were analyzed and discussed, according to the following main topics institutional situation, land registration process, legal situation and data handling. Current practice of LAS has been assessed based on the data collected from the field. The indicators used for the assessment are efficiency and effectiveness, interaction between G2G and G2C, data sharing and citizen participation. The results revealed that the system is not efficient as it requires many days to complete the process.

The interaction between G2G and G2C was assessed through interview of the internal and external users, policy makers and other experts and observation of the registration process also identified the complexity of procedures, the involvement of many organizations, poor management of land records, manual data transfer system, scattered rules and regulations and lack of skilled manpower as main problems of the existing land administration system. Regarding interaction between C2G, the citizens are not aware of the procedure they have to follow for acquiring services from LA organization, their expectations from LA organization are such as; clarity in the registration process, reduction in time requirements for services and

reduction in revisit time. From the case study, nineteen user requirements are identified which are grouped into four aspects. The Main user requirements are one stop shopping system, integration of land related products, basic services from the local level, parcel-based system, use of unique identifier and lowest possible price are identified and discussed in the next chapter.

5. Users Requirement and Discussion

5.1. Introduction

The user requirements identified from the case study are discussed under four main topics such as institutional situation in section 5.2, registration process in section 5.3, legal background in section 5.4 and data handling technology in section 5.5. Section 5.6 summarized and concludes the main issues discussed in the chapter. The changing role of LA influences their technical characteristics. Subsequently, the outcome of the main objective of this research highlighted a number of issues associated with these characteristics. Firstly, as the need for communication, data exchange, and data sharing becomes of interest in future LAS, interoperability becomes a serious issue as most LA activities have so far been developed and computerized in isolation. Secondly, LAS are trying to manage new commodities and interests in land through the traditional basic building block land parcels. However, land parcels can be criticized as they seem not to be sufficiently flexible objects to accommodate or support the growing number of complex commodities and interests in land.

Westrup (1999) has described that [user] requirements only become recognized when they are formulated in a specific way. He has explained the process of requirement analysis in two steps: a first step is the identification of needs and their formulation in writing or some other techniques in process of inscription that translates something unclear and undefined into a representation on paper (Latour, 1987), and the second step is the relating of various inscriptions to produce a set of requirements that are accepted as legitimate. "User requirement refers to the features/attributes [the] product [or service] should have or how it should perform from the users perspective" (Courage and Baxter, 2005). In case of service delivery, it means how the service seekers want to get their things accomplished. Courage and Baxter (2005) have described it as a discipline for collecting and analyzing user requirements. It is a philosophy and a process in which the user requirements are given extensive attention at each stage of the designing process.

5.2. User Requirements in Institutional Situation

This aspect affects the implementation of e-LAS in reality. Use of Geo-ICT and implementing LA function with stakeholder participations brings new dimensions to organization and interactions. Thus the following requirements concerning organization and institutional aspects need to be met in order to develop e-LAS.

- Integrated land administration products
- Lowest possible price with Quality
- Transparency in pricing
- Implement one stop shop
- Authorize or Certify employees

It requires implementing within the organization and among concerning organizations. It leads to change in organizational strategies and mandate. Moreover the changes only at an organization are not sufficient for improving the overall system therefore a suitable institutional arrangement among related organizations is required. The United Nations Economic Commission for Europe (2005) has described that "[…] it is essential for LA organizations to have a customer focus so that the needs of the users of the service can be met and be seen to be met".

5.2.1. Integrated Land Administration Products

One important user requirements identified from the field study is about the integration of LA products. The land registry and cadastre usually complement each other. Because of the development of ICT, integration of information and data from different sources become easy and possible. Kaufmann and Steudler (1998) have mentioned that "… with modern technology (IT), it is possible to link land objects

directly with the information needed for registration. The often practiced separation of the physical and organizational structure will become defunct." A single department is enough in the central level. Similarly, in the district level, LRO, SO and Survey Parties strive to integrated with the LRO. It will make the land registration process easier and faster than the existing one, single agency provide better products within and between districts from different data sources such as spatial data and non-spatial data (geo data, ownership data, land use data and taxation data). In this context, these systems, to enhance efficiency and reduce the cost of LAS, evolve form focus on basic functions including land tenure, valuation and land use to integrate LAS for supporting sustainable development.

5.2.2. Lowest Possible Price with Quality

Lowest possible price with good quality is one of the user requirements. The number of employees can be reduced by contracting out the day-to-day activities of surveying which in turn, reduces the government expenditure after implementation of private surveyors for data collection and the implementation of new technologies. Service can be provided at a lowest possible price. The private sector is reducing the scope for political interference and allowing the reduction of staffing levels in the public sector. Dale and McLaughlin (1999) have also stated that "private surveyors may undertake control surveys, topographic base mapping, the detailed measurement and recording of property boundaries, or the valuation of properties in accordance with agreed criteria". Kaufmann and Steudler (1998) have mentioned that the Cadastre 2014 will be highly privatized. They have further described that the majority of tasks necessary to build up and to maintain a cadastral system can be handled by the private sector without endangering the security of the land recording.

5.2.3. Transparency in Pricing

These measures might include posting prices in an accessible form or regulations (different prices charged to different customers). Price transparency implies that user understand how prices are set. The citizens should be awarded with different fees to be paid for the registration of their land or deed this will avoid corruption. The actual system based on valuation report is not suitable and is an open door for corruption. Property value should be based on a market value, this will increase government revenue. Transparency is a critical component of a functioning LA, particular in view of the scarcity of clear and credible information on land availability, transactions and the poor dissemination of public information on land rights and policies. The risk of corruption and inequalities are very real in land allocation and management. The consequences to the poor often takes the form of unawareness of land policies and legal frameworks, ignorance about land transactions and prices, misallocation of land rights and abuse. When in place, transparency can encourage civic engagement and stakeholders' accountability by rendering the public decision making arena more accessible.

Worldwide, a lot of information is available on corruption in the land sector (According to the corruption perceptions index 2009, Nepal is ranked 143). Many suggestions from the field can be mentioned such as, improved access to information for public participation and increased transparency through institutional reforms, including legal frameworks, ensuring that there are no loopholes in laws and enforcement of the law, specific standards and procedures, enhanced supervision, monitoring of illegal land sales, anti-corruption bureaus, preparation of land use plans and computerization of land records

5.2.4. Implement One Stop Shop

Development of one stop shopping system is one of the user requirements. Since the citizens have to visit many organizations for a registration service, even different officials within an organization, they have to spend a lot of time and resources. Citizens expect LA organization to establish such a mechanism in which a citizen contacts one site to acquire the registration process of interest as quick as possible. Dale and McLaughlin (1999) have stated that by developing one stop shopping facilities the customers can obtain answers to those queries through one point of access into the system. It is considered as one of the

strategies of administrative reform in the land registration system. The Netherlands, the vendor and buyer sign the deed before the notary submits the deed on behalf of his clients. The clients do not need to go to the Kadaster(van der Molen and Wubbe, 2007). In Nepal, the clients need to go to at least three different offices. However, development of one stop shop for all LA services is one of the main objectives of the DoLIA. So, the demand of one stop shopping seems justifiable from all perspectives. According to van der Molen (1998), "citizens do not understand why they have to drop in by innumerable governmental desks before they can go ahead with the building of a house, they want; one stop shopping. No doubt the land information will be part of that." According to Bogaerts and Zevenbergen (2001), a cadastral system is a part of the administration of a country; therefore, it has to follow the way in which a specific country wants to organize its whole administration. Thus, in light of the established cadastral principles, concept of decentralization and the policy of the government of Nepal, the task of verification of deed should be assigned to the local bodies. It helps in delivering LA services efficiently and effectively, reduce complexities and strengthen local bodies. Maintaining good governance, decentralization and devolution of power and authority, strengthening local bodies are given top priority on the plan and policy of the government of Nepal. The users want to get all of the required information from a single source.

5.2.5. Authorize or Certify employees

In Nepal, separate technical personnel are employed for computer work because the administrative staffs do not have basic computer skills. It has caused the duplication and delay of work and increased the cost of the organizations. Moreover, the administrative staffs of the LRO do not have prior knowledge about the land administration. So, in order to make the services more efficient and effective, either certified and educated employees should be hired instead of the untrained one or the existing manpower should be trained. Good services delivery & good governance education/training should be conducted to all LRO/SO staff and should be motivated for best employees of the week, month or year. Staffs need sufficient exposures even outside the country. There is one land management training centre under the same ministry for training surveyors and which has commenced academic degree course in geometrics engineering since August 2007 in collaboration with Kathmandu University. There are many private training institutes who provide GIS trainings courses. However such courses concentrate more manpower training in feature requirements.

5.3. User Requirements in Registration Process

The main goal of e-LAS is to improve the delivery of services to citizens. Thus to be a citizen focus system is one of the basic requirements in the developments e-LAS. In order to achieve this goal, a system should fulfil the following requirements. It is essential to understand citizen' needs for a system to be customer oriented. Citizen satisfaction and need surveys should be performed regularly by the government organizations to assess the quality of services being provided and citizen need from the new system. Main users' requirements regarding land registration process are as follows

- Secure and transparency in registration process
- Alternatives in conveyancing
- Compulsory field verification

Users of a land registration system are the people or organization involved in the registration process. Todorovski and Lemmen (2007) have classified the users of the Dutch cadastre into internal and external users. The internal users are the technical and administrative staffs of the land registry and/or cadastre and the external users are vendors and buyers, notary, conveyor, lawyer, real estate agencies, bank or financial institutions, municipalities or local government agencies.

5.3.1. Secure and Transparency in Registration Process

The users have also demanded to transparency in registration process with secure as simple as possible. The existing registration process of Nepal contains many steps. The unnecessary steps should be removed

and duplication of work should be avoided by redesigning and simplifying the whole process. The long process having many steps makes the service more complex. Zakout et al.(2006) have mentioned that "the procedures to register property transaction should be short and simple in order to make the process efficient". They have further argued that "the fewer steps there are, the less opportunity for informal payments". The LAS can be provided effectively and efficiently if there is a single office in the local level and a single department in the central level. The cadastral and land registration services are provided from a single organization in many countries. In the Netherlands and Sweden, there is a single cadastral organization and Finland is also merging the land registry and cadastre. Separation of cadastral and land registration services causes unnecessary burden and duplication of work.

5.3.2. Alternatives in Conveyancing

The electronic service makes the land transaction simple, easy and reliable. It is one of the user requirements identified from the case study. The government of Nepal has attempted to provide printed ownership certificates from few LRO. However, the process is not fully electronic. The electronic registration or conveyancing systems are the computerized methods of transferring land rights. Together with the establishment of digital cadastral maps and registers a lot of cadastral authorities began to digitize their archives including analogue field books, survey results and other documents related to the parcels by scanning the documents and updating the necessary retrieval systems with the information where to find the digital documents related to a specific parcel. Several countries have started such e-conveyancing system. The concept of e-government became possible after the development of ICT. It refers to the use of ICT in and around public administration to create a digital or wired government. Navarra and Cornford (2007) have described that "deployment of [ICT] will entail to increase social welfare and to constitute more democratic form of government". Homburg (2008) has mentioned that a wired government is more focused on and responsive to societal needs, it delivers services 24 hours a day, 7 days a week through ICT, and makes governments more efficient and democratic.

5.3.3. Compulsory Field Verification

One of the problems in the existing land registration system of Nepal is that the parcels are sub-divided without verifying in the field which can increase inaccuracy and land disputes. In order to overcome this problem, field verification should be made compulsory in case of parcel sub-division. Boundary verification in presence of the owners of the neighbouring parcels may reduce the number of court cases and hence raise the tenure security. This provision may have some negative consequences such as, the buyer should pay the cost of hiring surveyor and the registration process may take more time. However, its benefits outweigh the costs. So, during parcel sub-division, the field verification should be made compulsory.

5.4. User Requirements in Legal Situations

Thus the following requirements concerning legal information aspects are needed to meet in order develop e-LAS.

- Revision of existing rules and regulations in order to provide tenure security
- Electronic records as evidence
- Access to information for all who are paying
- Simplification of deed/certificates and other forms

Before developing new e-service, government organization should know which service citizens prefer to use. Away to create citizen focuses services in e-environment is the development of an easy to use website. The website provided by LA should be as simple as possible. So citizens have no problem in finding what they are looking for.

5.4.1. Revision of Existing Rules and Regulations in Order to Provide Tenure Security

Tenure security is another issue raised by the users. The chances of appeal by the spouse or family members, chances of fraud because of the poor record management and chances of not full reimbursement of the purchase sum are some of the threats towards security of purchased land. Witnesses to the deed by the spouse and concerned family members and boundary verification in the presence of owners of the neighbouring parcels will reduce the possibility of court cases. Proper management of land records and allowing concerned people for its observation will also help in reducing fraud. The buyers often mention the minimum value determined by the government so that they do not need to pay a higher registration fee. But it is usually lower than that of the market price. If a court case arises, they have the right to claim the amount stated in the deed. If the official valuation is equivalent to the market price, this type of problem would be solved. Instead, the government can lower the registration fee which will help to increase tenure security and enhance the land market.

5.4.2. Electronic Records as Evidence

When the standard is released, it will establish requirements for organizations to follow when creating digital electronic records in any form text, databases and image in order to demonstrate the records' authenticity. By following the standards requirements, organizations will be able to demonstrate the integrity of the system that recorded or stored the electronic record. The authenticity of the electronic record itself is demonstrated by extension. However, the standard will not guarantee that an electronic record will be accepted as evidence in court; both these decisions rest solely with the court. The electronic records are still not admitted in all Nepal courts; therefore, the courts must have a means of establishing the reliability of the evidence if it is electronic. Thus, there is a need to establish a consistent approach to validating the reliability of the electronic records. The legislation provided direction on how to demonstrate the integrity of the electronic record for evidentiary purposes, something that is accomplished by proving the integrity of the electronic records system in which the data was recorded and/or stored. Prior to the authenticity of the paper record that was stored in a filing cabinet had to be demonstrated.

5.4.3. Access to Information for all who are Paying

Access to information for all who are paying is also one of the user requirements. After computerization of land records, access to information will become more important. The information regarding land records of their clients is required by the real estate agents, conveyors and lawyers. It is required to verify the ownership and restriction records. Since it is a matter of privacy, it is difficult to decide which type of information should be provided to them. UN-ECE (2005) has described that the balance between the rights of the citizen to privacy and the responsibilities of the state to manage land in the best interests of the community can conflict. It has presented an example of the Netherlands and Sweden where the amount for which a property mortgaged is treated as public information and can be seen by anyone who views the computerized registers. So, the type of information accessible to the real estate agents, conveyor and lawyer should be defined by law.

5.4.4. Simplification of Deed/ Certificates and other Forms

Simplification of deed and other forms are also a demand of the users. The existing deed form is more complex and not easily understandable to all users. Some of the information provided on it will be changed after the implementation of the proposed system. For example, the provision of witnesses and use of identifiers will be revised. The deed form should be made simple and easily understandable so that the interested land owners can fill out their form and do not need to hire a conveyor. Deeds presented by the writers are very hard to understand and they have to be returned for them to be made understandable. They suggested that all LRO have to stop writing deeds by hand. Deeds must be computer output with standard A4 size printouts with one deed for one transaction no combinations. The paper should be durable ones like Nepali handmade paper and should be fit for computer printing. All records must be

computerized and proper backups of both manual and computerized records should be done in a safe place.

5.5. User Requirements in Data Handling and Updating

Following requirements concerning data handling aspects need to be met in order to develop e-LAS.

- Computerization of completed data sets
- Parcel-based system
- Use of easy understandable identifiers
- Access to updated information
- Digital data transfer
- Online information system
- Improvement on surveying technology

One aspect of e-LAS is to ensure efficient access of civilian as well as government organizations to the required information. Further, the information needs to be comprehensive, complete and interoperable so that it can be integrated and shared among different interested groups and stakeholders.
In order to achieve this, following technical requirements should be met while developing e-LAS

5.5.1. Computerization of Completed Data Sets

Computerization of records and services is essential for the protection of data and the provision of efficient services. Dale and McLaughlin (1999) have described some consequences of computerization of land records as follows: firstly, the automation of whole process is viable after computerization. Secondly, it allows traditional process of gathering, storing, retrieving, and disseminating land related data to be undertaken more quickly and with some built in quality controls. Also, it creates opportunities to exploit the information that is held in a land registry; new products and services can be derived by analyzing and modelling the data. Moreover, it reduces the amount of office space needed to store land records and the number of employees. It also provides back up facilities in case of disaster. Computerized system may help reduce corruption. However a new system should be implemented. The present access based system should be changed. Maybe land owners with authorized passwords can have access to a web based LIS system to his/her land ownership or Rokka records. All maps and records prepared by survey party should be computerised, because these plans and records are fresh. These plans can be digitized and used for the day to day work. Computerization of land records is essential for every LA organizations. It is initiated in Nepal also but not completed yet. So, all cadastral records are considered to computerize.

5.5.2. Parcel-based System

The parcel-based system has been regarded as a factor for providing tenure security under the title registration system. "In the title registration system, it is the land parcel itself that is registered, thus effecting the transference of primary attention from the mobile, mortal, mistakable persons temporarily possessing or claiming rights over patches of the earth's surface, to the immovable, durable, precisely definable units of land affected and the adoption of these as the basis of record instead" (Zevenbergen, 2002).The parcel-based recording system is one of the user requirements identified from the case study. The existing land recording system of Nepal is person-based. The land records show the relationship among person, right and land. The person-based system provides information about the land owned by a particular person whereas the parcel-based system gives more emphasis on land than in person. A parcel-based system can provide more tenure security than a person-based system. Tuladhar (2004) has stated that "[…] parcel-based geo-information system maximizes security of tenure, reduces investment risks, […], and lowers the cost of land transaction. It would be easier to retrieve the information and integrate different databases if the recording system is parcel-based. So, the existing person-based land recording system should be changed to parcel-based system.

5.5.3. Use of a Easy Understandable Identifiers

Use of a personal identity number to easy understandable everyone is also identified as a user requirement. Thus, the identifiers should be made unique. In the existing system, the parcels are identified from the parcel number, map number, sheet number and address. There is no unique personal identity number as well. So, the name of the owner, father or husband and grandfather or father-in-law, age and address are used to specify a person. There is no provision of personal identity number. Moreover, the citizenship number and land ownership number are also not unique. So, it is difficult to identify the records. Bogaerts and Zevenbergen (2001) have mentioned that the parcel needs to have an easy identifier for cross reference between the geometric information and the administrative information which should be unique and not too cumbersome to work with. Unique identifier is required to link the cadastral and attribute information. The unique personal identity number and ownership number are essential to maintain personal and ownership databases and integrate with all databases. A key component in any LA system is the parcel identifier or unique parcel reference number. This acts as a link between the parcel itself and all records related to it. It facilitates data input and data exchange.

5.5.4. Access to Updated Information

Use of up to date information is also identified as user requirement and it is essential for all users. In the existing system, the ownership records of the municipalities and village development committees are not updated on time. The data of the land registry and cadastre are changing constantly. The local bodies require up to date ownership information to collect land revenue. Thus, a mechanism of sharing updated information should be developed. It would be easier after the provision of integrated and an online system of information. The survey office has felt the need of computerization of maps and field books and its use for the services for the public. Up to date maps and records are very necessary for a better land administration. Develop updating procedures of digital graphical data in parallel with conversion of analogue data in digital form.

5.5.5. Digital Data Transfer

In the existing system, the data is transferred into paper form. The deeds and documents are transferred usually by the conveyors. It may cause loss of documents and risk of fraud so the users have demanded the use of digital data transfer, which is the basis for electronic services. It makes the land registration process easy and fast. Also, it makes the protection of valuable documents easy, reduces the risk of data manipulation and makes the services possible from anywhere. Computer entry of the attributed data and spatial data should be completed and a link between these spatial and attribute data should be made. Systems for the operation and maintenance both attribute data and spatial data should be introduced. Backup of these systems should be made and finally it should be linked to the centre. Development and standardization of automated links for sharing data or exchanging geo-information with other organizations, introduction and implementation of workflow management, allows flexible integration of internal and external data producers into organizational business processes, development of integrated system where all the components of the system will be compatible, use technology and standards for achieving this compatibility.

5.5.6. Online Information System

The online information system is one of the user requirements identified from the case study. The online information system is a basis for electronic services. It saves time and cost for the users. According to the UN-ECE (2005) "[it] creates a number of opportunities to improve access to data by providing more convenient times at which to examine the registers and a variety of ways in which to view and download the information, including the provision of services 24 hours per day, seven days per week". It has further described that "the form of access that are provided must be oriented towards existing user requirements". The cadastral and personal information are not provided online in Nepal. So the people need to visit in person to get such information. Access to the Data Base through web based interface with

the possibility to extend it in the future with a function for remote or on-line access, this would require implementation of digital signatures, digital encryption, etc., which will be useful while introducing and implementing e-conveyancing.

5.5.7. Improvement on Surveying Technology and Software

Improvement on surveying technology and software system is one of the user requirements identified from the case study. The existing DLIS'2000 software used in some LRO and SO is based on MS Access and not adequate to handle huge amounts of data. High capacity database software like Oracle should be implemented in order to computerize the information as a whole and establish spatial data infrastructure. Although the cadastral survey is completed in all districts, the existing cadastral maps are prepared from a plain table survey. Moreover, maps of only 37 districts are connected to the national control network and that of 38 districts are not yet connected. It may cause inaccuracies with cadastral information. So, the control network should be established all over the country and new technology of surveying like total station and GPS should be applied to provide better accuracy. All the maps and plans are issued in the national geodetic control network, but it is very difficult to find out the control points in the ground. There is no proper description card of the geodetic controls.

5.6. Analysis on the Gaps between G2G and G2C in Land Administration System

From the field data investigation and observation during the period of field work, the following gaps are identified between G2G and G2C with corresponding reasons.

5.6.1. Gap in Data Sharing between G2G Organization

It was found that the organization do not have proper data sharing mechanism between them. LRO and SO do not have updated information on district level because of the manual system, which is important for registration of ownership. Municipality is the responsible organization for issuing recommendation letters and valuation reports for citizens and this information is not accessible to LRO and it will also take a long time to issue the certificate because each and every parcel should be checked physically in the field. This situation reveals that there is gap in data sharing practices and proper mechanisms of access to information between G2G. Following reasons have been found to cause the gap in data sharing.

- **Manual information system:** The transfer of data is paper based; this situation delays back response and lack of access for information. Every day organizations deal with more transactions which are not possible to update and to archive at the same time because of manual system, which also could be a reason for delayed response.
- **Lack of integrated mechanism:** If there would be an integrated working mechanism among all the organizations in land registration then performance of service delivery would be efficient and data could be accessible to each organization.
- **Lack of data sharing policy:** There is no data sharing mechanism available, therefore LRO and SO do not having updated information, because analogue system not followed properly.

5.6.2. Gap in Back Response between G2G Organization

LRO staff expect responses from SO and Municipality regarding sub division of parcel. Due to delay in their response, on one hand the service delivery from LRO has been delayed and on the other hand there is increasing pressure from the citizen to obtain the services. Similarly, there is no legally bound deadline for other organization to respond LRO in relation to their obligations, related to land registration activities. The staff expectation is that, the time of back response should be clearly mentioned. This situation reveals that there is a gap in the back response time between G2G to offer timely services. Following are the main reasons found to cause the gap.

- **Overlapping responsibility**: Verification of cadastral information for tax purposes can be regarded as an example of overlapping responsibility. LRO prepares a file after verification of

cadastral information for determining tax on the real property and send to municipality for their approval. Municipality again carries out the field and office verification of the information itself. Same activities are performed twice.

- **Lack of trust**: The example given just before can also be regarded as an example of lack of trust between the government organizations, as the verification done by LRO is repeated by municipality.
- **Unclear responsibility**: The duplication of work at LRO and municipality mentioned above is also an example of lacking clear responsibilities.

5.6.3. Gap in Efficiency of LRO between G2C

Following gaps between G2C and C2G are investigated from data analysis and direct observation of land registration system and corresponding reasons have been identified as follows. According to the response, citizens have to visit a number of organizations to get the land registration services and it takes quite a long time to get these services. The respondent would expect reduction in service time and revisit times to LA organization and correct information about appointment. This situation can be regarded as gaps in the efficiency of LAS. Following reasons are found to cause the above gaps.

- **Lacking inter organization cooperation:** LA organization has to interact with five other organizations regarding delivery of land registration services. The efficiency of LA organization is somehow affected by the efficiency of other organizations. It has been seen that LRO does not get response back from these organizations in time, and according to the official respondents, LA organization staff has to face pressure from the citizen. Therefore, lack of inter organizational cooperation is one of the reasons of the gaps, especially for the land registration services.
- **Complicated land registration procedure:** The LR procedures are complicated, as it has been already mentioned above. For example, citizens have to contact many organizations other than LRO, and have to visit many times for the same purpose. It has affected the efficiency of the system on one hand, and the delays in the responses from different organization on the other. So complicated LR procedures are the reason of the gap with G2C.
- **Complex legal framework of land registration:** Due to the complex legal framework many organizations have to be contacted for services and have to pass through complicated procedures. This situation has mainly delayed the response time and returns results and also reduced the efficiency of the system. On the other hand, the complex legal frame work including laws, decrees and circulars issued by different government organizations create confusion for the citizens.

5.6.4. Gap in Awareness about Land Registration Services between G2C

As discussed above the respondents viewed that they do not have good awareness about the system, how it works and how services can be obtained efficiently. They would expect better instruction about their obligation and responsibilities, simplified and clearer procedures in the process of acquiring Land registration services. This situation can be considered as gap between G2C in awareness about LAS. Following reasons have been investigated regarding this gap.

- **Lack of accountability**: From the response of citizen respondents and field observation, it has been found that there is a lack of accountability in the current system of registration. In principle, the system should let the citizen know the procedure to be followed to get the desired service, but the state of awareness with citizen is very low. Lack of awareness, on the other hand is diminishing the citizen' access to information.
- **Reluctance of the citizen:** The LA organization has published its citizens' charter in paper as well as in screen format. However as responded by the citizens they do not use these facilities rather expect staff should explain them all the procedures and obligations they have to follow. They

should have used these facilities to get clarified about the requirements and obligation to save their time and future consequences.

5.6.5. Gap in Accessing Information between in G2C

According to the citizen respondents, if they need information about their land parcel it takes long time to get it. At the same time, many citizens face difficulties in understanding legal documents. This situation has affected the citizens to get timely and accurate information not only related to land parcel but also the procedure they have to follow. Therefore it can be regarded as gap in accessing information. Following reasons have been investigated from the field work.

- **Lack of proper information system**: Since there is no computer based information system available, the member of the staff have to rely on paper based files to provide the required information. At the same time, the change in the status of a parcel is not timely updated. That is why it takes longer time to get the proper information required.
- **Complicated legal documents:** The legal documents including laws, regulations and circulars are issued by different level of organizations and the statements are not understandable to the general citizen. The documents issued at the different level of the government makes the citizens confused when one applies in which case. At the same time due to the complicated statements, ordinary citizens cannot understand what the statements really mean.

5.7. No e-Land Administration without e-Government

There is a trend for future LA and cadastral systems to take a broader and more integrated view than in the past. The components of land registration, cadastral surveying and mapping, planning, land valuation and their role in operation of land markets, must all be considered as one integrated system where the common objective is sustainable development. In order to provide land information to all the stakeholders, the national LAS should aggregate all updated data from the district offices via mechanism and infrastructure throughout Nepal. The new e-LAS should be citizen participations, and its organizational, technical and legal aspect should be well taken into account. Regarding organizational aspect, proper structure of LA organization and coordination among them are required to provide one stop shop services to citizen. Concerning the technical aspect, cadastral and land use information should be digital and data standardization is needed to develop. The issue of legal aspect is other to concern that is inevitable to support and guide the new system. e-LAS develop should be have a completed view about how the system can be address the gaps

Organization model is developed with the aim to view overall vision of the system. For this purpose, with main database at central level is proposed. District level will keep relevant data for updating and in order to facilitate the one stop shop for citizens. The process of full transfer is demonstrated to prove that the system can operate smoothly in e-environments. It provided the possibility of new e-LAS in reducing and eliminating the gaps between G2G and G2C. Geo-information and Geo-ICT have both a direct and indirect impact on e-government and public sector governance especially for strengthening the public sector activities and valuing their potential contribution to efficiency and effectiveness, but also sustainability, equity and legitimacy. These innovations raise new technical and institutional challenges for public sector governance including with regards to LA, land information management, spatial planning, but also in tax planning, policy feedback and monitoring and to ensure the future environment quality and sustainability of public sector actions and decisions.

e-Government, defined as the use of information and communication technologies to improve the activities of public sector organizations. To realize e-government, the following main aspects are to be fulfilled.

- Government wants to safeguard the availability of access to and use of land information for society, it should facilitate a (spatial) data infrastructure.
- Government wants people to use the facilities; it should facilitate electronic legal and economic transactions and participation.
- Organize the availability and access to quality electronic information and services.

First, the government has to create an infrastructural facility and to put digital datasets in place. To reach this goal we can mention the following initiatives:

- Creating authentic registers in order to concentrate registrations and to avoid double work
- Concentration of information about land
- Digital datasets expand

Secondly the government should put in place the required infrastructure. Here we can mention the following initiatives:

- Introduction of the Digital Identity Code (DigiD)
- Easy understandable individual identity numbers for citizens;
- Creation of a government-wide Shared Service Organization for ICT.

Thirdly, data suppliers doing to respond to all this (most important points)

- Firstly, electronic submission of deeds
- Centralizing datasets
- Complete renewal of the site that makes it possible to distribute data.
- Setting up of a national safeguard efficient information exchange on the location
- Having the possibility to ask questions 24 hours a day.

The one stop shop is an assembly of components that provides a web-based access point to LA information and related data (Figure 5-1). Through the web portal, the LRO, SO and municipality will be able to perform their business processes directly to the most up-to-date centralized database. The portal aims to automate all registration services, remove the existing bottlenecks and improving the service workflow.

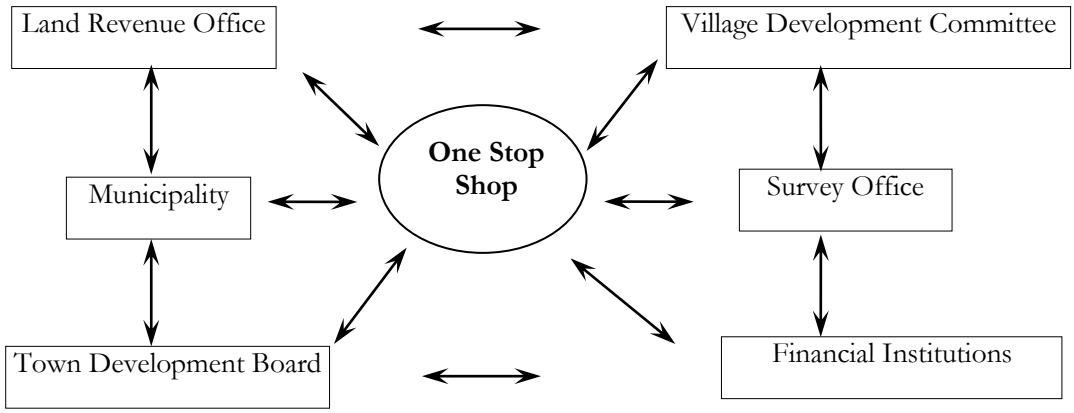

Figure 5-1: Organizational mode for one-stop-shop

The concept of one stop shop makes things easier for the customers. The registration process can be speeded up with the elimination of having to visit different sections and more reliable to the most up-to-date and quality of the data. The resulting unified digital data repository will be easy to access for different stakeholders such as banks and courts. The automation of the service will simplify the process, removes bottle necks and reduce duplication of work through the cadastre infrastructure and web services that perform different tasks under the current manual system. A customized, easy to use application is to be developed for data entry process in order to capture and store the attribute data, surveying data and other type of data into the developed core cadastre domain model. The web portal represents the easy workflow

of the registration service. Through the portal, each user has an account with different privileges according to the user type. Transaction fees calculation functions for different types of properties can also be done through the portal interface. The system should be a web-based application which allows flexibility and security. The Dutch Kadaster is a good example of one stop shop web portal shown in annex 8 is access by parcel id and

5.8. Concluding Remarks

In this research, a case study of land registration at district level in Nepal was carried in order to find out the problem of existing situation and gaps between organizations and citizens (G2C) and among the LA organizations (G2G).Efficient and effective performance or doing business of an organization lies down in optimal use of skilled human resources and in availability of well-organized and institutionalized technology in order to meet the user requirements. Meeting these requirements can be considered as a critical success factor and it can be observed that this is more recognized as such by different businesses. LAS is in part an administrative system that must meet the needs of good government. It must also address the requirements of non-governmental institutions and the general public. Before altering an existing system or introducing a new one, it is essential that the requirements of those who will use or benefit from the system are clearly identified. For successful organizations satisfying user requirements is recognized as a critical success factor. For well performing organizations providing cadastral and surveying services the analyses of these requirements become a regular practice in their everyday working activities. The Netherlands Kadaster is a very good example regarding this issue.

To deal with the problems of existing LAS, users' requirements have been identified, based on the organizational situation, registration process, legal and data handling technologies. The other aspects were considered to find out gaps between G2G and G2C within the LA organization. The new system should be one stop shop system with the availability of web services, facilities of feedback system and help desk. Under organizational situation main concern should be given for integrated products, establishment of one stop shop, lowest possible price and customer satisfaction services. Integration of LAS, digitization of cadastral data and information, establishment of proper infrastructure e-LAS and removing or merging unnecessary steps are the main issues to be concerned in registration process. The legal aspect should consider the revision of existing rules and regulation, integration of land related laws and electronic records as evidence of the legal frame work discussed. Finally data handling technologies has an important role to play in parcel base system, use of unique identifiers and digital data transfer discuss to improve of e-LAS. The transformation of the system will require huge amount of investment for which government budget may not be sufficient and hence assistance from donor agencies and financial organization should be looked at. Main purpose of identifying the user's requirements of LA sector is to provide better services of its users and improve the outcome of the LA organization. The user requirements should be considered while implementing such process. When one studies the functional aspects of LA, the concept of e-government is equally applicable to it, as it is an important sector of public services delivery to the citizens. Moreover e-government is emerging and important trend which influence LAS.

6. CONCLUSION AND RECOMMENDATIONS

This chapter summarizes the conclusions of the research and makes recommendations for further research and implementation of the e-land administration and cadastral information dissemination systems

6.1. Conclusion

Main objective of this research is to analyze users' requirements in the e-land administration system for land registration in Nepal. To achieve the main objective two sub objectives were formulated. Each sub objective was further supported by research question.

The field study followed a structured methodology to collect information regarding the land registration, institutional and technical aspects, affecting LA in Nepal. The methods of communication and observation were used for data collection. The primary data was collected using the methods of questionnaires, interview and observation of existing situation. The secondary data was collected from existing documentation and archival records. In this research, a case study of land registration at district level in Nepal was carried in order to find out the problem of existing situation and gaps between organizations and citizens (G2C) and among the LA organizations (G2G). Efficient and effective performance or doing business of an organization lies down in optimal use of skilled human resources and in availability of well-organized and institutionalized technology in order to meet the users' requirement. Meeting these requirements can be considered as a critical success factor and it can be observed that this is more recognized as such by different businesses.

The legal aspect should consider the revision of existing rules and regulation, integration of land related laws and electronic records as evidence of the legal frame work discussed. Finally data handling technologies has an important role to play in parcel base system, use of unique identifier and digital data transfer discussed to improve an e-LAS. The transformation of the system will require huge amount of investment for which government budget may not be sufficient and hence assistance from donor agencies and financial organization support may be required. The accuracy of the maps based on local control is poor and there is always a problem of edge matching and geo-referencing while creating geo-database from these maps. This will make e-services to operate smoothly in e-environment and to reduce the gaps so that services can be delivered in a more efficient way. The portal aims to automate all registration services, remove the existing bottlenecks and improving the services workflow. The concept of one stop shop makes things easier for the customers.

The stakeholders' preferred decentralized updating of cadastral information. The human resource, ICT support and physical infrastructure are not sufficient for a decentralized LA. Public and private partnership for cadastral data collection and updating was not efficient. Regarding interaction between C2G, the citizens are not aware of the procedure they have to follow for acquiring services from LA organization, their expectations from LA organization are; clarity in the registration process, reduction in time requirements for services and reduction in revisit time.

The conclusion is drawn based on the research questions as follow:

Main objective: ***To analyze users requirements in the e-LAS for land registration in Nepal***

Questions 1: What are the users' requirements for e-LA?
From the case study, nineteen user requirements are identified and grouped into four aspects.
The following requirements are concerning organization and institutional aspects.

- Integrated land administration products
- Lowest possible price with Quality
- Transparency in pricing
- Implement one stop shop
- Authorize or Certify employees

Main users' requirements regarding land registration process are as follows

- Secure and transparency in registration process
- Alternatives in conveyancing
- Compulsory field verification

The following requirements are concerning legal information aspects.

- Revision of existing rules and regulations in order to provide tenure security
- Electronic records as evidence
- Access to information for all who are paying
- Simplification of deed and other forms

Following requirements are concerning databases and information aspects.

- Computerization of completed data sets
- Parcel-based system
- Use of easy understandable identifiers
- Access to updated information
- Digital data transfer
- Online information system
- Improvement of surveying technology

Questions 2: What are the gaps in users' requirements and existing service delivery?

The issues related to data sharing practice between organisations involved in land administration are lacking, limited access to information, organizations are not demand driven and the delays in response time, which is usually too long, are identified to be as the main gaps between government to government relations. The reasons for the gaps are identified as;

- Lack of data sharing policy and manual information system.
- Lack of integrated working process and overlapping responsibility
- Unclear responsibility and lack of trust

Similarly, the gaps between government to citizens and citizens to government are identified as lack of efficiency in land registration process; lack of awareness of the users about land registration process, service delivery are far behind user requirements and access to information. The main reasons for these gaps are as follows

- Lacking inter organizational cooperation and complex LA procedure
- Lack of proper information system
- Complicated legal situation and carelessness of citizens

Questions 3: How can the gap between user requirements and service deliveries are bridged?

The land registration system can be one stop shop by creating availability of web services, improving the feedback mechanism for making complaints and suggestions regarding the quality and approach of services delivery. Establishment of a help desk would provide the citizen to get rid of such problems, where they can have opportunity to get clarification with their doubts and receive clear information about the procedure to follow. Proper restructuring of the LA organization and coordination is required to provide services to citizens. Cadastral and land use information need to be digitalised and data

standardization to be implemented for completed data sets and also establishment of proper infrastructure for information for updating purpose.

Sub objective 1: ***To study how the existing land registration system is functioning in Nepal***

Questions 4: What is the process of distributing information to various end users (G2G and G2C)?

The employees of the land administration organizations are considered as internal users. Sometimes distribution is not functioning at all. Sometimes it can be digital and also sometimes it can be paper copy and it leads to a system that cannot provide user requirements satisfactory. First meet the Lekhandas and prepare an application and pre-contract paper with seller. The land owner submits application to the municipality and pays taxation fees then valuation report is provided. The Lekhandas prepares the deed of transfer or mortgage with all required documents and signs the deed with the other parties and submits to the LRO. After verification of ownership, the application is registered by the senior clerk. If a subdivision is required a request is send to the SO. Then SO collects the survey fees and prepares the sub division plan, two copies are sent back to the LRO. Then senior clerk calculate the registrations fee and a request to pay is made to the buyer. LR Officer Interviews the parties to check whether they agree on the transaction and the condition of sale are fulfilled. Finally land revenue officer checked all the documents such as citizenship, ownership certificate, valuation report, deeds and signature of the parties involved are verified by LRO then register the deed and issue a new ownership certificate. When the owner pays land revenue and other property taxes then he can sell his property. Banks and financial institutions provide credit to the buyer for the property.

Questions 5: How fast, cheap and easily the existing systems are providing services?

The land registry and cadastral organization are separated in Nepal and the registration system is deed based. The existing land registration system is paper-based. Land registration is done at district level. The process of registration is quite complex with five organizations involved. Thirty seven steps are required to complete the transaction for buying & selling and it takes many days. The citizens are not aware of the procedure of land registration that makes them to require the help from the Lekhandas or the staff of the registration office. The land use data and cadastral maps used for registration are paper based and not up to date. Transfer of information between government organisations and citizens is done manually. Although the policy of the government is to provide somewhat better LAS, there are lots of problems in the existing system such as; parcel sub-division is done without field visit, , poor management of land records, manual data transfer, difficulty in retrieving land information, scattered rules and regulations, lack of skilled manpower. This makes the system not easy to understand and not cheap for users in the Nepal.

Sub objective 2: ***To analyze how registration process of the Netherlands is developed as e- LAS***

Questions 6: What was the process of creating and updating land registration database?

Buyer and seller agree on a sale, a notary public will draw up a notary's deed of transfer, after verifying the right to dispose by the seller. After the signing of the deed by both parties and the notary, the notary public signs a digital copy as a true copy which is electronically submitted to the agency. The land registrar of the agency checks some formal requirements, and records the deed. As the notary public is also the intermediate for the financial arrangements, the purchase price is kept by the notary public until the evidence of recording is received; only then the purchase price is paid to the seller. A similar procedure pertains to mortgages, which secure loans on land and buildings. In the case of the transfer of a

subdivided land parcel, the land surveyor of the agency will survey the new boundaries, and allocate new parcel identifiers.
The cadastral records in Dutch Kadaster are managed and maintained by two separated systems with interface connection. The main two databases are updated daily and information is delivered on line from information databases within one day. The data in the information databases are stored in the same way (copies). In this database information are combined. The public register of deeds is always up to date by nature. All deeds are filed as they come in, day by day. The newly recorded deeds are extracted by administrative staff, and are essentially inserted or changed in the databases. A simple case is a normal transfer of a house. Then the name of the seller is removed in favour of the name of the new owner, including all relevant data. Based on these digital cadastral records, all of the work processes in Dutch Kadaster are automated and deeds are archived electronically.

Questions 7: What was the process of distributing information to various end users?

Land registration and cadastral mapping are tasks carried at national level, assigned by mandate to the cadastre and land registry agency. There is a proper alignment between the required business strategy and the available IT options and is ensured by constant dialogue / interaction between the concerned cadastral survey units and the internet services provider. The organization has been redesigned as a front office and a back office (Production teams) to support the front office requirements. The front office is responsible for all activities with regard to marketing, account management, consultancy, customer services and shop-sales for all products, customer requests, inquiries, complaints etc. all possible means of communication are directed to the marketing & customer services departments. The production of customized products is centralized and undertaken by the back office. The system has a sound product distribution strategy that adopts the one-stop-shop strategy providing ease and access to customers' linkages with municipalities and Kadaster network.

Some of the important strategies specific to data distribution aspects could be identified as the following:

- The on-line real estate information system (Cadastre-on-line) providing latest information over the Internet indicating use of Internet as a major technology feature with lowest possible price.
- Clients accessing cadastral files supplied digitally subscribe to the updated information and customise its offerings where applicable.
- Merging certain cadastral information together in such a way as to create new information for varied customers in other organisations
- National access to the cadastre via a new personal data registration system including a link to the municipal population register
- Constantly strives to improve the quality of the information it provides, and reducing cost.

As a result of this analysis, it is clearly seen that Dutch people can offer his/her request to Dutch Kadaster via the internet without visiting several organizations and even get a new land registry through electronic conveyancing system via the notary. Because, in the Netherlands, all cadastral registers and maps are digital format, so that the cadastral records can be managed and served by Dutch Kadaster in the electronic way.

6.2. Recommendations

Based on the user requirements as concluded above, the following is recommended

- Introduce an institution responsible for the communication between stakeholders and LA service provided. In this way the stakeholders can be involved in future development for e-LA. Such institutional could provide recommendation on simplification of workflows and on data sharing. Such institution could contribute to efficient support from scarce human resources in the design development and implementation of e-LA.

- Attention should be paid to the commitments of staff (human resources) in this development. Reasonable salaries are condition in relation to this.
- Workflows are recommended to be designed in such a way that they function as a one stop shop to the end users. This is in support to transparency and avoidance of corruptions.
- Provided a detailed system design with functionality, data base design, workflow design, user interface, authorization requirements and the related technical design with software application, database and network specification. This functional and technical design should be based on the user requirements presented in this research.
- Implementations of a national wide GPS infrastructure as a basic for completion and maintenance of LA in Nepal.
- Development of standard of products, services and data exchange.
- Observe and learn from other countries where e-LAS have been implemented already.
- Establish a help desk
- Consider restructuring of the organization; integration of departments at least allowing for the implementations of inter-departmental workflow. Later marketing customers' service front office and back office may be introduced. Front office may be the municipality functioning as a one stop shop with public service provision.

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Annex 1: Responses about Organizational Situation

Type	Responses about organizational situation
Policy Maker (G2G)	Re designing current organization structure and all the LA services should be provided from one stop shop then all the infrastructure and layout of the office should be well managed. All departments should be integrated.
	Coordination among all other department in LA organizations is required and they can be integrated. Lack of technical manpower is also a problem in implementing. Human resources to operate computers are lacking.
	Government is planning introduce private surveyors for subdivision process. Employees are not trained about modern technology and no provision to fire them.
	Computerization of attribute, spatial data and make a link between these data should be completed. Then maintenance of both data should be introduced.
Internal Users (G2G)	Either the office does not have its own building or if it has own building there is lacking necessary infrastructure. All the office building are lacking logistics and there are insufficient rooms in the office.
	The office has the problems with space, logistics, furniture and file cabinets to store field books and maps
	The survey office has felt the need of computerization of maps and field books and its use for the services to the people. Up-to-date maps and records are the necessary for better LA
	Training to basic surveyors is urgently needed. Present human resource and system should be improved. Working process and organization structure should be revised.
External Users (G2C)	People need to walk more so all land related offices should be in the same location.
	Lack of technical manpower is also a problem in implementing LIS program.
	Computers are used for typing and account work, not used in daily land transaction work because the land records have not been computerized in this office
	1/3rd of the staff are capable of working in computer and the LRO can manage.
	Internet is well established throughout the country, and a web based solution is feasible
Other Experts (G2C)	Existing system is bad enough that flaws are evident, and there is pressure to modernize
	Service is not so effective. Employees having knowledge on registration system should be hired.
	Well coordination among all land related organizations is required.
	There is lack of trained manpower. The services are providing so fast that surveyors sub divide parcel without field verification.
	Information on tenure disputed land is not available, so problem in land acquisition.
	Civil Code allows the land owner to sell only 50% of the land for household expenses and members of family of landowner may claim if the land is fully sold without their consent.
	This provision of civil code provides insecurity for the buyer of land.
	Land Records are very important for managing the land resources and land use planning. At the moment, it is happening haphazardly.

Annex 2: Responses about Registration Process

Type	Responses about registration process
Policy Maker (G2G)	Department is planning to provide services from one stop shop and electronic registration systems in future, Notary system should be applied only after study.
	Electronic registration system is possible if it is provisioned by the law. One stop shopping is required to improve the business process.
	Introduction of the computerization is necessary. With computerization, good security and service can be provided to the people.
Internal Users (G2G)	Computerization will improve the efficiency in our services and satisfy the user needs. Office system should be redesigned in order to make easy to work
	Develop laws and regulation suitable for the work done on district offices, keeping record up to date, compulsory field verification on sub division surreys,
	Providing technical support to LR Offices is main function of Survey Offices.
	Computerization of process will help in providing services on time. Physical infrastructure is set up well, services can be provided from a one stop shop.
External Users (G2C)	It takes 1 to 3 days in case of whole parcel registration; the process should be completed within 4-5 hours.
	Clients need to visit VDC/Municipality, Ward Office, Town Development Board, Survey Office and Land Revenue Offices. The registration process is very long.
	Issuing revenue receipt, valuation report and recommendation letter are the main roles of municipality. The registration process takes 1-3days, Unnecessary steps should be merged.
	Each level of employees checks and verifies the same thing. Rate of registration fee is not reliable, it should be flat.
	Process must be made easier and faster, valuation should be reliable and equal to the current price, tax should not be higher.
Other Experts (G2C)	Documents are increasing in every year and becoming very difficult to manage and retrieve in time, should be kept in the archive, and unwanted documents should be removed from the archive,
	Process is traditional and complex. Notary system may be applicable if their fee is fixed, transparent and the registration is based on the reliable evidence.
	Existing process is unable to provide services efficiently. Clients need to go in the same room more than once. Basic services should be provided from local level
	Courts need the original evidence of decision and registered deed, sometimes it takes more time to get it.
	Informing parties by electronic medium is provisioned by law but civil code is not changed accordingly.
	Process is very cumbersome. Integrated services should be provided from a single place. Sometimes deeds are not registered in the same day.

Annex 3: Responses about Legal Process

Type	Responses about legal process
Policy Maker (G2G)	The present Electronic Transaction and Digital Signature Act (ETDSA) do not legalize electronic transactions for land records and this can be a major bottleneck.
	Incomplete law in the case of digital data handling
	Land related services should be covered by e-business law. No guarantee of the registered deeds.
	Integrated Acts and regulations is needed, the formats used in the LRO is complicated.
	Court may decide to compensate the price stated in the deed. But there is no separate fund for this purpose.
	No uniformity in technology, registration laws and personnel administration. Land laws are not in integrated form.
Internal Users (G2G)	Electronic signature to be legalized,
	Existing law should be amended to suit the changing concept of land reform program.
	The legal arrangements made in Land Act, 1964 has no co-relationship with other laws like contract Act. Civil Code, Punishment and Fine Act, Education Act, Co-operative Act etc
	Government is trying to introduce title system in future but the physical infrastructures and logistic are not developed yet.
	Rules and regulations are not revised according to the policy of the government. It should be revised accordingly.
	Need a unique cadastral identifier and unique street address
	Define standards and policies to integrate other land related data.
External Users (G2C)	Existing rules, regulations and procedures to be implement for clear and easily understandable
	Information is not available to real estate agencies
	The e-business law does not fully cover the electronic land registration function
	Rules and regulations are not enough to provide tenure security.
	Computerized system may help reduce corruption
	Change the land policy because laws related land are scattered.
Other Experts (G2C)	Information is not accessible to lawyer; it should be available to all.
	Conveyors should be made accountable.
	Tax payer should have right to information
	Rights of the buyer should be protected by law.
	Language of Civil Code should be rewritten.

Annex 4: Responses about Data Updating and Handling Process

	Responses about data updating and handling process
Policy Maker (G2G)	Traditional system of data capturing and surveying technology should be updated.
	Cadastral and attribute data should be in the single database. Records are not managed properly.
	Maps are not accurate so disparity between map and ground.
	Department is trying to find new ways of services delivery and developing new advance software.
	Recording system and business process should be modernized. Existing recording system is traditional which has caused delay in the registration process
Internal Users (G2G)	Documents are exchanged manually, Whole process should be computerized and digital photographs and signature should be attached with information.
	Information should be provided electronically. System of tracing map should be changed
	Cadastral and attribute records should be computerized. Deed form should be revised.
	Personal information is not accessible easily so the clients need to spend more time.
	Recording system is person-based. It should be parcel-based.
	Deed form is not appropriate, there should be uniform and standard format for all
External Users (G2C)	Updated record is not available easily. Main problem is in sharing reliable information. Digital data sharing mechanism would be useful in this regard.
	Information is obtained in personal basis; it is difficult to obtain formally. It should be accessible to us and provided through online sources.
	Original ownership record and day to day transaction record is required for municipalities. Data is exchanged in paper form.
	Citizen permit is provided but information is not updated on time and little concern is given about the illiterate people.
	Deeds are archived in poor form, not digitized. Record and process should be computerized. Archiving of the information will be easy and their retrieval will be fast.
Other Experts (G2C)	Ownership record is not maintained well. Municipalities do not have separate database for personal records. It is maintained and updated according to the information provided by the people.
	A coordination committee should be formed to avoid ambiguities among these organizations regarding data sharing.
	Recommendation of municipalities about house and road is compulsory, they used to provide it without visiting in the field which is unreliable and time consuming.
	Date of birth, unique personal ID and parcel number should also be included in the deed and record.
	Information regarding the registered deeds is not available to the people. Corruption and lack of proper recording are the major problems.
	Computerization of records and services may accelerate the process and protect evidences.
	Newly constructed roads, foot prints of constructed building and other information have not been updated in cadastral map. Computerized system may help reduce corruptions and also good security service can be provided to the people.

Annex 5: Overall Observations about Registration Process

Issues	Kalanki	Dillibazar	Chabhil	Lalitpur	Bhaktapur	Kavre
Distance between LRO and SO are	0.5km	0	1km	0.1km	1km	1.5km
LRO and SO are located in government or private building	Private	Govt.	Private	Govt.	Private	Private
Is there provision for help desk or inquiry services?	No	No	No	Yes	Yes	No
Are the clients using it?	No	No	No	No	No	No
How many people are waiting in a queue	15-20	10-15	15-20	20-25	15-20	12-16
Is the queue systematic or scattered	scattered	scattered	scattered	scattered	scattered	scattered
Is the number of employees sufficient to provide services effectively	Yes	Yes	No	Yes	Yes	No
Are the employees following the queue system	Yes	Yes	Yes	Yes	Yes	Yes
Is the workload manageable for employees?	No	Yes	No	No	No	No
Is their front office and back office	No	No	No	Yes	Yes	No
How many employees are working in the office	45	62	45	50	52	39
How long it will take for record verification	0.5day	1 day	1 day	0.5 day	1 day	1 day
How long it will take preparation of parcel plan	0.5day	0.5day	0.5day	0.5day	0.5day	0.5day
How long it will take update record and issuing certificate	1 day	2 day	1.5 day	1 day	1 day	2 day
How long it will take to issue information to Bank	1 day	1 day	1.5 day	0.5 day	1 day	1 day
How is the coordination among the different organizations	Satisfactory	Fair	Un Satisfactory	Satisfactory	Satisfactory	Satisfactory
Are the data transferred electronically	No	No	No	No	No	No
Are the cadastral and attribute data computerized?	Yes	Yes	Yes	Yes	Yes	Yes
How many employees are involved in registration process	4	4	5	3	4	3
How many employees are involved in surveying process	3	3	4	4	3	4

Annex 6: Interview Questionnaire

Director General, Department of Land Reform and Management

1. Could you please explain about the organization structure of your department? ...
2. How many employees are working in this department? ……
3. Is this number sufficient to provide the land administration business successfully? a. Yes b. No
4. In how many districts the land records and services are computerized? ……
5. When are you planning to complete this process in all offices? ……
6. Is the current business process able to meet the needs of the users? a. Yes b. No
7. If not, what should be improved? ……
8. What kind of change will occur in the existing process after computerization of land registration services? ……
9. Do you think integration of land administration organizations will improve the LA services? Are there any negative impacts of this integration? ……
10. There are three departments under the MLRM working for the same purpose. Are there any problems in communication and coordination? a. Yes b. No
11. If yes how it can be overcome? ……
12. Is there any duplication on working procedure among your organization and other related organization? a. Yes b. No
13. If yes can you specify? ……
14. Is the land registration system applicable in Nepal? a. Yes b. No
15. Does your department have any plan to implement such system? ……
16. Is it possible to provide the service from a One-stop shop? a. Yes b. No
17. If yes how does the service provide to the users? ……
18. Are there well documented land policy at the national level? a. Yes b. No
19. If no please specify? ……
20. Is existing land police and act change according to new ICT infrastructure? a. Yes b. No
21. Are there well documented rule and regulation for your service a. Yes b. No
22. If no please specify? ……
23. What are the policies and programs of your department in order to improve the land registration process? ……
24. Does your organization have any websites?
25. Do you using internet for your official work?
26. Do you have any automated link with other concerning organizations?
27. Do you have separate databases?
28. How do you update them?
29. How do you transfer documents within office:?
30. How do you transfer documents between other offices:? a. Manually b. via internet
31. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
32. What are the difficulties you are facing while improving this process? ……
33. Would you like to add anything else in this regard? (If yes, please specify) ……

Director General, Department of Survey

1. Please explain about the organization structure of your department? ……
2. How many employees are working in this department? ……
3. Is this number sufficient to provide the land administration business successfully? a. Yes b. No
4. In how many districts the cadastral records are digitized? ……
5. When will this process complete? ……
6. Is the current business process able to meet the needs of the users? a. Yes b. No
7. If not, what should be improved? ……
8. What are your future plans to improve this process? ……
9. There are three departments under the MLRM working for the same purpose. Are there any problems in communication and coordination? a. Yes b. No
10. If yes how it can be overcome? ……
11. Is there any duplication on working procedure among your organization and other related organization? a. Yes b. No
12. If yes can you specify? ……
13. Is the land registration system applicable in Nepal? a. Yes b. No

14. Is it possible to provide the service from a One-stop shop ? a. Yes b. No
15. If yes how does the service provide to the users? ……..…….....…….
16. Are there well documented land policy at the national level a. Yes b. No
17. If no please specify ? ...……..…….....……
18. Is land police change according to new ICT infrastructure? a. Yes b. No
19. Are there well documented rule and regulation for your service a. Yes b. No
20. If no please specify ? ……..…….....……
21. Is there any duplication of work in the process? a. Yes b. No
22. If yes how do you elimination those process? ……..…….....…….……..
23. What are the policies and programs of your department in order to improve the land registration process? ……..……..…….....…..……..
24. Are there well documented rule and guidelines for your service a. Yes b. No
25. Does your organization have any websites? a. Yes b. No
26. Do you using internet for your official work? a. Yes b. No
27. Do you have any automated link with other concerning organizations? a. Yes b. No
28. Do you have separate databases? a. Yes b. No
29. How do you update them? a. Manually b. via internet
30. How do you transfer documents within office:? a. Manually b. via internet
31. How do you transfer documents between other offices:? a. Manually b. via internet
32. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
33. In your opinion, how the land registration process can be improved?
34. Is the existing organization structure adequate to provide land administration services effectively and efficiently? If not, how it should be restructured? ....…….....…….……
35. What are the difficulties you have observed in the existing process? ...…….....…….
36. Would you like to add anything else in this regard? (If yes, please specify) ...….....……..
……..…….....……..

Director, Department of Land Information and Archive

1. Could you please explain about the organization structure of your department? ……...……..……..…..
2. How many employees of your department are working in land revenue office and survey offices? .....
3. Could you please explain about the progress of your department so far regarding the computerization of land records and land administration services? …….……..……..……..…
4. What are the difficulties you have observed to expand this program in other districts? .....….....……
5. What type of programs have you lunched? Is it user friendly and capable of meeting the requirements of the user? ……....……..….....…..……
6. Is this program being able to reduce the time taken for finding information and registering the property, protect cadastral and ownership records and reduce the cost of LAS? .....
7. What are the problems you have faced while executing this program? How can these problems be overcome?
8. Are there any problems in communication within three departments under the MLRM? a. Yesb. No
9. If yes how it can be overcome? ....…….....……..
10. Is there any duplication on working procedure among your organization and other related organization? a. Yes b. No
11. If yes can you specify? ……..…….....……..
12. Is the land registration system applicable in Nepal? a Yes b. No
13. Is it possible to provide the service from a One-stop shop? a. Yes b. No
14. If yes how does the service provide to the users? ……..…….....…….
15. Are there well documented land policy at the national level a. Yes b. No
16. If no please specify ? …….....……
17. Is land police change according to new ICT infrastructure? a. Yes b. No
18. Are there well documented rule and regulation for your service a. Yes b. No
19. If no please specify ? ……..…….....……
20. Is there any duplication of work in the process? a. Yes b. No
21. If yes how do you elimination those process? ……..…….....……..
22 Are there well documented rule and guidelines for your service a. Yes b. No
23. Does your organization have any websites? a. Yes b. No
24. Do you using internet for your official work? a. Yes b. No
25. Do you have any automated link with other concerning organizations? a. Yes b. No
26. Do you have separate databases? a. Yes b. No
27. How do you update them? a. Manually b. via internet
28 How do you transfer documents within office:? a. Manually b. via internet
29. How do you transfer documents between other offices:? a. Manually b. via internet
30. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
31. How are you distribution land information to the users? Are you providing online information

services? If no, are you planning for the future? ……
32. Is the current organizational structure capable of providing services efficiently? ……
33. Could you please provide your opinion about the integration of land administration organizations? ……
34. In some countries the deeds are registered electronically? Do you think it is feasible in the context of Nepal? ……
35. In your opinion, is the current business process able to meet the needs of the users? What are your future plans to improve the business process? ……
36. Would you like to add anything else in this regard? ……

Joint Sectary of Ministry of Land Reform and Management

1. Is the current land registration process providing services effectively and being able to meet the needs of the users? ……
2. Is the current organization structure adequate to provide the LAS effectively? ……
3. An issue of integration land administration organizations has been raised by different respondents during the field study. Do you think it will improve the land administration services? ..... Does the ministry have any plan in this regard? ……
4. The Interim Constitution of Nepal has declared that Nepal will be a Federal Republic. In your opinion, will it change the existing organization structure of this ministry? ……
5. Computerization of ownership and cadastral records has been initiated by the departments. could you please tell us when will this process be completed? ……
6. Do you have any program to introduce electronic land registration system? ……
7. Is the notary system applicable in our context? ……
8. What are the difficulties you have observed in improving land administration services? ……
9. How they can be overcome? ……
10. What are your future plan and program to improve the land registration process? ……
11. Are there any problems in communication within three departments under the MLRM? a. Yes b. No
12. If yes how it can be overcome? ……
13. Is there any duplication on working procedure among your organization and other related organization? a. Yes b. No
14. If yes can you specify? ……
15. Is the land registration system applicable in Nepal? a. Yes b. No
16. Is it possible to provide the service from a One-stop shop ? a. Yes b. No
17. If yes how does the service provide to the users? ……
18. Are there well documented land policy at the national level a. Yes b. No
19. If no please specify ? ……
20. Is land police change according to new ICT infrastructure? a. Yes b. No
21. Are there well documented rule and regulation for your service a. Yes b. No
22. If no please specify ? ……
23. Is there any duplication of work in the process? a. Yes b. No
24. If yes how do you elimination those process? ……
25. What are the policies and programs of your department in order to improve the land registration process? ……
26. Are there well documented rule and guidelines for your service a. Yes b. No
27. Does your organization have any websites? a. Yes b. No
28. Do you using internet for your official work? a. Yes b. No
29. Do you have any automated link with other concerning organizations? a. Yes b. No
29. Do you have separate databases? a. Yes b. No
30. How do you update them? a. Manually b. via internet
31. How do you transfer documents within office:? a. Manually b. via internet
32. How do you transfer documents between other offices:? a. Manually b. via internet
33. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
34. Would you like to add anything else in this regard? (If yes, please specify)……

Employees of Land Revenue Offices

1. Please tell me in which section are you working?
   a. Registration b. Ownership Record c. Account d. Archiving e Other
2. What are the main functions of your organization? i. ..... ii ..... iii ……
3. What is your main duty? .....
4. How many hours do you need to work for a single deed? ……
5. Do you need to work for the same deed more than one time? a. Yes b. No
   If yes, how many times? ……

Please specify the step: …….....……...…….....

6. Is there any duplication on working procedure? a. Yes b. No
7. Do you think any steps can be removed or merged with another step? a. Yes b. No
8. How many employees are involved in the process of registering a property?
   a. 3 or less b. 4 c. 5 d. 6or more
9. Is there any front-office at your organization? a. Yes b. No
10. Is there any back-office at your organization? a. Yes b. No
11. How do your organizations handle application for customer service?
    a. First come, first service b. Pay more to get first service
12. Do your organization have any feedback mechanisms for complain? a. Yes b. No
13. Are there well documented rule and guidelines for your service a. Yes b. No
14. Does your organization have any websites? a. Yes b. No
15. Do you using internet for your official work? a. Yes b. No
16 Do you have any automated link with other concerning organizations? a. Yes b. No
17. Do you have separate databases? a. Yes b. No
18. How do you update them? a. Manually b. via internet
19 How do you transfer documents within office:? a. Manually b. via internet
20. How do you transfer documents between other offices:? a. Manually b. via internet
21 If manually, usually who brings it? a. Staffs b. Clientsc. Conveyor
22. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
23 Is the ownership record and registration process computerized? a. Yes b. No
24. Is it easy and secured to transfer documents electronically than manually? a. Yes b. No
25. How do you archive the deeds and ownership records? a. Paper form b. Digital Form
26. In average, how much time does it take to retrieve the old deeds and verify the records?
    a. Deeds…….. hour
    b. Ownership/restriction records …….hour
27. Do you think computerization of records will make your job comfortable? a. Yes b. No
28. Is the current business process capable for providing registration services efficiently? a. Yes b. No
29. Can be provided the services from the one stop shop? a. Yes b. No
30. What are the problems you are facing while performing your duty? a. ……b. …….. c.....
31. What should be improved to increase efficiency in your task? …….....……....
32. Would you like to add something else in this regard? (If yes, please specify) .....

Employees of Survey Offices

1. What are the main functions of your organization? i. .....ii .....…… .. iii .....….
2. What is your main duty? .....
3. How many days do you need to work for a single parcel sub-division? ..……...…….……....
4. How many employees should be involved in the process of parcel sub-division?
   a. 3 or less b. 4 c. 5 d. 6
5. Are the survey records and map computerized? a. Yes b. No
6 Are you using computer for retrieve cadastral information? a. Yes b. No
7 In which system you feel understand? a. Computerized System b. Manual System
8 Which computer program are you using? .....……...……...
9. Is there any front-office at your organization? a. Yes b. No
10. Is there any back-office at your organization? a. Yes b. No
11 How do your organization handle application for customer service?
   a. First come, first service b. Pay more to get first service
12 Do your organization have any feedback mechanisms for complain? a. Yes b. No
13 Are there well documented rule and guidelines for your service a. Yes b. No
14. Does your organization have any websites? a. Yes b. No
15. Do you using internet for your official work? a. Yes b. No
16. Do you have any automated link with other concerning organizations? a. Yes b. No
17. Do you have separate databases? a. Yes b. No
18 How do you update them? a. Manually b. via internet
19 How do you transfer documents within office:? a. Manually b. via internet
20. How do you transfer documents between other offices:? a. Manually b. via internet
21 Do you think computerization of records will make the services faster and reliable? a. Yes b. No
22 If manually, usually who brings it? a. Staffs b. Clientsc. Conveyor
23 It is easy and secured to transfer documents digitally than manually? a. Yes b. No
24 Is there any duplication on working procedure? a. Yes b. No
25 Do you think any steps can be removed or merged with another step? a. Yes b. No
   If yes, which step? ……....

26 Is the current business process capable for providing parcel sub-division services efficiently?
a. Yes b. No

27 What are the problems you are facing while performing your duty?
a. ……b. ……. C ……..…… d ……..…….

28 What should be improved to increase efficiency in your task?
a. ……b. ……. C …… d ….....……...…….

29 Would you like to add anything else in this regard? (If yes, please specify) .....

Land Revenue Officer

1. Please tell me what are the main functions of your organization? i. ..... i .....…… .. iii .....
2 . Please provide some details about the number of employees working for different jobs?.....
3. Is this number well enough to provide services effectively? a yes b no
4. Please provide some details about the total amount of revenue, expenditure and number of registered deeds of your organization for the last Fiscal Year 2009/2010? .....
5. Who are the main users of your organization, regarding the land registration process? .....
6. What are their roles? ...……...……...……..……
7. What types of documents should be included while submitting a deed for registration? .....
8. How many employees should be involved while registering a deed? a. 2 b. 3 c. 4 d. 5
9. How many organization does a client need to visit in order to get a property registered?
a. 2 b. 3 c. 4 d. 5
10. How many steps are there in a land registration process and what are they?…….....……..
11. Is there any duplication of in this process? a. Yes b. No
12 Do you think any steps can be removed or merged with another step? a. Yes b. No
13 If yes, which step? ……..…….....…….....
14. Are there any activities or steps that can be remove or merge with other steps? a. Yes b. No
15. Is it possible to provide the service from a One-stop shop ? a. Yes b. No
16. If yes how does the service provide to the users? ……..…...…..…….
17. Is there any provision of help-desk in your office? a. Yes b. No
18. Are the records and registration services computerized? a. Yes b. No
19. Is there any front-office at your organization? a. Yes b. No
20. Is there any back-office at your organization? a. Yes b. No
21. How do your organizations handle application for customer service?
a. First come, first service b. Pay more to get first service
22. Do your organization have any feedback mechanisms for complain? a. Yes b. No
23. Are there well documented rule and guidelines for your service a. Yes b. No
24 Does your organization have any websites? a. Yes b. No
25. Do you using internet for your official work? a. Yes b. No
26. Do you have any automated link with other concerning organizations? a. Yes b. No
27. Do you have separate databases? a. Yes b. No
28. How do you update them? a. Manually b. via internet
29. How do you transfer documents within office:? a. Manually b. via internet
30. How do you transfer documents between other organizations:? a. Manually b. via internet
31. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
32. It is easy and secured to transfer documents digitally than manually? a. Yes b. No
33. How do you archive the deeds and records a. Manually b. Digitally
34. How much time does it take to retrieve them again? a. 1 hours b. 4 hours c. 1 days d.3 days
35. Is the current organization structure and business process capable for providing registration services efficiently? If not, what should be improved and how? …….....……
36. Do you think integration of land administration organizations will improve the land registration process? Could you please explain its strengths and drawbacks?...…….....……..
37. Do you think the existing registration process is being able to satisfy the needs of the clients? If not what is wrong with it and how can it be overcome? ...…….....……..……
38. In your opinion, how the services can be provided on time? ……..……
39. Will the computerization of registration process make the services efficient and effective? a Yes, b No
40. Are the existing rules, regulations and procedures clear and easily understandable? a Yes, b No
41. What are the problems you are facing while performing your duty? .....
42. What improvement do you expect? .....
43. Would you like to add anything else in this regard? ...……..…..……
.....

Survey Officer

1. Please tell me what are the main functions of your organization? i. .....
   ii ……..…… .. iii …….....……..……..….
2. Please provide some details about the number of employees working for different jobs? .....
3. Is this number well enough to provide services effectively? a yes b no
4. Please provide some details about the total amount of revenue, expenditure and number of Sub division of your organization for the last Fiscal Year 2009/2010? ……..……...……..
5. Who are the main users of your organization, especially regarding the land registration process? ……..……..…….
6. What are their roles? ……..……..……
7. What type of information should be mentioned in a deed while submitting for parcel subdivision? ……..……..
8. What type of information is included in a cadastral record? Is this information enough? If not, what should be included? ..……..……..……
9. How many employees should be involved in a parcel sub-division process? a. 2 b. 3 c. 4 d. 5
10. How many rooms does a client need to visit during parcel sub-division process? a. 2 b. 3 c. 4 d. 5
11. Is there any duplication of work? a. Yes b. No
12. If yes, in which step and for which task? ……..…..…….
13. Is it possible to provide the service from a One-stop shop ? a. Yes b. No
14. If yes how does the service provide to the users? ……..……..…….
15. Is there any provision of help-desk in your office? a. Yes b. No
16. Is there any front-office at your organization? a. Yes b. No
17. Is there any back-office at your organization? a. Yes b. No
18. How do your organizations handle application for customer service?
    a. First come, first service b. Pay more to get first service
19. Do your organization have any feedback mechanisms for complain? a. Yes b. No
20. Are there well documented rule and guidelines for your service a. Yes b. No
21. Does your organization have any websites? a. Yes b. No
22. Do you using internet for your official work? a. Yes b. No
23. Do you have any automated link with other concerning organizations? a. Yes b. No
24. Do you have separate databases? a. Yes b. No
25. How do you update them? a. Manually b. via internet
26. How do you transfer documents within office:? a. Manually b. via internet
27. How do you transfer documents between other offices:? a. Manually b. via internet
28. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
29. It is easy and secured to transfer documents digitally than manually? a. Yes b. No
30. Is the current organization structure and business process capable for providing parcel sub-division services efficiently? a. Yes b. No
31. If not, what should be improved and how? .....
32. Do you think integration of land administration organizations will improve the land registration process? Could you please explain its strengths and drawbacks? . …….....……
33. Do you think the existing process is being able to satisfy the needs of the clients? If not what is wrong with it and how can it be overcome? ...……..……..
34. In your opinion, what should be changed in order to provide services on time? …….....
35. Will the computerization of registration process make the services efficient and effective? a. Yes b. No
36. Are the existing rules, regulations and procedures clear and easily understandable? a. Yes .b No
37 Are they well enough to provide tenure security, effective and efficient services? a. Yes b. No
38. What are the problems you are facing while performing your ?……..……..
39. What improvement do you expect? ……..……..
40. Would you like to add something else in this regard? ……..……..

Lekhandas

1. Could you please tell how many days does it take to prepare a deed?
   a. Less than 1 day b. 1 day c. 2 days d.3 days
2. How many days does it take to complete a registration process?
   a. less than 1 day b. 1-2 day c. 3 days d. More than 3 days
3. For which activity it takes more time?
   a. Obtaining valuation report and recommendation letter b. Parcel sub-division
   c. Registration d. Record verification e. Computer posting
4. How many organization do you need to visit to register a property?
   a. 3 or less b. 4 c. 5 d. 6 or more
5. Is there any front-office at your organization? a. Yes b. No

6. Is there any back-office at your organization? a. Yes b. No
7. How do your organization handle application for customer service?
   a. First come, first service b. Pay more to get first service
8. Do your organization have any feedback mechanisms for complain? a. Yes b. No
10. Does your organization have any websites? a. Yes b. No
11 Do you using internet for your official work? a. Yes b. No
12 Do you have any automated link with other concerning organizations? a. Yes b. No
13. Do you have separate databases? a. Yes b. No
14. How do you update them? a. Manually b. via internet
15 How do you transfer documents within office:? a. Manually b. via internet
16. How do you transfer documents between other offices:? a. Manually b. via internet
17. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
18. How many employees are involved in this process? a. 2 or less b. 3 c. 5 d. 6 or more
19. Do you prefer the task to be accomplished from a one stop shop? a. Yes b. No
20. Is the information about ownership, restriction and old deeds easily accessible? a. Yes b. No
21. Is the information about procedure/cost-fee/tax, easily available? a. Yes b. No
22. Is the information available online? a. Yes b. No c. Don't know
23. Would you prefer the information be accessible online? a. Yes b. No c. Don't know
24 Do you using inter/intranet for your official work? a. Yes b. No
25 Do you have any automated link with other concerning organizations? a. Yes b. No
26 How do you transfer documents within office:? a. Manually b. via inter/intranet
27 How do you transfer documents between other offices:? a. Manually b. via inter/intranet
28. Do you think computerization of records will make the services faster and reliable? a. Yes b. No c. Don't
29.. In your opinion, the land registration process is: a. Slow b. Fast c. Fair
   If it is not fast enough, what should be done to accelerate the rocess?.....
30. In your opinion, are there any problems in delivery of land registration services because of the provision of a separate cadastre? a. Yes b. No
31. If yes, do you think its integration will help to improve the service delivery? a. Yes b. No
32. Would you like to say something more in this regard? …….....……
33. How the deeds are submitted? Is the existing system well enough to provide efficient services to the people? If not, what should be changed or improved? ...…….....……..
34. Is the current organization structure well enough to provide the services efficiently? a. Yes b. No
35. Are the offices located in proper places? a. Yes b. No
36. Do all of the people can reach their easily a. Yes b. No?
37 Is the notary system of land registration applicable in the context of Nepal? a. Yes b. No
38 Is there any legal provision for this system? …….....…….
39 Does it help in providing the land registration services more efficiently? a. Yes b. No
40 What will be the mechanism for providing tenure security under this system? …….....……..

Seller and Buyer

1. Could you please tell me your purpose to come here?
   a. Registration of inheritance, donation of land use right b Change land use purpose
   c Transfer land use right d. Registration of lease or land use right e Registration of mortgage
2. How many days does it take to arrive here from your home?
   a. 3 or less b. 4 c. 5 d. 6 or more
3. How many days/hours does it take to complete a registration process in case of full parcel?
   a. 4 hours or less b. 1 day c. 3 days d. 5 or more days
4. How many days/hours does it take to complete a registration process in case of parcel sub-division?
   a. 4 hours or less b. 1 day c. 3 days d. 5 or more days
5. For which task/activity you spend more time?
   a. Obtaining valuation report and recommendation letter b. Parcel sub-division
   c. Registration d. Record verification e. Computer posting
7. How many employees are involved in this process?
   a. 2 or less b. 3 c. 5 d. 6 or more
6. Is the information about the ownership, restriction and old deeds easily accessible? a. Yes b. No
7. Is the information about procedure/cost-fee/tax, easily available? a. Yes b. No
8. Is the information available online? a. Yes b. No c. Don't know
9. Do you think the computerization of records and online information system will make the process easier and faster? a. Yes b. No c. Don't know
10 Do you using internet for your work? a. Yes b. No
11 Do you have any automated link with other concerning organizations? a. Yes b. No
12. In your opinion, the land registration process is: a. Slow b. Fast c. Fair

13 If the process is slow, what should be done to accelerate the process? …….....…….....
14. How many office do you need to visit to get your property registered?
a. 3 or less b. 4 c. 5 d. 6 or more
15. Do you prefer the task to be accomplished from a single place? a. Yes b. No
16. Is there any provision of help desk to provide any kind of information? a. Yes b. No
17. Are the clients benefitted from its services? a. Yes b. No
18. In your opinion, what should be improved in order to address the requirements of the people from this system? …….....…
19. What are the problems you have observed in the existing land registration system? How it can be solved? …….....…….
20. Would you like to add anything else in this regard? .....

Real Estate Agents

1. Please tell us how many offices do you need to visit before submitting a deed?
a. 3 or less b. 4 c. 5 d. 6 or more
2. How do you get the land ownership and cadastral information? a. Manually b. via internet
3. Is there any provision of providing information for you directly from these organizations? a. Yes b. No
4. Is this information available online? a. Yes b. No
5. In your opinion, what is the easy way of getting that information? a. Manually b. via internet
6. Are the rules, regulations, procedures and practices of land registration easily available and clearly understandable? a. Yes b. No
7. What are the evidences required to include with a deed?.....
8. How many steps are there in a land registration process? .....
9. Do you think any of them can be removed or merged? a. Yes b. No
10. (If yes) Could you please specify? …….....…….
11. How many days/hours does it take to complete a registration process?
a. 4 hours or less b. 1 day c. 3 days d. 5 or more days
12. How many organization do you need to visit to register a property?
a. 3 or less b. 4 c. 5 d. 6 or more
13. How many employees are involved in this process?
a. 2 or less b. 3 c. 5 d. 6 or more
14. Is there any front-office at your organization? a. Yes b. No
15. Is there any back-office at your organization? a. Yes b. No
16. How do your organization handle application for customer service?
a. First come, first service b. Pay more to get first service
17. Do your organization have any feedback mechanisms for complain? a. Yes b. No
18. Are there well documented rule and guidelines for your service a. Yes b. No
19. Does your organization have any websites? a. Yes b. No
20 Do you using internet for your official work? a. Yes b. No
21. Do you have any automated link with other concerning organizations? a. Yes b. No
22. Do you have separate databases? a. Yes b. No
23. How do you update them? a. Manually b. via internet
24. How do you transfer documents within office:? a. Manually b. via internet
25. How do you transfer documents between other offices:? a. Manually b. via internet
26. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
27. Do you think computerization of records and services makes the services faster and reliable? a. Yes b. No
28. What are the problems you have observed in the existing registration system? …..…..…..……..
29. What should be changed in the registration process in order to solve those problems? .....……
30. Would you like to add anything else in this regard? …….

Officer, Municipality

1. Could you please tell us under what provision municipalities are collecting land revenue and house and land tax? What is its status? …….....……
2. What is the role of municipality regarding land registration? …….....……
3. How many days does it take to provide recommendation letter and valuation report to the people?
a. 4 hours or less b. 1-2 day c. 3 days d. More than 3 days
4. How are you maintaining personal and land ownership records? …….....……
5. Is there any front-office at your organization? a. Yes b. No
6. Is there any back-office at your organization? a. Yes b. No
7. How do your organizations handle application for customer service?
a. First come, first service b. Pay more to get first service
8. Do your organization have any feedback mechanisms for complain? a. Yes b. No

9. Are there well documented rule and guidelines for your service a. Yes b. No
10. Does your organization have any websites? a. Yes b. No
11 Do you using internet for your official work? a. Yes b. No
12 Do you have any automated link with other concerning organizations? a. Yes b. No
13. Do you have separate databases? a. Yes b. No
14. How do you update them? a. Manually b. via internet
15 How do you transfer documents within office:? a. Manually b. via internet
16. How do you transfer documents between other offices:? a. Manually b. via internet
17. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
18. What type of information do you need from land administration organizations? ……..……..
19. How do you collect them? a. Manually b. via internet
20. Are there any problems in getting that information?
21. What type of information do you provide to those organizations?
22. How do you deliver information to the users? a. Manually b. via internet
23. In your opinion, how the data sharing mechanism between municipalities and land administration organizations can be improved? ……..…….
24. What are the problems you have observed while dealing with the land registration business? How can it be improved? ...…….....……..
25. Would you like to add anything else in this regard? ..…….....……..

Officials, Bank and Financial Institutions

1. Could you please provide the number of deeds registered from the side of your organization in the last Fiscal Year? …….....……..
2. What type of information do you need while examining the creditworthiness of a client? .....……
3. How do you get the information from the land administration organizations?
4. Is it easily accessible?
5. If not, what are the problems you have observed? How they can be overcome?
6. What type of information do the land administration organizations expect from your office? How do you provide them?
7. Do you have any network connection with those organizations?
8. Is there any front-office at your organization? a. Yes b. No
9. Is there any back-office at your organization? a. Yes b. No
10. How do your organization handle application for customer service?
    a. First come, first service b. Pay more to get first service
11. Do your organization have any feedback mechanisms for complain? a. Yes b. No
12. Are there well documented rule and guidelines for your service a. Yes b. No
13. Does your organization have any websites? a. Yes b. No
14 Do you using internet for your official work? a. Yes b. No
15 Do you have any automated link with other concerning organizations? a. Yes b. No
16. Do you have separate databases? a. Yes b. No
17. How do you update them? a. Manually b. via internet
18 How do you transfer documents within office:? a. Manually b. via internet
19. How do you transfer documents between other offices:? a. Manually b. via internet
20. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
21. How the restriction records are managed and updated? How do you communicate with Land Revenue Office in this regard? .....
22. How many steps are there in the process of registering a contract deed?
23. How many hours/days does it take to register a deed?
24. Is there any duplication in the procedure? If yes, how can it be overcome?
25. What are the problems you have faced while registering the deeds? How it can be solved?
26. Is the current land registration process meeting your requirements? If not, which requirements are not fulfilled? What can be done in order to fulfil them?
27. Would you like to add anything else in this regard? (If yes, please specify

Registrar, District Court

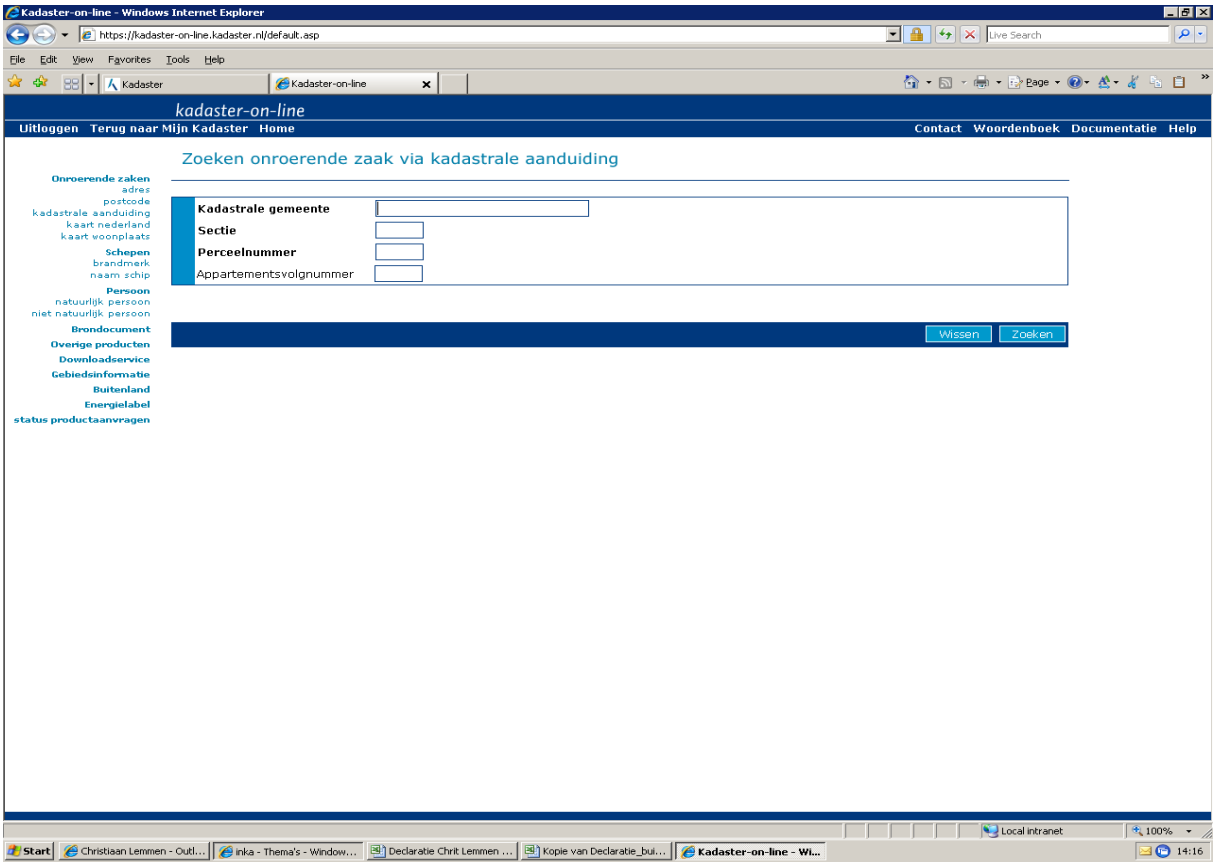
1. How do you assess the land registration process of Nepal?
2. Are the concerning rules and regulations clear and easily understandable? a. Yes b. No
3. What type of information do you seek from the land administration organizations? Are they available easily? …….....…..…….
4. According to your findings, are there any court case caused by the procedural errors during land registration? How those errors can be overcome? …….....……..

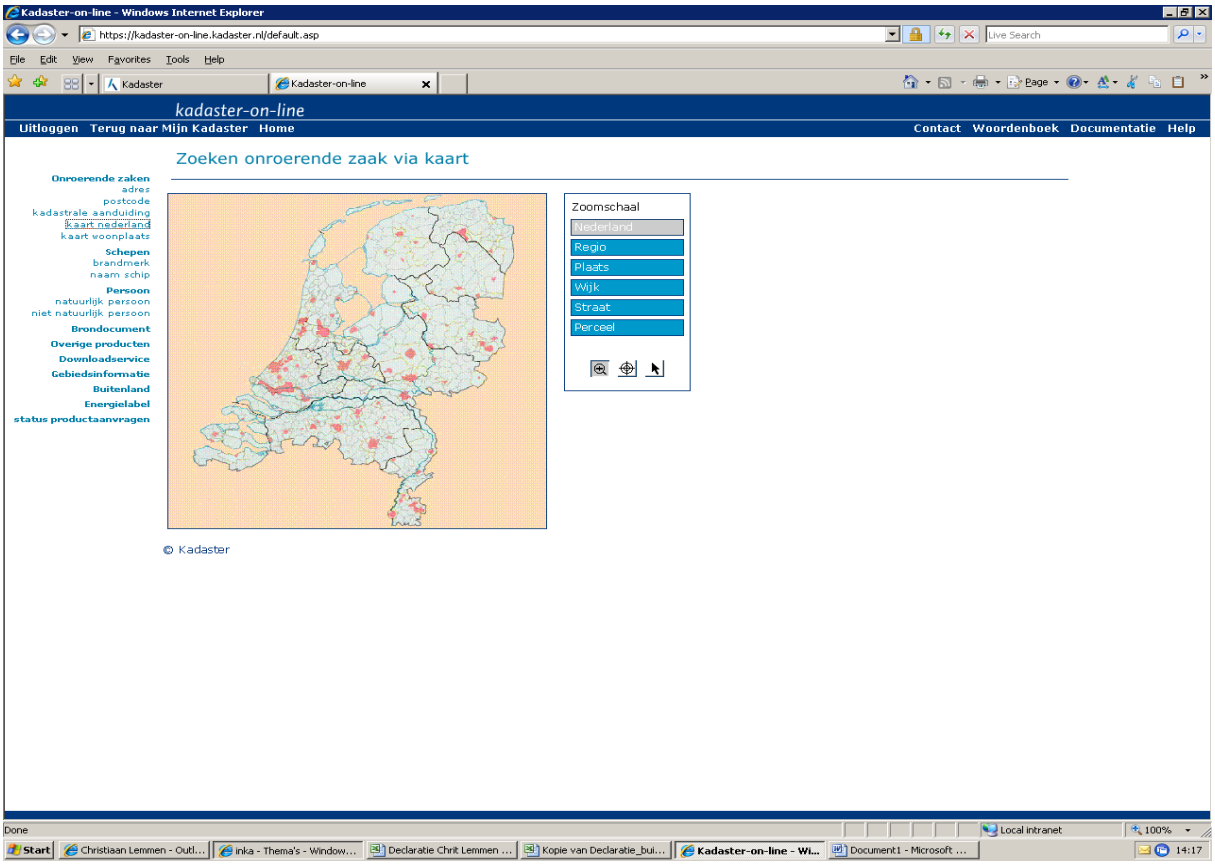
5. Is the existing procedure able to protect the property right of the people? a. Yes b. No
6. In your opinion, is the notary system of land registration applicable in the context of Nepal? a. Yes b. No
7. Is there any legal provision for this system? a. Yes b. No
8. Does it help in providing the land registration services more efficiently? a. Yes b. No
9. In your opinion, is the electronic conveyancing system applicable in our country? a.Yes .No
10. Will it help in improving the land registration process? a. Yes b. No
11. Is there any legal provision for electronic submission of documents, its reliability and the security of right? a. Yes b. No
12. There are three departments under the Ministry of Land Reform and Management working for the same purpose. Are there any problems in coordination? How it can be overcome? …….....
13. Is the land registration system applicable in Nepal? a. Yes b. No
14. What are the policies and programs in order to improve the land registration process?
15. Are there well documented rule and guidelines for your service a. Yes b. No
16. Does your organization have any websites? a. Yes b. No
17 Do you using internet for your official work? a. Yes b. No
18. Do you have any automated link with other concerning organizations? a. Yes b. No
19. Do you have separate databases? a. Yes b. No
20. How do you update them? a. Manually b. via internet
21. How do you transfer documents within office:? a. Manually b. via internet
22. How do you transfer documents between other offices:? a. Manually b. via internet
23. Do you think computerization of records will make the services faster and reliable? a. Yes b. No
24. What are the problems you have observed in the current land registration system? How it can be solved? .....
25. Would you like to add anything else in this regard? (If yes, please specify) .....

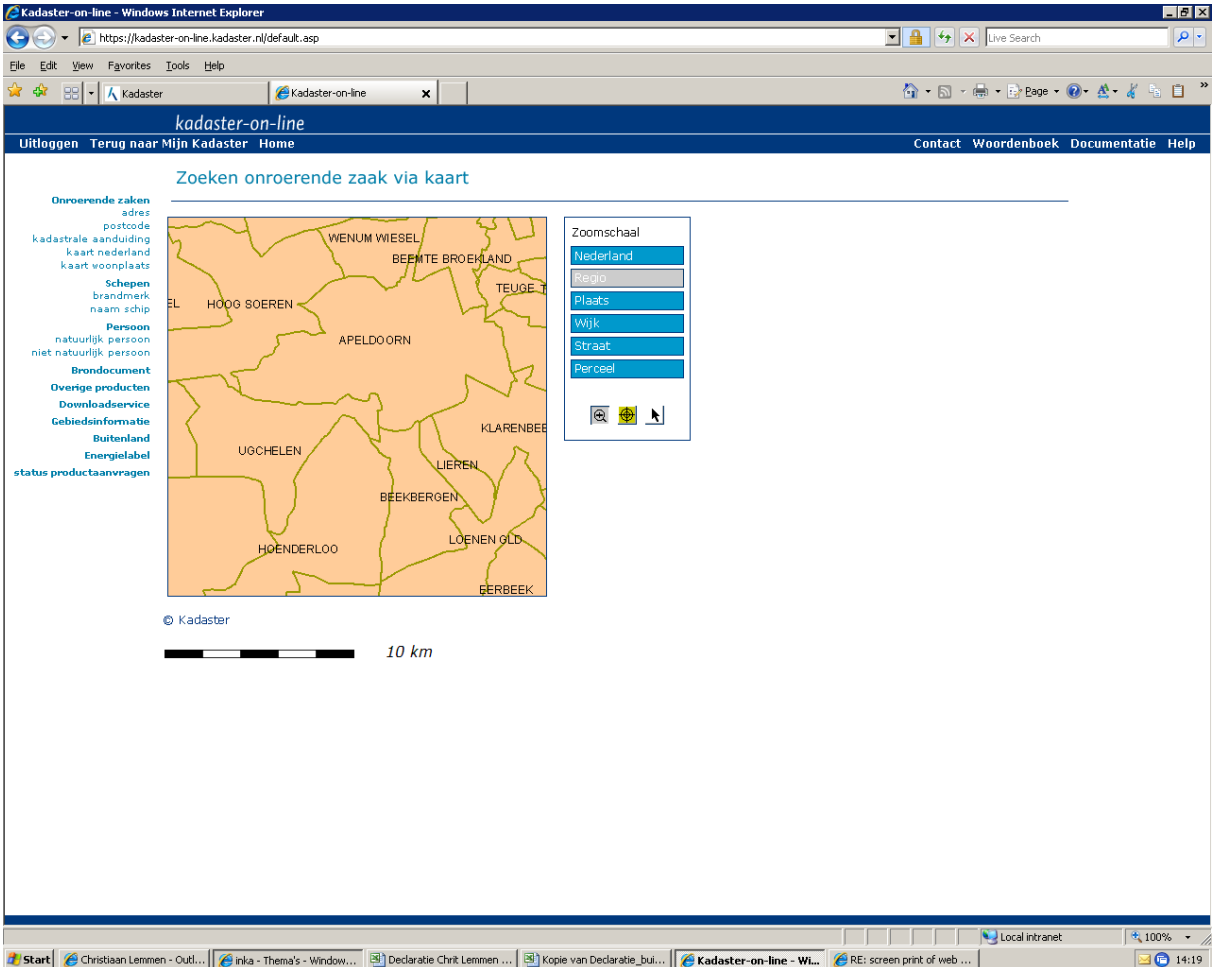
Annex 7: Check List for Observation

No	Check List	Findings
	How far the Land Revenue Office and Survey Offices are located?	
	Is there the provision of help desk or inquiry services?	
	How far are they serving the clients?	
	Are the clients using it?	
	How many people are waiting in a queue?	
	Is the queue systematic or scattered?	
	Are the employees following the queue system?	
	How far the Land Revenue Office and Survey Offices are located?	
	Is the workload manageable for employees?	
	Is it overburdened or less?	
	How the records are managed?	
	How the deeds are archived?	
	Is it seemed to be secured?	
	Is there any provision of Citizen Charter?	
	Is it located in a proper place, i.e., easily visible for the clients? Is it understandable for the clients?	
	Is there any mechanism for complaint?	
	How the documents are transferred from one section to another?	
	How the documents are transferred in between Land Revenue Office to Survey Offices?	
	How many employees are working in their place?	

Annex 8: Good Example for the One Stop Shop Web Portal



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kaart woonplaats
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naam schip
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natuurlijk persoon
niet natuurlijk persoon
Brondocument
Overige producten
Downloadservice
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Buitenland
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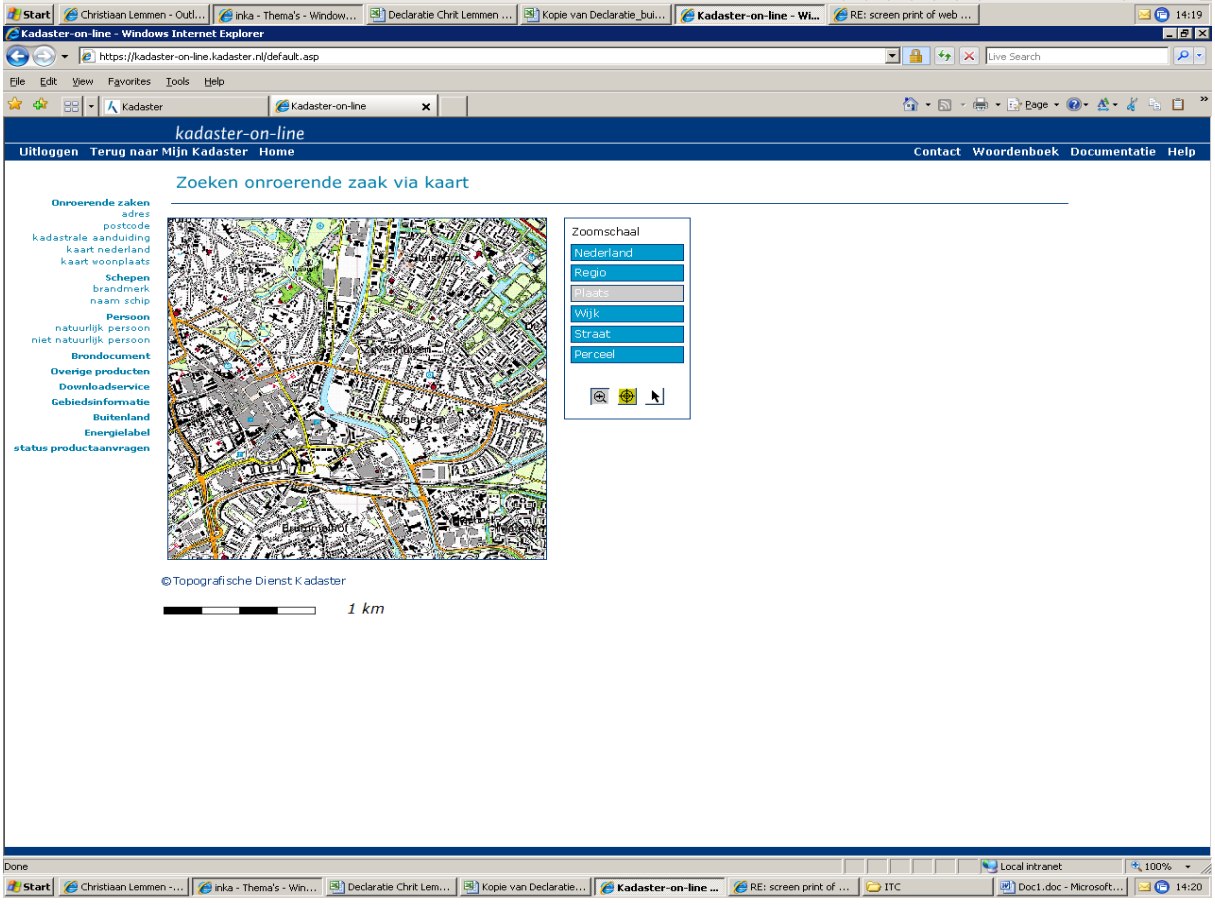
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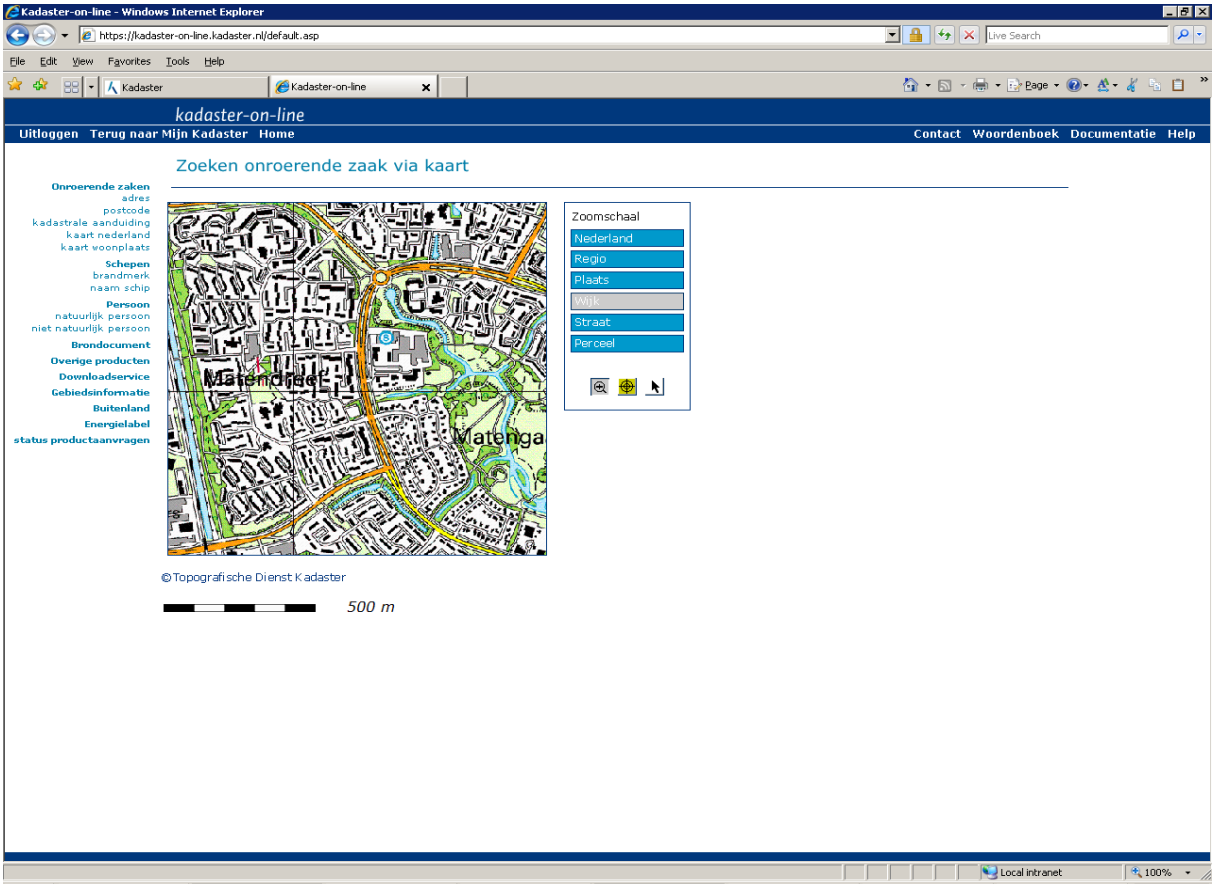
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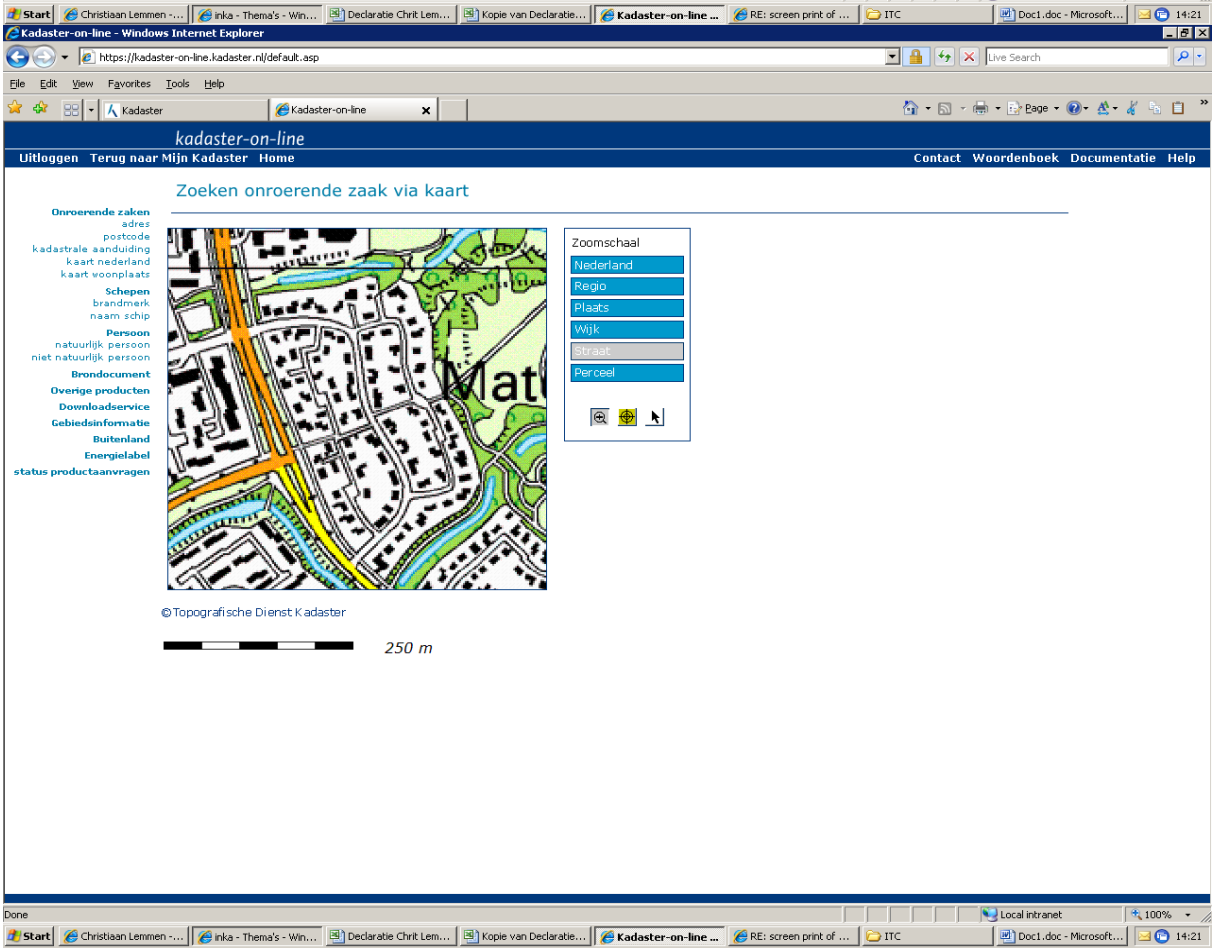
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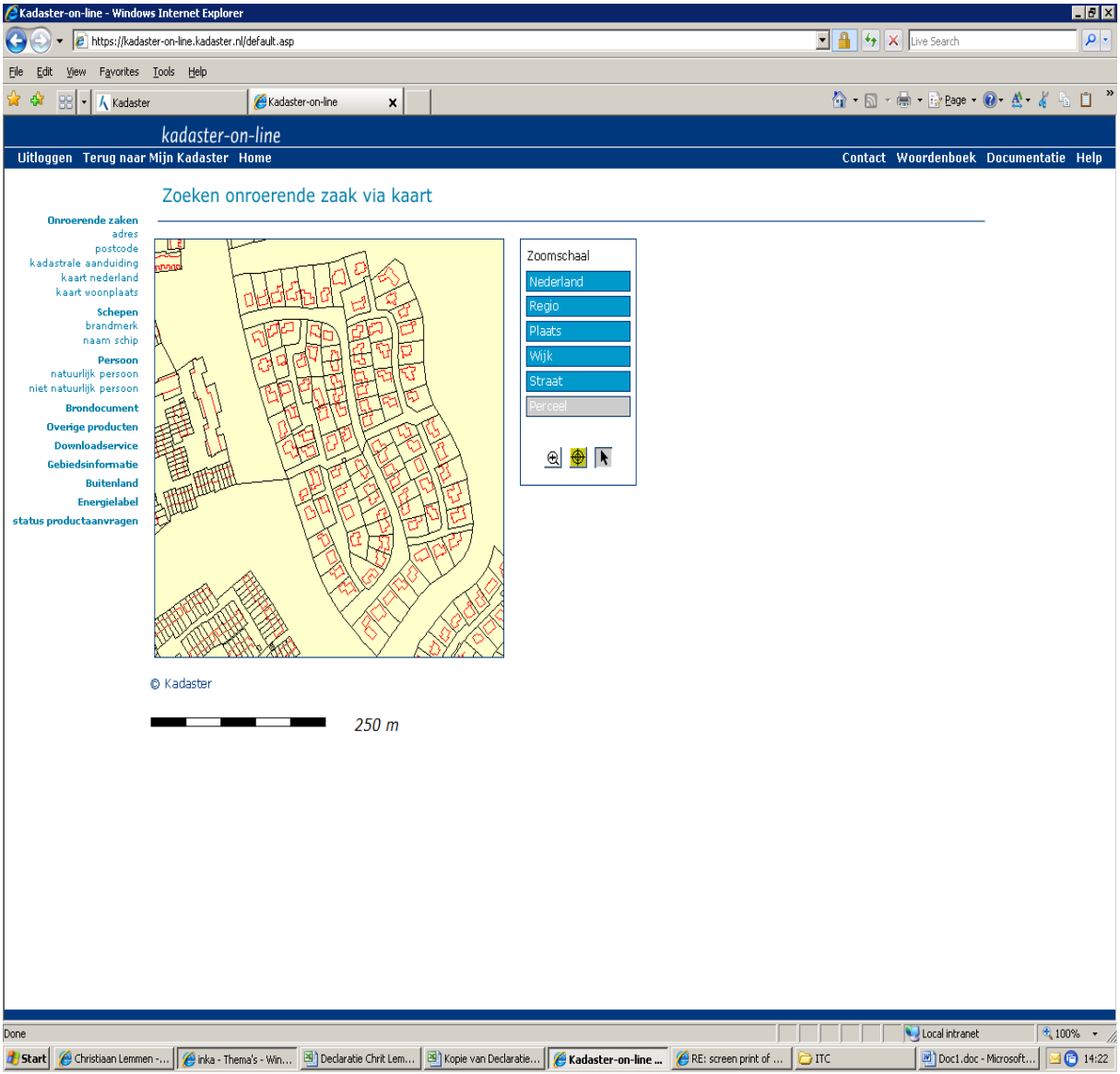
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naam schip
Persoon
natuurlijk persoon
niet natuurlijk persoon
Brondocument
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