E-Governance for an Effective and Efficient Service: Case study on e-Land Administration Services in South East Asia

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Abstract

The concept of e-Governance is adopted with the proliferation of Information and Communication Technology (ICT). Government organizations use ICT to increase efficiency and effectiveness in the services that they provide. e-Government can increase efficiency in service delivery, easy availability and accessibility of services and information to the customers, professional users as well as government organizations. e-Government is the utilization of electronic technology to streamline or improve the business of government whereas e-governance is the performance of government through electronic media to facilitate an efficient, speedy and transparent process of disseminating information to the public, and other agencies, and for performing government administration activities. In the present context, efficient government service delivery, easy access to information and transparency are becoming important global agenda. Also these agenda are considered as the major goals of e-Governance. In order to achieve e-Governance goals many countries have introduced innovations in the field of Land administration. Since land is regarded as a major asset in most of the countries, land administration is a major sector of government. Therefore, effectiveness and efficiency in land service delivery and transparency in land transactions are most essential factors. Thus the e-Land administration, e-Land services and Land Information System (LIS) are being introduced. Besides effective and efficient service delivery, e-land administration also supports in tenure security after disaster. Different disaster like flood, landslide, and earthquake may be the cause for destruction of land information. Strong and robust LIS helps in restoration of land information and come up with land tenure re-establishment ensuring the tenure security in post disaster scenario. This paper provides summary on e-Land services and Land Information Systems introduced in South East Asian countries. It gives the G2G, G2C and G2B models of e-government. Additionally, it reviews on challenges and limitations on implementation of e-Land administration and develop recommendations.

1. Introduction

In recent years, concept of e-governance has been flourished rapidly with advancement of Information and Communication Technology (ICT). Governments all over the world are now introducing e-government as a strategic option to fine-tune the service delivery in different government sectors [Gottschalk and Solli-Saether, 2009]. Moreover, citizen empowerment through easy access to information, more efficient and effective government activities, reduction in administrative burden and cost, to promote transparency in the government processes are other goals of e-Governance. E-Governance would help to facilitate government to manage resources, implement plans and policies along with efficient service delivery to the citizens. Additionally, e-Governance aims for easy dissemination of government information (between government-to-citizens (G2C), government-to-business (G2B) and government-to-government (G2G)) which consequently helps in improving the quality of government services and promotes participatory approach as well.

Land is regarded as a major asset in most of the countries and citizens are directly involved in land transaction. Therefore Land Administration (LA) is considered as a major aspect of government. Good land administration is essential to achieve good governance. Thus the concept of e-Government is applicable to land administration as it is an important sector of public service delivery. LA is concerned with the process of determining, recording and disseminating information about the ownership, value and use of land while implementing land management policies [UNECE, 2005]. It is considered to include land registration, cadastral surveying and mapping, fiscal, legal and multi-purpose cadastres and land information systems. Also, LA provides land related information which is fundamental in policy making for the best use of land and its management [Lemmen et al., 2004]. E-land administration is the transformation of traditional land transaction with the inclusion of ICT. It includes the coordination among variety of land administration businesses including front end like online customer services, internal work flow and back end like central data base management [Kalantari et al., 2005]. Within the context of e-governance, ICT/geo-ICT helps to establish e-LA framework which enhances service delivery with increased customer satisfaction and citizen participation and decision making [Steudler, 2004].

E-Land administration makes Land Information System (LIS) robust and strong with reliable data storage and backup. Central database adds value by reducing data redundancy and maintaining data integrity. Different disasters like flood, landslide, and earthquake may be the cause for destruction of land records. Loss of land records leads to land disputes. Land issues are given less priority after disaster. However, ensuring tenure security, land dispute resolution, re-settlement and updating land use plan are major challenges for post disaster scenario. As mentioned in Zevenbergen (2002), the ownership, value and boundary information are documented in land registries during the registration process which are regarded as documentary evidences while resolving land disputes. A Robust LIS helps in restoration of land records and come up with land tenure re-establishment ensuring the tenure security in post disaster scenario as well.

2. Related Works

2.1.E-Governance Initiatives

To go in line with new technology and to adapt changing trends, majority of countries all around the world are on the way to e-Governance. In this context, countries have introduced their own e-Government Master plans aiming to step forward in the direction of e-Governance. E-Government Master plans are initiatives of the government towards inclusion of ICT in government sectors to achieve e-Governance goals.

In 2000, ASEAN leaders signed e-ASEAN Framework Agreement with objectives to promote cooperation to develop strengthen and enhance the competitiveness of the ICT sector in ASEAN, to reduce the digital divide within individual ASEAN member states and to establish a free-trade area in ICT products, services and investments [http://www.asean.org/]. Member states of ASEAN are practicing e-governance in various government organizations. However, lack of citizen's participation, leadership failure, financial inhibitors, digital divides, poor coordination, organizational inflexibility, lack of trust and poor technical designs are some of the barriers of successful implementation of e-governance [Dangol, 2012].

The Government of Nepal (GoN) has prepared e-Government Master Plan, 2006 to establish vision, strategy and framework of e-governance in Nepal [Pariyar, 2007]. This master plan focused mainly in eight sectors: formulation of Government Enterprise Architecture (GEA) & Nepal e-Governance Interoperability Framework [NeGIF], establishment of Government Integrated Data Center (GIDC), National ID, Land Records Information Management System (LRIMS), Smart driving license, Broadband internet services to district level, Human Resource Development in IT, Online application system for Public Service Commission (PSC) [HLCIT, 2006]. Beside the master plan, Personal Information system to keep record of government employee, e-tendering and procurement procedure, e-TDS, e-PAN, Line Ministry Budget Information System (LMBIS) are some of the examples of the initiatives of GoN towards e-governance.

In 2005 the Government of Mongolia (GoM) approved an E-Mongolia National Program mission stating "enhancing people's life quality by establishing new economic environment, improving country's competitiveness and providing sustainable development" [Uyanga et al., 2014]. The program's objectives are to provide legal framework to develop e-Government, to develop information technology infrastructure, to make government activities and services online, transparent, open and accessible and to improve IT skills of employee and citizens. Kiosk machines for public service delivery, launch of public service web portal, smart post, traffic police non cash punishment system, e-visa, e-procurement, camera penalty system, private key infrastructure are some of the G2B, G2C and G2G services introduced by GoM.

Sri Lanka established the Information Communication Technology Agency (ICTA) as an initiative towards e-Governance. It has been given the leading role in the application of

Information and Communication Technology (ICT) to achieve major economic and developmental improvements in Sri Lanka through implementation of the e-Sri Lanka Development Program. ITCA established an ICT Act-2003 which includes leadership and institutional development, reengineering of government programs, human resource development, and private sector development as major agendas. Likewise, in Philippines the E-commerce Act was signed in June 2000 directing all government agencies to use electronic means in government transaction. In order to assist local government in smooth transition to e-governance, a 3 year project called Jumpstarting Electronic Governance in LGU started in 2002 in joint collaboration with National Compute Center (NCC), DOST and Information Technology E-Commerce Council was commenced.

In February 1996, the Thai government approved the first National Information Technology Policy-IT2000, a short term policy for 1997 – 2001, which was initiated and developed by National Information Technology Committee (NITC). To ensure the continuity, NITC launched the second phase-IT2010 and third phase-ICT 2020 aiming to enhance sustainable and balanced development in 3 dimensions: social, economic and environmental.

Royal Government of Bhutan developed Bhutan e-Government Master Plan in 2014 to drive social and economic development through ICT. The plan gives the holistic view of the ICT strategies, initiatives and projects that the RGoB will undertake over the next 5 years. The plan also identified the requirement of institutionalizing e Gov Governance structure, including setting up of e-Gov Program Management Office to ensure effective implementation [RGoG, 2014].

To improve government service delivery to citizens and businesses with the vision "Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency & reliability of such services at affordable costs to realize the basic needs of the common man", GoI formulated National e-Governance Plan (NeGP) in 2006 [GoI, 2006]. Then after the government initiated different G2G, G2CC, G2B projects among which land records digitization is one.

2.2. Initiatives towards e-Land Administration

Initiatives towards e-Governance by government of Nepal, Mongolia, Thailand, Sri Lanka, Bhutan, India and Philippines are discussed briefly in section 2.1. Land administration is considered as an important aspect of government so it is also incorporated as a mainstream of e-governance. Therefore, these countries have put some initiations towards e-Land administration i.e., to enhance land related service delivery by using ICT and internet facility. They are exercising to provide land related services through internet, easy accessibility of land records and cadastral data to citizens through geo portal and use of Land Information System (LIS) to keep land records and to handle land transactions.

In Philippines an initial ICT platform, the Unified Land Information Services (ULIS) has been developed for multi-purpose use of both Local Government Units and National Agencies. The system integrates survey and mapping records of Department of Natural Resources (DENR) in computerized Digital Cadastral Database (DCDB) form while joining with records of Local LGU assessors and Treasurers offices. Two phases of Land Administration and Management Project i.e., LAMP I and LAMP II were launched to accelerate programs designed to improve the protection of rights to land, eliminate fake titles, introduce an equitable system of land valuation, formulate and approve policy and regulatory changes, to ensure tenure security and to adopt improved property valuation standards and procedures. Land Registration Authority (LRA) provides Anywhere-to-Anywhere (A2A) through which citizens may request for true copies of titles, which are kept in and under the jurisdiction of any computerized registry. Additionally, Parcel Verification Service (PVS) is available which provides facility to clients to request for print-outs of their land parcel/lot configuration based on the technical description of the original title kept in the registry.

The National ICT Strategic Master Plan of Thailand identified the NSDI and land information from land registration as key pillars. Therefore, the Thai government announced its plans to launch the country's NSDI portal by 2012 which will serve as the national gateway for spatial information and pave the way towards "Spatially Enabling" Thailand. The portal will act as a repository of metadata generated by data producers which will gradually provide services such as access to metadata of the Fundamental Geographic Data Set. Thai citizens can find their parcel through map-based interface and can also check its valuation. The Land Information System Project and the National Land Information and Mapping Center Project integrate land information from various agencies related to state land and private land. These projects are contributing for increase in local revenue collection.

Similarly, Sri Lanka is transforming land administration from traditional to e-system by implementing State Land Management Information System (eSlims). eSlims is enriched with GPS technology and portable data collection devices. Another e-Land administration system is e-Land Hub (eLH) aiming re-engineering Title Registration Process and to facilitate land related activities via e-system. Furthermore, Sri Lanka has launched a Geo-portal which helps geographic information providers and citizens to explore, update, create and view metadata of spatial datasets.

In the context of Mongolia, National Land Information System (NLIS), NSDI are donor funded projects. Agency for Land Administration, Geodesy and Cartography (ALAGaC) is in charge of creation of spatial data base and form national spatial data infrastructure. The Computerized Mining Cadastre System (CMCS) was successfully implemented in 2010. CMCS is able to achieve substantial improvement in the quality and speed of license transaction processing, prevented overlapping licenses and misuse of protected areas. In 2014, the system was extended with inclusion of a dedicated web portal with a purpose to enhance transparency in the mining sector by providing information about the mineral licensing activities. Moreover, Environmental Information Centre (EIC) avails spatial data on protected areas and different land uses within the protected areas.

An integrated system known as e-Sakor has been developed by Bhutan to establish an on-line land transaction system aimed at connecting national, district, and local level based geo-database and land information. This new online land transaction system has not only reduced the transaction time but also made easy access for land transaction services to the people. Also, citizens could trace their transaction status through internet.

In line with e-government master plan, GoI initiated digitization of land records in different states. Union Ministry of Rural Development selected 8 districts in 8 States for a pilot project on Computerization of Land Records [GoI, 2008]. *Bhoomi* is one of the successful e-government project which is a self-sustainable e-Governance project for the computerized delivery of 20 million rural land records to 6.7 million farmers through 177 Government-owned kiosks in the State of Karnataka [GoI, 2008]. It is a good example of LIS in South Asia which helped in easy access to information to the farmers and reduction in corruption by controlling the need of bribe in for the task [Thomas, 2009].

3. e-Land Administration in Nepal

In line with the e-Governance Master plan, the MoLRM also has taken some initiatives to introduce e-governance in service delivery through its different wings at the District level. MoLRM's current efforts are focused with the transfer from paper based system of land administration to digital system of land administration. As an initiative towards e-Land administration, different systems have been developed for different purposes. For example, an extension to the ArcGIS named Parcel Editor (PE) has been developed for the processing of the cadastral data acquired from the field. Parcel Editor can be regarded as the system developed for the first registration. Similarly, two different systems have been developed to manage the regular activities of land transaction. An extension to the ArcGIS named Spatial Extension (SAEx) has been developed to manage the spatial data, whereas District Land Information System (DLIS) has been developed to manage the attribute/property related data during the transaction. Therefore, SAEx and DLIS can be considered as two different systems developed for secondary registration. SAEx, DLIS and PE are totally isolated system to be used in separate desktop. Database are stored in individual computer. These system are being used in the district offices for their daily activities. All the cadastral data of whole country has been digitized by SAEx but regular updating is continued in few district offices only. Similarly, DLIS has been used to digitize all the records of Land Revenue offices and regular updating is being done in few district offices.

Beside above mentioned applications, an open source based 'Solution for Open Land Administration (SOLA) has been developed for the secondary registration in an integrated way, which is still under testing phase. SOLA can integrate both spatial data and attribute data and uses central database. In the meantime, an Asian Development Bank (ADB) funded project: LRIMS has been developed for automating deed registration process. LRMIS does not address spatial component of the system. It is one of the projects from e-Governance Master plan. LRIMS has various modules incorprating almost all services delivered by LROs. Recently LRIMS is launched as piloting in one LRO with few

modules operational. LRIMS is planned to implement in fourteen LROs on successful piloting. SOLA and LRIMS are web based system. These systems are based on client-server architecture. Database are stored in the server and client access through the application. Among these two also SOLA is an integrated system which holds both spatial and attribute data. LRIMS only handles attribute data which is still incomplete. None of these system is yet to support the features of e-governance i.e. Government to Business (G2B), Government to Citizen (G2C), and Government to Government (G2G). However, these systems supports G2C model to some extent only.

4. Challenges

Initiations towards e-Land administration have not always been successful as implementation of many programs on the sector of land administration did not reveal expected results. Challenges are inevitable whenever there is a paradigm shift. The act of transforming to e-Land administration from traditional approach is not that easy. One of the major challenge is the failure e-Governance projects. According to Heeks, 2003 the underlying reason behind failure of e-Governance projects is oversize gaps between project design and on-the-ground reality (known as 'desing-reality gaps'). Above mentioned countries and Nepal has many donor funded e-Governance projects but most of them are failure due to lack of good understanding of the real scenario of the project. Lack of skilled manpower, expertise and sufficient ICT infrastructure (hardware and network), reluctance of the officials towards adopting new technology are other additional challenges. On the other hand, lack of coordination among interrelated organizations creates problem while implementing integrated LIS. This problem leads to data redundancy, incompatibility, interoperability and data integrity issues. Since majority of transactions are done through internet data security is an important issue that need to be considered. Other than technical aspects legal issue is also another challenge because while implementing new system it should be legally valid according to government's rules and regulations.

5. Recommendations

Implementing e-Land administration has many challenges, however it has many benefits as well such as: effective and efficient public service delivery, reduction in administrative cost, increase in customer satisfaction and transparency which helps to reduce corruption and increases accountability and reliability of government agencies, easy access to data and improvement in revenue collection. In addition to that, robust LIS supports in establishing tenure security, resolving land disputes in post disaster scenario with reliable land records. Therefore, it is necessary to cope with the above mentioned challenges and incorporate ICT in land administration to achieve e-Governance goals. Based on this comparative study on practice of e-Land administration in different countries we have come up with following recommendations which might help for further enhancement of existing system and development of new improvised system:

- Need to minimize the design-reality gaps by doing proper preliminary study
- Need to provide clear leagal framework
- Public Private Partnership may help to enhance efficiency of government

- Human Capacity building by providing computer training to employees
- Service centres need to be fully equipped with required physical infrastructure including sufficient computers, printers, high speed internet and other essential accessories
- Coordination among inter related agencies is required to implement integrated LIS which can address both spatial and non-spatial i.e., attribute data
- Land records are very sensitive so data integrity and security need to me maintained
- Need for sustainable strategy
- Land records are very important assest so a proper plan for Disaster Recovery is required in order to have robust LIS

References

Bhatta, G. P. and Regmi, M. (200). *e-Governance in Land Administration in the context of Nepal*.

Dangol, S. (2012*). E-Government Based Land Information System Architecture: A Case of Nepal*. Thesis presented for Master of Science in Land Administration at ITC, Netherlands.

GoI, (2006), *The National e-Governance Plan*, Department of Electronics and Information Technology (DEITY) and Department of Administrative Reforms and Public Grievances (DARPG), Government of India.

GoI, (2008), *Promoting e-Governance The SMART Way Forward,* Second Administrative Reforms Commission, Eleventh Report, Government of India.

Gottschalk, P. and Solli-Saether, H., (2009), *E-Government Interoperability and Information Resource Integration: Frameworks for Aligned Development*, Information Science Reference, Hershey, New York.

Heeks, R. (2003). *Most e-Government-for-Development Projects Fail How Can Risks be Reduced?*

HLCIT, (2006). e-Government Master Plan Consultancy Report, Government of Nepal.

Kalantari, M., Rajabifard, A., et al. (2005). *Toward e-land administration: Australian online land information services*. In preceding: Spatial Sciences Institute Conference 2005. Melbourne Convention Center: 10

Lemen, C.H.J., Van der Molen, P., et al. (2004), 'e-Land administration: an international seminar in Innsbruck', *In: 3rd FIG Regional conference for Asia and the Pacific: surveying the future "contributions to economic, environmental and social development: Jakarta, Indonesia " October 2004, Technical Session 5: e-Land administration and e-government.,*(International Federation of Surveyors). pp. 7.

Pariyar, M. P.(2007). *E-Government Initiatives in Nepal: Challenges and Opportunities.* Paper presented at the 1st International Conference on Theory and Practice of Electronic Governance, Macao China, 10-13, December, 2007.

RGoB, (2014), *Bhutan E-Government Master Plan*, Ministry of Information and Communications, Royal Government of Bhutan.

Thomas, p., (2009), *Bhoomi, Gyan Ganga, e-Governance and Right to Information: ICT and Developments in India*, Telematics and Informatics 26(1), 20-31.

Uyanga, S., Uranchimeg, T., et al. (2008). *E-Governance Initiatives in Mongolia.* Proceedings of the 2nd International Conference on Theory and Practice of Electronic Governance, ICEGOV2008, December 1-4, 2008, Cairo, Egypt.

UNECE (2005). Land Administration in the UNECE region: development trends and main principles. Economic Commission for Europe: publications on human settlements; 140. P. e. Dale. Geneva etc., United Nations Economic Commission for Europe (UNECE): 104.

Zevenbergen, J. A. (2002). *Systems of land registration: aspects and effects: also as e-book* (51), Netherlands Geodetic Commission (NCG), Delft.