

LAND ADMINISTRATION SYSTEM IN PAKISTAN – CURRENT SITUATION AND STAKEHOLDERS’ PERCEPTION

Zahir ALI and Abdul NASIR, Pakistan

Key words: land administration system, cadastral data, institutional issues, technical issues, stakeholders’ perception.

SUMMARY

The current land administration system in Pakistan aims at land revenue assessment and tax collection for the fiscal purposes. This system is organised or structured on the traditional land registers and cadastral maps in paper formats, and their maintenance is mainly dependent on the hard works of the local land administrator so called “Patwari” at the grass-root level within his jurisdiction. Although, the local administrator reports all changes on land rights and boundaries of land parcels to the higher level of government authorities, the maintenance and quality of the land registers and cadastral maps kept at national level are always questionable. The experience shows that limited accessibility and reliability to these records have restricted the operational and legal usefulness for securing land ownership as well as for carrying out the reliable planning and development activities. This paper presents the critical reviews of the land ownership structure, legal framework, organizational/administrative framework, and land administration processes for the land record preparation and maintenance from the stakeholders’ point of view. Institutional and technical issues are discussed in terms of strength and weakness of the current system situation in the North-West Frontier Province (NWFP) of Pakistan.

LAND ADMINISTRATION SYSTEM IN PAKISTAN – CURRENT SITUATION AND STAKEHOLDERS’ PERCEPTION

Zahir ALI and Abdul NASIR, Pakistan

1. INTRODUCTION

Land administration is “the regulatory framework, institutional arrangements, systems and processes that encompass the determination, allocation, administration and information concerning land. It includes the determination and conditions of approved uses of land, the adjudication of rights and their registration via titling, the recording of land transaction and the estimation of value and taxes based on land and property. There are three components of land administration i.e. the land rights registration and management, the land use allocation and management, and the land valuation and taxation (Lyons and Satish, 2001). It is also defined as “the processes of determining, recording and disseminating information about the ownership, value and use of land when implementing land management policies”(UN-ECE, 1996; 2005). A land administration system is comprised of textual records that define rights and/or information and spatial records that define the extent over which these rights and/or information apply. In most jurisdictions land administration has evolved from separate systems to manage private rights in land and manage public land (Burns and Dalrymple, 2006). In this way, land administration is a system implemented by the State to record and manage rights in land for carrying out land related activities.

Land Administration System (LAS) is concerned with social, legal, economic and technical framework within which land managers and planners operate. Since LAS has the ability to influence societal and institutional behaviour (including that of individuals), professional competence and human resource development are an important component of LAS (Enemark and van der Molen, 2008). The World Bank (2001) indicates that land administration systems are usually operated within distinct social/cultural norms and values. Therefore, it is important to develop a framework that takes into account both institutional (including organizational) and technical aspects for implementing land administration systems in the context of land policy development.

It is generally accepted that there is no standard cadastre for any country since the social, cultural, economic, legal and institutional needs of all countries are different. It is also essential to gain a detailed understanding of the existing conditions and then make comparisons with other systems to gain a full understanding of the system and its strengths and weaknesses and options for improvement, prior to recommending solutions (Williamson and Fourie, 1998).

The intention of this paper is to discuss the current situation of land administration system in Pakistan discuss the institutional and technical issues of the system through stakeholders perspective. This will provide a critical understanding of the present situation of land

administration system in the country. This paper uses an exploratory case study approach in which qualitative and quantitative data are collected in the urban and rural areas in Swabi, Chitral and Peshawar districts of the North-West Frontier Province (NWFP) in Pakistan. It focuses mainly on analyzing the present situation of LAS in the country and the stakeholders' perception concerning to issues that are institutional and technical nature.

2. METHODOLOGY

For this study, the land administration organization called Board of Revenue (BOR), in the North-West Frontier Province (NWFP) was chosen for detailed analysis. The BOR offices at Peshawar, Chitral and Swabi districts in the NWFP were visited in this case study.

During the data collection process, a variety of techniques, including snowball concept, and individual/group, interviews were applied to collect the data from the stakeholders in all the three districts. The units of analysis were stakeholders/clients who were concerned with tenure rights on land, and organizations that operate the land administration system in the study area.

The qualitative data were collected from open interviews with stakeholders including the land administration agency officials, land owners, and law professionals. The quantitative data were collected through structured questionnaires. On the analysis of transcribed qualitative data, appropriate questionnaires were designed for further quantitative data collection from the stakeholders in these districts. These questionnaires were designed on the basis of the LAS issues to analyze the present situation of the land administration system in the study area. These questionnaires were distributed among the stakeholders including the clients (law professionals and land owners) and land administration officials (high officials and field staff).

While conducting the case study, three main data sources including interviews with the stakeholders, collection/analysis of archival documents and investigator's observations were used. Data were collected through the structured and semi-structured interviews with the stakeholders during different offices visits at the Board of Revenue (BOR) which is the main land administration agency in the province. To understand the actual practices carried out by the land administration agency officials, field visits were also carried out while visiting Chitral district. Furthermore, information was collected through literature review and interviews with stakeholders in the study area.

Once data was collected, a thorough review of the historical documents, official documents, reports, news articles and interviews with stakeholders was carried out to cover a major part of the qualitative data to understand the present situation of LAS and its concerned issues. The detailed findings from this exploratory case study are presented in the next section.

3. CASE STUDY FINDINGS

The land administration system in the Indo-Pak sub-continent is very old. The Arthsastra is supposed to be the first Indian work to mention the village officers known as Gopa that were responsible for preparation of various registers for the village fields, transfers, and due taxes but that was at a very rudimentary level. Attempt to reform the system was first made by Sher Shah Soori (1534-1545) whereby land was categorized, measured and a schedule of crop rates fixed. The system was reformed during the Mughal King Akbar reign (1556-1605). Todar Mal as an adviser to King Akbar, initiated the regularization of land record management for the first time and devised elaborate method for agricultural tax assessment on rational basis. The subsequent colonial rule by the British then implemented the system on scientific lines whereby large scale cadastral surveys were conducted to demarcate the boundaries and extent of each individual landholding. Soil fertility was also classified to formulate and rationalize the levy and collection of land revenue from landholders of each and every village. The British set up a proper administrative hierarchy as shown in Figure 1, and deputed relevant administrator on each administrative zone (Raza et al., 2005).

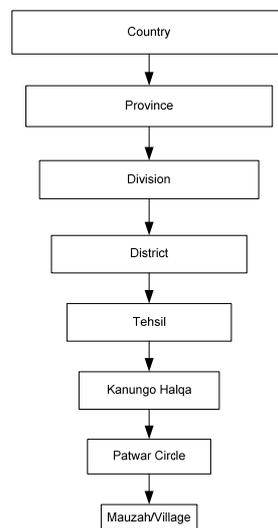


Figure 1: Administrative hierarchy set by the British

3.1 Description of LAS in Pakistan

The Land Administration System (LAS) in Pakistan is organized on the traditional system of land registers and maps. The Board of Revenue (BOR) at provincial level is mandated with all matters connected with administration of the land, collection of land revenue, preparation of land records and other matters. The BOR is also the highest court of appeal and revision in revenue cases within the Province.

The organizational structure of BOR at provincial level in the NWFP as shown in the Figure 2 has three highest members, namely the Chief Land Commissioner (Senior Member Board of Revenue), Chief Settlement Commissioner (Member-I) and Provincial Relief Commissioner (Member-II) under the Provincial Revenue Minister.

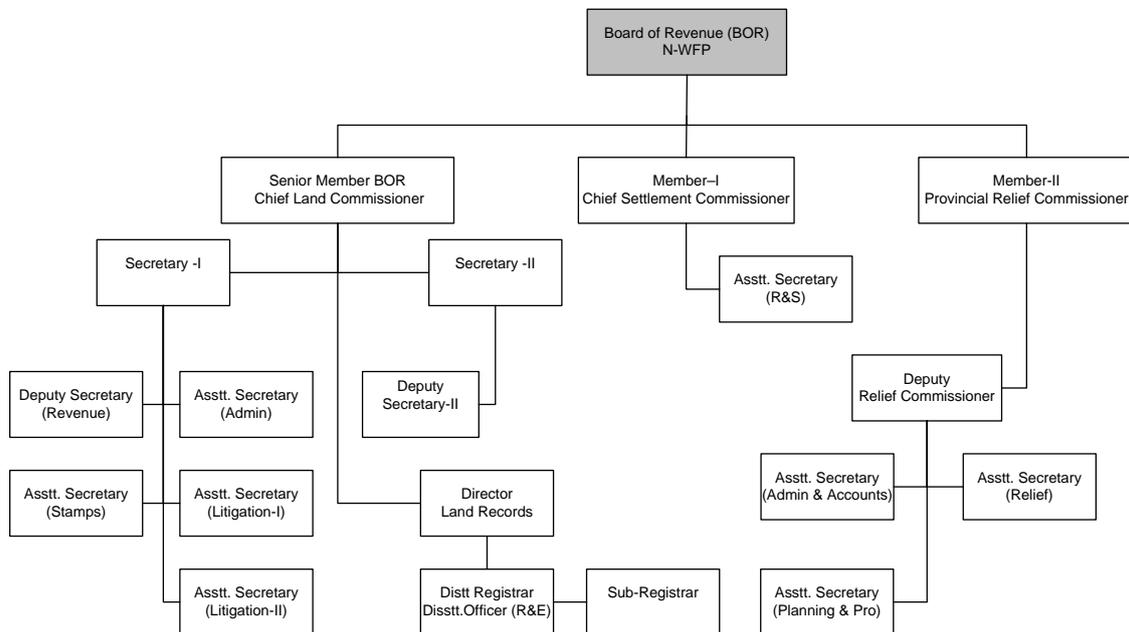


Figure 2: Organizational structure of Board of Revenue at NWFP

The Chief Land Commissioner is responsible for recovery of government dues/ agricultural income tax, land revenue, water rate, ushr (religious tax), mutation fees, stamp duty, registration fee, copying fee, and arrears relating to banks, Agricultural Development Bank of Pakistan and cooperative societies. He frames the laws/rules/policies relating to the revenue matters and also provides guidelines for maintenance of record-of-rights, periodical record for use of the right-holders and revenue department. He also supervises revenue work of Commissioners, Deputy Commissioners, Assistant Commissioners and other officers/courts in the province. He notifies new administrative units such as divisions, districts, sub-divisions, Kanungo, and Patwar Circles. Finally, he deals with all service matters relating to revenue staff.

The Chief Settlement Commissioner is responsible for preparation and execution of policies for disposal of state land for different purposes such as agriculture purpose in rural areas, residential purpose in rural/urban areas, commercial, industrial, charitable and religious purposes. He is also the appellate/revisonal authority for revenue cases.

The Provincial Relief Commissioner is appointed under the Prevention and Relief Act 1958. He has the responsibility for laying down policies and plans for disaster management in the province. He provides maintenance and restoration of law & order situation in areas affected by calamities for extending relief to the affected population.

In this paper, the functions of the Director Land Records (DLR) are considered for detailed analysis. The DLR under the direct supervision of the Chief Land Commissioner is in charge of all districts in the NWFP. In each district, the staff under the DLR includes the Chief Settlement Officer, Settlement Officer, Tehsildar, Naib Tehsildar, Kanungo and Patwari. The DLR supervises both the Patwari and Kanungo Agencies and inspects the compiled record-of-rights and statistical records. He makes the posting of settlement Kanungos and Mappers. He checks the record of crops, price/weather reports, rain gauges, cattle census, crop experiments, and return of wages and of agricultural statistics carried out by the District Officers. He has control of certain charges such as mutation fees, copying and inspection fees of Patwaris records and all expenditures related to any work carried out by Kanungo and Patwari.

At tehsil level, a ‘Tehsildar’ is the name given to an officer in charge of a tehsil. Tehsildar is primarily a revenue officer and is responsible for the collection of land revenue and other dues payable to the government. He is constantly on tour to keep in touch with subordinate revenue officials to observe the seasonal conditions and condition of crops to take note of the difficulties of the cultivators. He draws up reports and recommends remission or suspension of revenue, brings the land records up to date, sits in court to settle disputes regarding tenancy, arrears of rent, ejection of tenants, and entries in account books. The duties of the Tehsildar and Naib Tehsildar do not substantially differ except that a Tehsildar is vested with the powers of an Assistant Collector 1st grade, whereas a Naib-Tehsildar is vested with the powers of an Assistant Collector 2nd grade.

The Kanungo supervises the work of Patwaris. He is the only link between the Tehsil Officer and Patwari. Each Tehsildar is assisted by an Office Kanungo whose main duty is to consolidate information on the performance of Patwaris. Patwari is the lowest functionary of the revenue department. He maintains and updates the record pertaining to his Patwar Circle (revenue area). Patwari carries out field survey/crop inspection twice a year in the months of March (Rabi) and October (Kharif).

3.1.1 Legislative Framework

There are several Laws and Acts that deal with the land, relationship between landlord and tenants, mortgagor and mortgagee, assessment and collection of land tax, agriculture income tax, local rates, and land acquisition for public purposes. The main acts administered by the BOR as follows:

- Land Revenue Act 1967: This Act was passed during the one-unit times but has been adopted and amended by all of the provinces together with the necessary changes. It deals with the issues of record of rights and land revenue. The Land Revenue Act was revised in 1967 having XV Chapters and 184 Sections.
- NWFP Tenancy Act 1887: All the provinces have adopted this Act. It deals with the relationship of landlord and tenants regarding produce of land and ejection of tenants due

to non-payment of rent or produce by the tenant to the landlords. It is the only legislation which deals with various aspects of tenancy rights in Pakistan.

- Pre-Emption Act: This law has become operative by revenue department after promulgation of para-25 of the Martial law Regulation (MLR-115) in 1972 which has given the first right of pre-emption to a tenant. Normal cases of pre-emption of land are dealt with by the civil courts. The revenue courts entertain only those cases in which a tenant brings a pre-emption suit. Pre-emption laws give certain preferential rights to neighbours in matters of sale of land.
- Land Acquisition Act: This act deals with acquisition of land needed for public purpose and determining the amount of compensation to be paid on account of such acquisition. Whenever any land is acquired by the government for any public purpose or by a company, the proceedings are undertaken by the District Collector under the jurisdiction of this Act.
- Registration Act 1908: This act deals with the registration of various documents (including those relating to land) with registration authorities. Normally revenue officers (as detailed in Land Revenue Act 1967) are declared as registration authorities. Under this act various documents are executed and registered in the office of Sub-Registrar like sale deeds, mortgage deeds, lease deeds, power of attorneys, partnership deeds, and other deeds. Deeds are entered in the relevant registers after the documents are properly stamped, checked and duly witnessed.
- Land Consolidation Act 1960: In order to achieve better agriculture yields, the government has passed a law known as Land Consolidation Act 1960. The purpose of this act is that with the consent of the land owners, exchange of land takes place in a consolidated shape. It provides law relating to consolidation of holdings and the matter incidental thereto.
- Transfer of Property Act 1982: This act deals with the transfer, sale/mortgages charges, leases exchanges, and actionable claims in respect of property. This is very important piece of legislation in terms of disputes, but is normally ignored in land matters.
- Land Reforms Act: The Land Reforms Laws have been introduced at various stages including the MLR-64 on 7.2.1959, MLR-115 on 12.3.1972 and Land Reforms Act: II on 5.1.1977. The main aim of these land reforms was to determine the individual holdings to a manageable size for improving the lot of peasantry. This act gives rights to 'tenant-in-possession' of a certain property.

Several rules and manuals are also available in order to implement above acts. These include:

- Land Revenue Rules
- Settlement Manual Rules
- Land Record Manual

- Land Administration Manual

3.1.2 Land Administration Processes

Different land processes are carried out by the BOR in the provincial at local level (*Patwar Circle*). The most common processes include as follows:

- *Fard Malkiyat (Ownership Document) Process:* The document showing ownership of land is called the "Fard Malkiyat". It is prepared by the Patwari concerned or district office on payment of fee as prescribed in schedule of 'copies of extract charges'. It is created from the Haqdarar Zamin (Jammabandi) Register and the incorporations made through any mutation (Intiqal). It is essentially just a copy of a particular part of the Haqdarar Zamin Register.
- *Register Haqdarar Zamin (Land Registration) Process:* Haqdarar Zamin formerly known as the Jammabandi Register is one of the most important documents of the record-of-rights as well as the periodic record in the rural areas. It primarily shows the right holders of land including details on owner, cultivator, land, soil, and rent. It is created every four years for incorporating recent mutations (Intiqal) that have taken place since the last document was created from the previous Haqdarar Zamin (land owners) register.
- *Fard Badar (Error Correction) Process:* Whenever a clerical mistake is detected in current Jammabandi after it has been finally attested and filed, whether that mistake was originally made in that or any previous Jammabandi, the Patwari makes the necessary entries about it in the columns of the Fard Badar. The Fard Badar process is used for the purpose of avoiding the entry of a further mutation of inheritance in cases where in entering the original mutation some of the holdings of the deceased were inadvertently omitted.
- *Gardawari (Binomial Inspection) Process:* Before every harvest season, Patwari makes a survey in his Patwar Circle called Gardawari. The purpose of Gardawari is to collect information about the matured cropped area under different crops sown by farmers in a Patwar Circle. Gardawari provides information about the date on which inspection of each harvest should begin, the kind of soil (Qism Zamin), type of crop (Jins) sown, and the area sown (Raqba Kashta) with reference to the Khasra number (parcel identification number).
- *Mutation Process:* A mutation is a change in the agricultural land records. There are various types of mutations with different transaction characteristics. The mutation process is a process with many checks and balances. In mutation process, an oral report or application for mutation in writing is made to the Patwari. The key persons involved in mutation process are Patwari, Gardawar / Kanungo, and Teshildar or Naib Tehsildar (Revenue Officer). Changes in the recorded rights and interest are managed at the Patwar level. There are various types of mutations such as sale, gift, mortgaging, lease, and sub-division, and devolution of land.

3.1.3 Types of Land Records

The land record data is maintained at Tehsil offices whereby record sets are developed at the time of settlement. For maintenance of records, the Patwari has to maintain the following maps and registers:

- ***Field Map***: A cadastral map of a village called ‘Mussavi’ is shown in Figure 3. It shows all the fields, duly measured and numbered in a village. This is basically a surveyed paper map at different scales depending upon village area, normally at a scale of 1"=40 *Karam* (about 1:2500 scale or so according to parcel sizes in the village). The yard-stick of measuring a field is called *Karam* which is 5.5 feet in length. Land parcels are labeled with their *Khasra Number* (parcel identification number) and dimension of each side. Each *Khasra Number* is owned by an owner. Mussavi is developed at the time of settlement. No changes can be made in this record-set till next settlement which is normally carried out after every 30-35 years. Subdivision lines break up an irregular land parcel in different regular geometrical shapes. The subdivision lines are generally represented with dotted line and defined for the area calculation on the map.

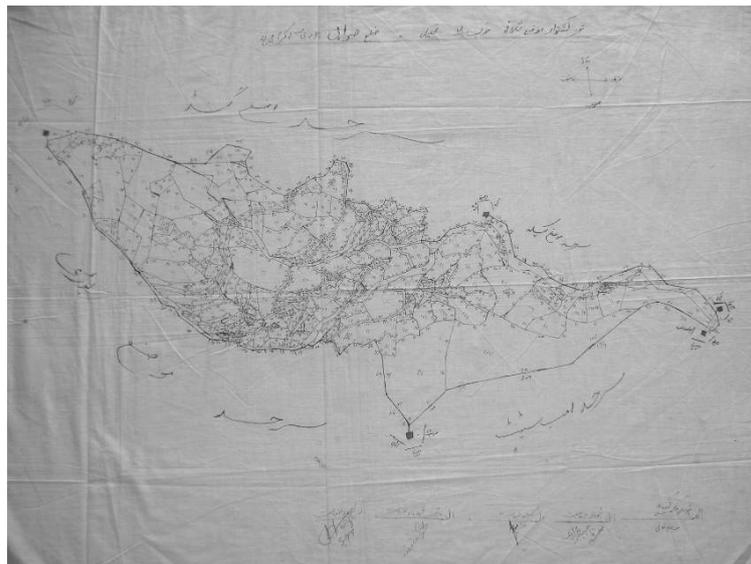


Figure 3: A sample cadastral map ‘Mussavi’

- ***Field Book***: This contains the details of measurement of each field e.g. its length, breadth, diagonal detail, and worked out total area.
- ***Shajra Kishtwar***: All the Mussavis of a village are drawn up conjointly on a cloth (Lattha) for day-to-day use by the Patwari which is called Shajra Kishtwar.

- Register Haqdaran-e-Zamin (Jammabandi): This is the most important register containing necessary particulars about ownership, tenancy, khasra number and its classification, source of irrigation, land revenue, and Rent (Lagan).
- Register of Mutations: It contains particulars of all transactions which are entered by the Patwari and decided by the Revenue Officer.
- Register Khasra Girdawari: This register contains details of the inspection of crop grown in each field in each harvest and all changes of ownership and tenancy. It is a track record of the possession of a particular patch of land which helps to resolve issues relating to ownership of that patch.
- Lal Kitab (Village Note Book): This book has details about statistics of a village lands e.g. total area, area sown, assessment of land revenue, number of entered and attested mutations, notes about changes in cultivation, and ownership for the last four years. It also shows the population of a village and the approximate number of livestock. It is a statistical book of a village.
- Fard Bach: It contains the details of the demand of land revenue and cesses thereon recoverable from each land owner in a village.
- Roznamcha Waqiati: All the happenings about land affairs are recorded in this diary. For instance, hailstorm, severe rains, the reports of all transactions of land, encroachments on State Land, tours conducted by various revenue officers, and all other matters connected with land are entered in it.

In addition, there are another nineteen registers which are maintained by a Patwari but are not of much significance.

3.2 STAKEHOLDERS' PERCEPTION ABOUT EXISTING LAS

Although the LAS in Pakistan is time tested and has remained functional for more than two hundred years, presently there are several concerns due to changes in societal needs particularly the LAS users views (Gauhar, 2004; Qazi, 2006; Raza et al., 2005; World Bank, 2005). Since this study is exploratory in nature, only a limited field questionnaire was used at this stage. Having studies on present organizational mandates, supporting laws, and processes and record (see above), field visits were conducted. During the fieldwork, many issues were raised verbally and a number of responses were also collected in writing.

Meetings and interviews were arranged with the BOR officials at Peshawar office as it is the headquarters for all BOR offices at provincial level. The topics of meetings were mostly about policy and management issues with the higher authorities of BOR including Member Board of Revenue (MBR), Director Land Records (DLR), and Secretary. At Chitral, the settlement Officer (SO) and land administration agency officials (i.e. Tehsildar, Naib Tehsildar and

Patwaris) at operational level were interviewed. In the Chitral and Swabi districts, field visits were also carried out for interviews and meetings with clients including law professionals and land owners. Major findings are organized in the following section under the institutional and technical issues of the present LAS in the country.

3.2.1 Institutional Issues

Open interviews from six officers of BOR at headquarters and three at district offices show that the present LAS is fiscal in nature. It is mainly used for tax collection and is used as a means of generating revenue. The land records show information on who the tax payer is, how much the tax value is, how much the land (cost and size) is and where the location is. It does not clearly define the nature of rights in land for land owners. This means that legal security on land rights is not guaranteed.

Responses from the clients, including fifteen law professionals and thirteen land owners, show that they are not satisfied with the performance of the present LAS. As 93% of the clients indicated that there is room for corruption and unofficial changes in the land records due to heavy dependency on Patwaris for land transaction and other processes which affect the efficiency and effectiveness of the present LAS. 87% of the clients were not satisfied with the processes in the present LAS such as mutation. These results are in agreement with the literature and reports accessed in this fieldwork (Qazi, 2006; Qazi, 2005; World Bank, 2005).

All clients said that inaccuracy and complex nature of the present LAS exacerbates land-related disputes. This creates doubts about tenure security in land owner's minds due to which they can not use their property for any mortgage and loan from banks. Moreover, land transactions are relatively expensive and disputes about the correctness of land rights are caused among others by an inefficient and dispersed land record system (Qazi, 2005). 46% of the BOR officials (thirteen officials including Patwaris and Naib Tehsildars) pointed out that the government does not provide any funds to Patwaris for stationary which affects their performance.

87% of the clients accepted that official procedures in the present LAS are so complicated that these always lead to delays in court decisions that affects the land market directly or indirectly both at local and national level. 87% of the clients also admitted that the lack of credible information and insufficient cooperation of land administration officials during land disputes generate considerable delays in resolving pending cases in courts. Mumtaz and Noshervani (2006) also mentioned that the legal procedures in land cases are complex and the duration of a land case may go beyond the litigant's lifetime. Moreover, 62% of the clients were not in agreement with the court procedures in the present LAS.

Although a Patwari is obligated to appear in court in all land-related inquiries as responded by 92% of the thirteen land administration officials during the fieldwork study, 87% of the clients pointed out that land administration officials do not provide in-time cooperation during

land related disputes. However, as pointed out by 92% of the land administration officials, the workload on a Patwari makes it impossible for him to perform his duties in a better way.

Moreover, land record maintenance takes place through an intricate system which involves several levels of administration as mentioned by 46% of the land administration officials. For example, all changes of ownership, use or other dealing with land is recorded by the Patwari but the records have to be checked and forwarded by the Kanungo and approved by the Naib Tehsildar or Tehsildar. These make the process time consuming and always lead to delays at the user end.

3.2.2 Technical Issues

It is evident from responses of 100% of the land administration officials that the present land records are in paper format. These land records are quite outdated and there is a lack of updated geographical information data. 92% of the BOR respondents said that there is no latitude/ longitude information on cadastral maps which creates gaps between maps and registers to present reality on the ground as pointed out by 67% of the clients as well.

Information about the record-of-rights is originally established on the basis of a detailed field survey and includes a map of each village showing the position and boundary of each parcel. All these graphical information is intended to be updated every 25-35 years which is not in accordance with the rapid changes in developmental works in the society. The agricultural land in many areas is still recorded in the name of a person who passed away long ago and whose legal successors are the owners but their names are not entered in the land records (Khalid, 2002). 100% of the BOR officials said that record-of-rights are updated once every four years which affects the efficiency of the LAS and slows down land transaction business in the land market. In fact, land records should be maintained at every instant of a land transaction.

67% of the clients responded that delays in most of the land disputes are due to insufficient knowledge and information about the land. Moreover, 87% of the clients argued that a Patwari does not provide correct and timely information in all land related disputes. 93% of the clients said that land related disputes can be solved easily in-time if the information on land is provided correctly by the BOR officials in a timely fashion.

100% of the clients responded that most of people are not aware of the land related procedures and fees defined by the BOR. 92% of the BOR officials agreed that no effort is carried out by the BOR to publish any printed information for public awareness about land related procedures, basic steps, and rules for land transactions. Thus the public is not aware of who has to be approached for an appeal or who is responsible for what at different levels of the land administration agency.

According to 93% of the clients, the land registers and cadastral maps are not in good condition which restricts their use for producing an efficient land market. 73% of the clients accepted that ownership information in land registers is not correct, which creates doubt in people's mind about their tenure security.

Moreover, the temporal archives (land record rooms) are only stored at district level as mentioned by all of the BOR officials. There are still occasions when the entire record was wiped out due to fire or flood in the past. During a field visit in the Chitral district, it was observed that the methods used for land surveying were quite old and time consuming even impossible sometimes when there were harsh weather conditions. Due to this reason, no land records are prepared by the BOR in some remote areas and no settlement surveys have been carried out in those areas for the last sixty years.

100% of the clients and 92% of the BOR officials also agreed that by introducing newer technologies in the present LAS, an improvement in its quality and performance will result.

4. CONCLUSIONS

There is always a demand for reliable LAS due to rapid changes in technology and users needs with changing societal demands. This holds especially in countries where the present LAS is based on traditional approaches as seen in Pakistan. An analysis of issues concerning institutional and technical aspects contributes to understand present status of the cadastral data and LAS. This will further help to model the dynamics of cadastral information infrastructure and land administration system.

REFERENCES

- Burns, Tony and Dalrymple, Kate. (2006) *"Land Administration Reform: Indicators of Success and Future Challenges"* Land Equity International Pty Ltd. Wollongong, Australia.
- Enemark, S. and van der Molen, P. (2008) *"Capacity assessment in land administration"*, FIG publication;41, International Federation of Surveyors (FIG). Frederiksberg
- Gauhar, S. (2004) *"Mapping Pakistan - Taking a Leaf Out of Sher Shah's Book"* Blue Chip. Islamabad
- Khalid, A. K. (2002) *"Guaranteeing Title to Land"*. DAWN News Paper, Islamabad
- Lyons, Ken and Satish, Chandra. (2001) *"Undertaking land administration projects: sustainability, affordability, operational efficiency and good practice guidelines"*New Millennium Print. Canberra, Australia.
- Mumtaz, K. and Noshervani, M. M. (2006) *"Women's Access and Rights to Land and Property in Pakistan"* Shirkat Gah - Women's Resource Centre. Karachi.
http://www.shirkatgah.org/Women_access-rights-to_land_property_in_Pakistan.pdf

Qazi, M. U. (2006) *"Computerization of Land Records in Pakistan"* LEAD International. Islamabad.

Qazi, Mohammad Usman. (2005) *"Social Assessment of Land Record Management Information System Programme"*. Background Paper The World Bank Pakistan Country Office. Islamabad, Pakistan.

Raza, Fawad, Almas, Muhammad and Ahmed, Kamran. (2005) *"Land Records Information Management System"*. 25th Annual ESRI International User Conference. San Diego, California

UN-ECE. (1996) *"Land administration guidelines : with special reference to countries in transition"* United Nations (UN). Geneva

UN-ECE. (2005) *"Land Administration in the UNECE Region: Development trends and main principles"* United Nations Economic Commission for Europe. New York and Geneva.

Williamson, Ian P. and Fourie, Clarissa. (1998) *"Using the Case Study Methodology for Cadastral Reform"*. *Geomatica* 52(3), 283-295

World Bank. (2001) *"Land policy and administration: lessons learned and new challenges for the bank's development agenda"* World Bank. Washington, DC.

World Bank. (2005) *"Land Records Management and Information Systems Program (LRMIS-P) Province of Punjab"* (No. AB1469) World Bank.

BIOGRAPHICAL NOTES

Mr. **Zahir Ali** is working as a Manager in the training and R&D department of the Space & Upper Atmosphere Research Commission of Pakistan (SUPARCO), Pakistan. Currently he is studying as a PhD student in the Faculty of Geo-Information Science and Earth Observation (ITC) at University of Twente, Enschede and Delft University of Technology, Delft, all in the Netherlands. His research is about analyzing the institutional and technical aspects of land administration system (in general and especially in Pakistan) and how to consider these aspects in relation to the design of a framework for improving quality of cadastral data and land administration systems.

Mr. **Abdul Nasir** is working as a Deputy Chief Manager (DCM) in the Space & Upper Atmosphere Research Commission of Pakistan (SUPARCO), Pakistan. Currently he is actively involved in training and R&D activities of the newly established National Centre for Remote Sensing and Geo-Informatics (NCRG) at Karachi, Pakistan.

CONTACTS

Mr. Zahir Ali
Faculty of Geo-Information Science and Earth Observation (ITC),
University of Twente, PO Box 6,
7500 AA Enschede

The NETHERLANDS
Tel. + 31 (0) 53 487 4526
Fax + 31 (0) 53 487 4575
Email: zali@itc.nl
Web site: www.itc.nl

Mr. Abdul Nasir
National Centre for Remote Sensing and Geo-Informatics (NCRG)
SUPARCO HQs, P.O. Box 8402
Karachi-75270
Pakistan
Tel. + 92 (0) 21 346 90781
Fax + 92 (0) 21 346 44928
Email: dh.trd@suparco.gov.pk
Web site: www.suparco.gov.pk