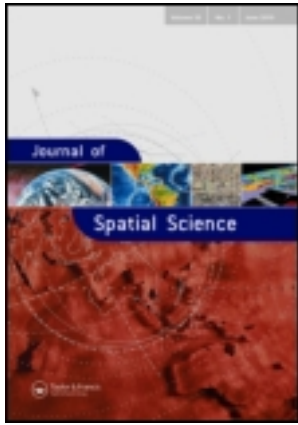


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Zahir Ali ^{a b}, Jaap Zevenbergen ^b & Arbind Tuladhar ^b

^a Pakistan Space and Upper Atmosphere Research Commission (SUPARCO), P.O. Box 8402, Karachi, 75270, Pakistan

^b Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, P.O. Box 217, 7500 AE, Enschede, the Netherlands

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Quality assessment of the land administration system in Pakistan

Zahir Ali^{a,b,*}, Jaap Zevenbergen^b and Arbind Tuladhar^b

^aPakistan Space and Upper Atmosphere Research Commission (SUPARCO), P.O. Box 8402, Karachi 75270, Pakistan; ^bFaculty of Geo-Information Science and Earth Observation (ITC), University of Twente, P.O. Box 217, 7500 AE Enschede, the Netherlands

Performance issues of land administration systems, specifically the quality aspects, have been getting more attention over the last few years. Different assessment attempts have been carried out at international level, across different land administration systems in the world, to evaluate the performance of land administration systems by comparing different aspects of these systems. In all these evaluations, prime attention is given to only those measuring parameters which are common to all these systems. In some cases, legal and technical parameters are considered while the institutional and organisational parameters receive more attention in others. There have been a few efforts to standardise the procedures for assessing the performance of land administration systems at international level but there is no internationally accepted or standardised method to assess the quality of a standalone land administration system (LAS) within a country's environment. To be able to assess the quality of a standalone LAS, this paper develops a conceptual and methodological framework for carrying out in-depth analysis of the system. This research identifies those elements, indicators and variables that are required for assessing the quality of a standalone LAS. In order to identify such elements, indicators and variables to be included in the framework, a theoretical background is first discussed. A quality assessment framework and the methodological approach for assessing the quality of LASs are then developed. The approach is finally applied to assess the quality situation of the LAS in Pakistan by using the quality assessment framework via an explanatory case-study approach.

Keywords: land administration system; quality assessment framework development; institutional perspective; technical perspective; quality indicators

1. Introduction

The quality and performance issues of land administration systems have been getting more attention over the last few years. Different assessment attempts have been carried out across land administration systems at international level but attention is given to only those quality parameters which are common to all these systems. The FIG-Commission 7 attempted in 1997 to collect statistical data of national cadastral systems and received feedback from some 53 countries in order to

develop a model to benchmark cadastral systems across countries (Steudler *et al.* 1997). The model was built on the five measurement dimensions of (1) general statistics and content, (2) performance and reliability, (3) completeness, (4) personnel and salary structure and (5) cost-recovery aspects, along with several performance indicators (Chimhamhiwa *et al.* 2009). A wealth of information was collected in this regard about the LASs in these countries but a lack of a clear

*Corresponding author. Email: zahir@yahoo.com

framework was observed (Stuedler *et al.* 2004). In this connection, Stuedler *et al.* (2004) suggested an evaluation framework for land administration systems considering four evaluation elements, namely objectives, strategies, outcomes and review processes. Building further on the benchmarking model, the cadastral template of Rajabifard *et al.* (2007) and Stuedler *et al.* (2003) suggested some additional dimensions for the performance evaluation of cadastral systems, using the measurement categories of (1) parcels to survey and register, (2) informal occupation of land, (3) completeness, (4) comprehensiveness, (5) use and usefulness of spatial cadastral data, and (6) capacity in place and numerous indicators (Rajabifard *et al.* 2007). This cadastral template has been tested in 47 countries.

All the previous efforts have been carried out to evaluate the performance of land administration systems by comparing different aspects of these systems. In some cases, the legal and technical parameters were considered (Zevenbergen 1998; Dzur 2001; Paasch 2005) while the institutional and organisational parameters received more attention in others (Palmer & McLaughlin 1996; Auzins 2004; Leiser Silva 2007; Chimhamhiwa *et al.* 2009). There have been a few efforts to standardise the procedures for assessing the quality or comparing land administration systems at international level (Stuedler *et al.* 2003; Stuedler *et al.* 2004; Rajabifard *et al.* 2007; Bandeira *et al.* 2010), but no internationally accepted or standardised method exists for assessing the quality of a standalone Land Administration System (LAS). There is a need to design a quality assessment framework for assessing the quality of an existing LAS in a country as a standalone case, taking into account all its components and parameters as per quality requirements.

The elements from institutional and technical perspectives for improving the quality of LASs were identified in previous studies (Ali *et al.* 2010; Ali & Nasir 2010). These studies presented the existing situation of the LAS in the Khyber Pakhtunkhwa province of Pakistan by

investigating all the necessary elements at all the three organisational levels, namely policy level, management level and operational level. These elements further assisted in defining a framework for assessing the quality of LASs. However, this framework further needs to be explained by selecting the indicators for all these elements from institutional and technical perspectives to evaluate the quality of a standalone LAS. This article presents a methodological framework and identifies those elements, indicators and variables which are required for the quality assessment framework of a LAS. A framework for assessing the quality situation of these indicators is shown in Figure 1.

Research in the area of cadastre and land administration systems is increasingly using information system research methodologies (Castanyer & Canet 1990; Fourie & van Gysen 1995; Stuedler *et al.* 1997; Williamson & Fourie 1998; Barry 1999; Tan 1999; Ting & Williamson 1999; Bittner *et al.* 2000; Williamson & Ting 2001; Zevenbergen 2002; Stubkjær 2000; Stuedler 2004). These studies provide further evidence that a case study methodology is used as a research method in most of the cadastral research studies, which proves the effectiveness of case study methodology in cadastral research.

The intention of this paper is to define the concerned indicators and variables for the elements of LASs from technical and institutional perspectives to assess their quality. The case of the LAS in Pakistan is presented and discussed in this paper using an explanatory case-study approach to understand the present status of LASs in the country. Qualitative and quantitative data are collected in urban and rural areas of Peshawar and Swabi districts of the Khyber Pakhtunkhwa (formerly called NWFP) province of Pakistan.

2. Theoretical background

Land administration covers a number of functional areas in relation to governing the possession and use of land. It comprises a

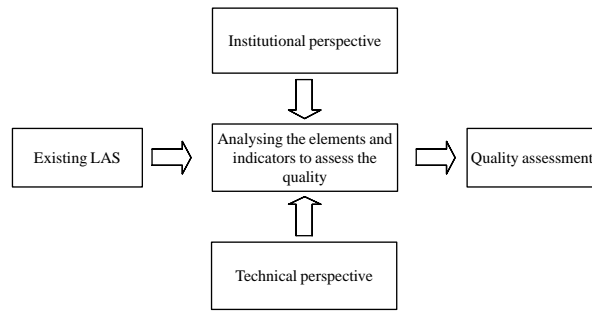


Figure 1. Framework for assessing the quality of a LAS.

range of systems and processes to administer land rights, land valuation and taxation, and existing and future land use. Land administration systems are concerned with the social, legal, economic and technical framework within which land managers and administrators must operate (Enemark & van der Molen 2008). The World Bank (2001) indicates that land administration systems usually operate within distinct social/cultural norms and values. Therefore, it is important to develop a framework that takes into account institutional (including organisational) and technical perspectives for implementing a land administration system. This section identifies the necessary indicators and variables for each of the elements, from both an institutional and a technical perspective of LASs, to assess the quality of the existing system.

Institutional perspective

Tenure security

Tenure security is an important foundation for economic development to increase productivity and generate government revenue through fees and taxes on land. Important indicators for assessing the quality of tenure security include:

- Reduction in land disputes
- Equal access to land offices
- Increased investment in the property sector

- Increased access to formal credit
- Owners' perception about tenure security
- Role of customary/statutory tenure systems

Tenure security is ensured by a multitude of factors. In addition to the official documents, the social capital, community relations, and one's position of power in the local context add to the authenticity of claims to land, leading to tenure security (Qazi 2005). Reduction in land disputes is one of the indicators that represent the level of tenure security as evaluated by the World Bank in many land management projects. Land is one of the main sources of collateral for obtaining credit from established financial institutions such as banks as well as from informal providers of credit (ADB 2007). In this regard equal access to land offices for land owners plays an important role when using their land-related data to apply for credit and investment in their land. The land market can operate effectively and efficiently if tenure security is ensured. In this way, an increased investment in the land sector is one of the most important indicators to explain the level of tenure security within a society. Furthermore, tenure security is based on the interaction of various social, administrative and legal factors. The indicators for tenure security include reduction in land disputes, equal access to land offices, increased land values, and increased access to formal credits (Mitchell *et al.* 2008). These indicators can be used to evaluate

the present situation of tenure security in the existing system.

Land policy

An efficient land policy and a LAS based on clear, equitable and consistent policies and laws help to promote long-term social and political stability. Important indicators to measure the quality of existing land policy include

- Types of formally and informally recognised rights
- Percentage of the population covered by the formal system
- Characteristics of population without formal rights
- Existence of land policy
- Access to land rights
- Land use policy.

Land policy is a part of the national policy of a country. Such a policy generally relates to economic development, social justice and equity, and political stability (UN-FIG 1996). A land policy must be defined as the government deals with land-related activities such as land management, land reform, land registration, the role of the LAS in supporting land markets, etc. Possible indicators to assess the quality of a land policy include types of formally and informally recognised rights, percentage of the population covered by the formal system, and characteristics of the population without formal rights (Burns *et al.* 2006). Similarly the existence of land policy to define access to land rights and land use is an important factor for improving the quality of the LAS. The analysis of these indicators can help to present the quality situation of a land policy and provide a line of action for further improvements.

Legal framework

The existence of a sufficient legal framework for land administration and land management enhances the ability and capacity of the LAS to serve societal needs and user requirements.

Important indicators relating to the quality assessment of a legal framework in a LAS include:

- Role of the legal framework for Land rights, Land use and Land value
- Registration mechanism
- Legitimation of government regulations
- Legislation governing land administration.

A legal framework that legitimises governmental actions can provide a legally meaningful LAS, and enhances its use in a society (Enemark & van der Molen 2008). A legal framework must be defined to solve land-related matters and land disputes in a peaceful way. The role of a legal framework is very important for land rights, land use and land valuation in LASs. The existence of an adequate legal framework for land-use planning and land-use rights will enhance the ability and capacity of a LAS to serve the needs of a society from both the government and the citizen perspective (UN-ECE 1996). If the references to legislation governing land administration are scattered among many laws and are outdated, then the proper implementation and enforcement of laws are difficult. Hence, the analysis of the legal framework in relation to land rights, land use and land valuation is a very important indicator for assessing the quality of LAS.

Land dispute resolution

Effective and fast juridical procedures for resolving land conflicts help to promote the confidence of the stakeholders about the LAS. Important indicators regarding the assessment of land dispute resolution mechanisms include:

- Level of disputes over land
- Types of land disputes
- Time taken to resolve land disputes
- Means for conflict resolution
- Procedures for land dispute resolution.

Land conflicts are a widespread phenomenon that can occur at any time or place. Both need

and greed can equally lead to them, and scarcity and increases in land value can make things worse. Land conflicts occur in many forms. There are conflicts between single parties (as for instance boundary conflicts between neighbours), inheritance conflicts between siblings and disputes over the use of a given piece of land. All land conflicts, no matter how peaceful or violent they are, produce negative consequences for individuals as well as for the entire society (Wehrmann 2008). The land dispute resolution mechanism is a very important indicator in this regard to assess the quality of a LAS. It is often necessary to design effective but fast juridical and technical procedures to document the rights in land and to resolve any subsequent conflicts that occur. This can be measured by getting information about the level of land disputes over land, means for conflict resolution, procedures for land dispute resolution, and time taken to resolve land disputes (Burns *et al.* 2006).

Organisation and mandates

Good performance and cooperation among the mandated organisations in a LAS can be guaranteed only if the mandates are clear and manageable. Important indicators for assessing the quality situation of organisation structure and mandate allocation in a LAS include:

- existence of a land board
- organisation structure
- mandate allocation.

The structure of an organisation for land record management and its mandate plays an important role in improving the quality of a LAS. Clear mandates within the public administration enhance the effectiveness of an organisation. There are countries where various organisations have a mandate on land-related issues. Governments should take into account the operational aspects of these mandates. It makes no sense to impose a mandate that is expected not to be workable

and manageable. The ability and capacity of any LAS relies on clear mandates. Good performance can never be guaranteed without a clear and manageable mandate (Enemark & van der Molen 2008). The structure of land administration organisations and allocation of their mandates towards a specific level of sharing information can help to promote coordination among the mandated organisations. The organisational structure of a land administration agency and the analysis of procedures for mandate allocation are the key indicators for assessing the quality of any LAS.

Strategic plans

Establishing a technical strategy that creates a relationship between institutions and supporting technologies provides a line of action to achieve organisational goals and objectives. Important indicators for assessing quality aspects of strategic plans in a LAS include:

- Strategic targets
- Review of objectives and strategies
- Strategic and development plans for IT adoption
- Analysis of users' needs and their roles.

Strategic plans require exclusive links with changing views of Geo-information communication technology and users' requirements. Strategic plans should be kept in mind while making necessary changes in a system to adopt new technologies. Strategies must be appropriate to reach pre-defined goals and objectives. The quality of a LAS largely depends on two strategic elements. The first element is the analysis of users' requirements including their roles, and the second element is the adoption of new technology for Land Administration (LA) processes/services to achieve quality of products that are easily accessible and reliable for land data supply. The present Information Communication Technology (ICT) developments must be reviewed and their suitability must be assessed to achieve the objectives of

the ICT strategy. Indicators for assessing the quality of strategic plans in LASs include the analysis of existing strategic and development plans for ICT adoption, analysis of strategic targets, and reviews of objectives and strategies for achieving those targets.

Human resource development

Land Administration is more about people – from politicians, senior professionals and managers, middle managers and administrators, to office and field personnel. Therefore, capacity assessment and development in terms of human resources is considered to be the most critical (Enemark & van der Molen 2008). The analysis of capacity needs in terms of human resource development is important to assess the ability of the land administration system in total. This can further facilitate identifying the gap between the existing human resource capacity and the capacity needed for undertaking all land administration tasks in the short, medium and long term.

Land administration processes

Easy and simple land administration processes supported by security and timeliness help to promote the land market and run the LAS in an efficient manner. Important indicators for assessing the quality of land administration processes include

- clarity and simplicity
- reliability
- security
- timeliness.

Land administration is the process of regulating land and property development, the use and conservation of the land, the gathering of revenues from land through sales, leasing and taxation, and the resolving of conflicts concerning the ownership and use of land (Dale & McLaughlin 1999). LA processes play a key role in improving the quality of LASs. LA processes should be clear and simple to understand by land administrators and stake-

holders. More complex procedures and regulations can slow down the system and discourage their use in society. Security and fairness of LA processes are also required for the operation of an effective land market. Indicators to assess the quality of LA processes are clarity and simplicity, reliability, security, and timeliness.

Coordination and data sharing

Good co-ordination among different organisations for sharing and accessing land-related data is necessary to run the LAS effectively. Important indicators for evaluating the quality of coordination and data sharing status include:

- Institutional and organisational arrangements
- Cooperation and communication between institutions.
- Private-sector involvement

The greatest benefits of a LAS can only be realised if this basic information system is used and coordinated with other types of land information. This always involves coordination with other public and private organisations which are responsible for this type of data (FIG 1995). Data sharing and coordination among different organisations for accessing land-related data are important indicators for quality assessment of LASs. The other essential indicators are institutional and organisational arrangements, co-operation and communication between institutions, and involvement of the private sector (Stuedler *et al.* 2004). These indicators can help to assess the present status of coordination and data sharing among the different organisations. This assessment will be a guide towards the necessary arrangements to improve the quality of a LAS.

Financing and data cost

The quality of a LAS relies on cost-effective operations and proper management of available funds to perform these operations in an

efficient manner. Important indicators relating to assessing the quality of financing and data cost structure in a LAS include:

- funding authority
- foreign (external) funding
- tax collection mechanism
- fee structure
- financial resources.

Availability of funds is a limiting factor in addressing land administration and land management issues. Financing is an important factor that affects the ability of a LAS to provide a sufficient push to run the system properly. These elements should be brought into consideration while improving the quality of a LAS. With sound foundations and a reliable administrative system, a quality system then relies on cost-effective operations and reasonable levels of formal market participation (Burns & Dalrymple 2007). In order to evaluate the financing and data cost element of LAS, the most important indicators are information about funding authority, foreign (external) funding, tax collection and fee structure.

Technical perspective

Data organisation

Clear definition of data types and the overall management responsibility for data helps to run a LAS in an efficient manner. Important indicators dealing with data organisation quality include:

- completeness and coverage
- protection
- updating
- availability
- sharing.

Land record data include maps, field sketches and registers that need to be kept up-to-date to provide land information in a timely fashion. This updated land information plays an important role in land market development,

land valuation, land taxation and land dispute resolution. A clear definition of the data type and overall management responsibility for acquiring spatial and attribute data, data access, data sharing between stakeholders, data custodianship and privacy are important components in this regard (ADB 2007; Bennett *et al.* 2008). Data sharing among the data user agencies is also an important component that should be kept in mind for effective operation of a LAS. The most important indicators in this context include data coverage and completeness, protection, updating, availability and data sharing.

Users' needs

The quality of data in a LAS is defined and measured on the basis of users' needs and requirements. The quality is good when the users are satisfied. Important indicators in relation to user need analysis in LAS include;

- list of users in the government and private sectors
- access to data
- availability of required data.

Land administration systems have to operate within a social and political environment. They should recognise the users' needs because different users may need different forms of products or services. 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 should be clearly identified. A wide variety of user communities need to be consulted in this regard to understand their requirements and the constraints under which they currently operate (UN-ECE 1996). While adopting the latest technologies in a LAS, it is necessary to understand users' needs and requirements so that the cost of technology adoption can be reduced as much as possible. In order to analyse the users' needs in more detail, a list of users in both the private and government sectors must be defined to

incorporate their needs while adopting the latest technologies in a system.

Technology adoption

The ability of land administration organisations to meet their specific functions in society requires appropriate management of ICT in the organisation. Important indicators concerning the technology adoption status in a LAS include:

- GIS status
- digital data availability
- hardware and software
- capacity-building
- education and training.

Adopting the latest technology plays a key role in quality improvement of LASs (Kalantari *et al.* 2005). Recent advances in space-based data capturing techniques have brought changes in the field of cartography and mapping (Ali *et al.* 2012). Technology adoption makes processes quick and provides fast services at the users' end to accomplish land market needs for an enhanced economy and users' satisfaction. The ability of land administration organisations to meet their specific functions in a society requires appropriate management of ICT in a land administration organisation. Organisations that apply ICT gradually – from a simple to a more complex approach – should have a sound ICT policy, otherwise it may lead to serious problems at a later stage (Enemark & van der Molen 2008). Indicators to assess the capability of a LAS for adopting new technology include; analysis of present GIS status, digital data availability, hardware and software, and capacity-building to adopt technology.

Training and development

Land administration systems cannot be developed and sustainably maintained without an adequate and sound educational base. Sufficient and adequate educational resources are essential to provide the professional compe-

tence required for developing and maintaining appropriate LASs (Enemark & Williamson 2004). The analysis of this element can further facilitate highlighting the gap between the existing educational facilities for land administration professionals and the required training and development needs to overcome the short comings for LAS quality improvement. The institutional and human capacity-building is found less sufficient in the study area.

Land information system design

Land information systems should be designed to assist decision-makers and increase the capacity of the LAS to collect, interpret and apply land information efficiently. Important indicators for land information system design analysis include:

- structural definition of the system
- consultation with foreign (external) agencies
- consistency.

A LAS consists of a number of broad dimensions such as the technological dimension, organising procedures and an institutional element which includes a corporate structure. It also includes a platform or a resource base, on which data are stored and from which meaningful land information can be produced, analysed, and disseminated (UN-ECA 1998; Williamson *et al.* 2010; Bennett *et al.* 2012). The information system design concepts for LASs in data/process modelling are the most important elements in terms of organisational structure. These concepts relate to how the quality data are gathered, processed, stored and disseminated at affordable cost with many data access points, such as a front desk or the internet. System design concepts should be taken into consideration while improving the quality of the LAS. The most important indicators in this context include structural definition of the system,

consultation with foreign (external) agencies for improving the system structure, and consistency with new developments in technology.

Workflows for land administration processes

The ability of a land administration organisation to provide good performance can be acquired with appropriate attention to workflows and the structures in which they have to operate. Important indicators concerning workflows for assessing land administration processes include:

- Information flow
- good management
- performance monitoring.

Workflow management and secured databases are the basic components of functional land administration systems. Good control of the performance of a land administration organisation is impossible without a clear description of the workflows in terms of activities, requirements and responsibilities. This is the basis for monitoring and accountability. At the same time a clear description offers opportunities to identify and abolish inefficiencies. Without appropriate attention to workflows, and the structures in which they have to operate, the ability of land administration organisations to provide good performance is questionable (Enemark & van der Molen 2008). The standard operating instructions for each step of the workflow should be developed and implemented as a part of the total quality in the LAS. The important quality indicators in this regard include information flow analysis, performance monitoring and good management practices.

Quality standards

Introducing data standards helps to improve the quality of land-related data for sharing between stakeholders and concerned organisations. Important indicators regarding quality standards analysis in LAS include:

- evaluation
- national/International standards
- quality control
- accuracy
- coverage

Data quality has an impact on the decision-making of an organisation. This impact depends on the role of the geographic information system (GIS) in the organisation. The requirements for data quality are different in different scenarios depending on whether GIS is used at the operational level, the management level or the executive level (Mäkelä 2007). Since in developing a spatial database for a cadastre/land administration system the data come from different sources, their quality varies. Different aspects of data quality, like positional quality, temporal quality or completeness, must be defined (Stanek & Frank 1993). The definition of quality standards for the products and processes of LASs should be done in such a way that less effort is required when the data is accessed, shared and transferred. Important indicators to analyse the situation of existing quality standards in a LAS include performance evaluation, national standards, data coverage, data accuracy and quality control.

Services and products

Clear definition of services and products by land administration agencies helps all the stakeholders to participate in the system effectively. Important indicators regarding the quality assessment of services and products provided by LAS include

- a list of services
- a list of products
- a service delivery
- efficiency.

Services and products of the LAS should be provided in time to fulfil the users' needs. Services can be improved by introducing new

techniques; e.g. photogrammetric techniques using aerial photographs or high-resolution satellite images can be used as an alternative to traditional land surveying approaches for spatial data acquisition. In this case most measurements can be done in the office (Tuladhar 2005). Front-desk services can also improve the quality of services at the users' end to provide their desired products in an easier way. Important indicators to measure the quality of services and products offered by a LAS include service delivery, efficiency, a list of services, and a list of products offered by the land administration agency.

3. Study area and research methodology

This paper is based on qualitative and quantitative data that were collected in urban and rural areas of Peshawar and Swabi districts of the Khyber Pakhtunkhwa Province of Pakistan to analyse the indicators and variables for elements from institutional and technical perspectives of a LAS. The collected data comprised interviews with all the stakeholders, including law professionals, land owners, real estate agencies, revenue courts and banks officials, as well as visits to the Board of Revenue (BOR) offices at Peshawar and Swabi districts to meet the BOR officials and staff. The study areas visited are shown on the provincial map of Khyber Pakhtunkhwa Province (Figure 2).

In order to understand the present status of the quality indicators and variables in the existing LAS, some structured and semi-structured interviews were conducted with land administration officials at policy level, management level and operational level in the study area. Furthermore, detailed questionnaires were also distributed among 235 stakeholders, including BOR officials, law professionals, land owners, real estate agencies, revenue courts and banks officials, to understand the present status of the quality indicators and variables in more detail. The data were collected from a cross-section of different stakeholders in urban and rural areas

of the Peshawar and Swabi districts. Research matrices to analyse the present situation of the quality indicators and variables for elements from the institutional and technical perspectives in the study areas are shown in Tables 1 and 2. All the stakeholders were proportionally sampled in each district to achieve an appropriate distribution.

4. Data analysis and results presentation

The Statistical Package for Social Sciences (SPSS) was used for analysis of the data and presentation of results. The results of this research are presented in the two sub-sections in which the quality indicators and variables for the elements from an institutional perspective are analysed first, and the quality indicators and variables for the elements from the technical perspective are analysed later on.

Analysis of institutional perspective

Tenure security

The quantitative data collected about the number of land disputes in both study areas was collected. An increasing trend was found for the number of land disputes in Swabi, as seen in Figure 3. This increasing number of land disputes points towards the fear that tenure security is not being tackled effectively in the present system.

Moreover, 98 percent of the land owners felt that their rights are insecure in the existing system when they responded to a question about tenure security. The stakeholders said that land value is increasing with the passage of time and investment in the property sector is increasing, but this rate is much higher in urban areas as compared to rural areas. Most of the stakeholders said that they have equal access to land offices for collecting their land records to obtain credit from established financial institutions.

In both study areas, most banks/financial institutions were willing to mortgage land but it was observed from the fieldwork data that a



Figure 2. Location of Study areas on Khyber Pakhtunkhwa Provincial Map.

lower number of land owners were applying due to the fact that they did not get their land documents in time and it took a long time to mortgage their land (Table 3).

Moreover, the Secretary BOR Secretary said that the existing LAS is fiscal in nature and was developed in the past for tax collection purposes. He said that it does not clearly define the nature and extent of rights in land for land owners and other stakeholders. Due to this complex nature of rights in land, the land owners still feel that their rights are insecure. Furthermore, the Senior Member of the Board of Revenue (SMBR) said that the Islamic tenure system plays an important role in providing rights in land for the owners through the Islamic inheritance system, which is fully practised in the present system.

Land policy

In Pakistan, a land policy exists at provincial level for the management of all types of land,

as the SMBR said during his interview. He also indicated that there are still ambiguities in the existing policy in defining different forms of formally and informally recognised rights in land. He mentioned that the BOR is the only authority in the province which is involved in developing and implementing land policy. The SMBR said that the whole province is covered by a formal system and that there are no unregistered parcels in the province. The SMBR also said that all the procedures for establishment, transfer and abolition of rights to land are clear and well accepted. He accepted that legally the regulations address equity and fairness on access to rights to land (land reform), but practically they are not fully implemented.

Legal framework

The existing legal framework of the BOR is very old and it does not provide enough clarity and transparency, as pointed out by the BOR

Table 1. Research matrix for analysing indicators of institutional elements.

Elements	Indicators and Variables	Stakeholders	Methodology		
			Interview	Visit	Data
Tenure security	Reduction in land disputes	Courts	✓	✓	✓
	Equal access to land offices	Land owners Real estates Banks	✓	✓	
Land policy	Increased land values	Land owners Real estates Land owners	✓	✓	
	Increased access to formal credits	Land owners Banks	✓	✓	
	Owners' perception about tenure security	Land owners	✓	✓	
	Role of Islamic tenure system	BOR officials	✓	✓	
	Types of formally and informally recognised rights	BOR officials	✓		✓
	Percentage of the province and population covered by formal system	BOR officials	✓		✓
	Characteristics of population without formal rights	BOR officials	✓		✓
	Existence of land policy	BOR officials	✓		
	Access to land rights	BOR officials	✓		
	Land use policy	BOR officials	✓		
Legal framework	Legal framework for <i>land rights, land use, and land value</i>	BOR officials BOR staff	✓	✓	
		Land owners			
Land dispute resolution	Registration mechanism	Real estates	✓		
	Legitimisation of govt. regulations	BOR officials	✓		
	Legislation governing LA	BOR officials	✓		
	Level of disputes over land	Lawyers		✓	
Time taken to resolve land dispute	Types of land disputes	Courts	✓	✓	✓
		BOR staff	✓	✓	
		Lawyers	✓	✓	
		Courts	✓	✓	
Means for conflict resolution		Lawyers	✓		
		Land owners	✓		
Procedures for land dispute resolution		Land owners	✓		
		Land owners	✓		
Existence of land board		Land owners	✓		
		Land owners	✓		
		Lawyers	✓		
		Lawyers	✓		
Organisation and mandates	Existence of land board	Land owners	✓		
	Organisation structure	Land owners	✓		
	Mandates allocation	Lawyers	✓		
		BOR officials	✓		
	BOR officials	✓			
	BOR officials	✓			

Table 1 – continued

Elements	Indicators and Variables	Stakeholders	Methodology		
			Interview	Visit	Data
Strategic plans	Customer relation	BOR officials	✓		
	Strategic targets	BOR officials	✓		✓
Human resource development	Review of objectives and strategies	BOR officials	✓		
	Strategic and development plans for IT adoption	BOR officials	✓		
	Analysis of users need and their role	BOR officials	✓		
	Human resource capacity	BOR officials	✓		
	Human resource development facilities	BOR officials	✓		
	Efforts taken for human resource development	BOR officials	✓		
	List of processes	BOR staff	✓	✓	
	Clarity and simplicity	Land owners	✓	✓	
		Real estates			
		BOR staff			
Reliability	Land owners	✓			
	Real estates				
Security	Banks				
	Land owners	✓			
Timeliness	BOR staff				
Land registration process	BOR staff	✓	✓		
	BOR staff	✓	✓		
	Land owners				
	Real estates				
Coordination and data sharing	Land surveying process	BOR staff	✓		
	Institutional and organisational arrangements	BOR officials	✓		
	Cooperation and communication between institutions	BOR officials	✓		
		BOR staff			
Financing and data cost	Private-sector involvement	BOR officials	✓		
	Funding authority	BOR officials	✓		
	Foreign (external) funding	BOR officials	✓		
	Tax collection	BOR officials	✓		
	Fee structure	BOR staff	✓		
	Financial resources	Land owners	✓		
		Real estates			
		BOR officials			
		BOR staff	✓		

Table 2. Research matrix for analysing indicators of technical elements.

Elements	Indicators and Variables	Stakeholders	Methodology		
			Interview	Visit	Data
Data organisation	Coverage and completeness	BOR officials	✓	✓	✓
	Protection	BOR staff	✓	✓	
	Update	BOR staff	✓	✓	
	Availability	BOR officials	✓	✓	
		BOR staff	✓	✓	
		Land owners	✓	✓	
		Real estates	✓	✓	
		Banks	✓	✓	
Users' needs	Sharing	BOR staff	✓	✓	
	List of users in <i>government sector, and private sector</i>	BOR officials	✓	✓	✓
		BOR staff	✓	✓	
	Access to data	Land owners	✓	✓	
		Real estates	✓	✓	
		Banks	✓	✓	
	Availability of required data	Land owners	✓	✓	
		Real estates	✓	✓	
		Banks	✓	✓	
Technology adoption	Present GIS status	BOR officials	✓		
	Digital data availability	BOR officials	✓		
	Hardware and software	BOR officials	✓		
	Capacity-building	BOR officials	✓		
	Facilities for education and training	BOR officials	✓		
	Collaboration with educational institutions	BOR officials	✓		
	Collaboration with research institutions	BOR officials	✓		
	Structural definition of the system	BOR officials	✓		
	Consultation with foreign (external) agencies	BOR officials	✓		
	Consistency	BOR officials	✓	✓	
Land information system design		BOR officials	✓	✓	

Table 2 – continued

Elements	Indicators and Variables	Stakeholders	Methodology		
			Interview	Visit	
Workflows for L.A. processes	Information flow	BOR staff	✓	✓	
	Good management Performance monitoring	BOR staff BOR officials BOR officials BOR staff	✓ ✓ ✓	✓ ✓ ✓	
Quality standards	Evaluation	BOR officials BOR staff	✓	✓	
	National/international standards	BOR staff	✓	✓	
	Quality control Accuracy	BOR officials BOR staff Land owners	✓ ✓ ✓	✓ ✓ ✓	
Services and products	Coverage	Real estates BOR staff	✓	✓	
	List of services	BOR officials BOR officials Land owners	✓	✓	
	List of products Service delivery	BOR staff Land owners BOR officials	✓ ✓	✓ ✓	
	Efficiency		BOR staff Land owners BOR staff	✓	✓
			Land owners BOR staff Banks	✓	✓

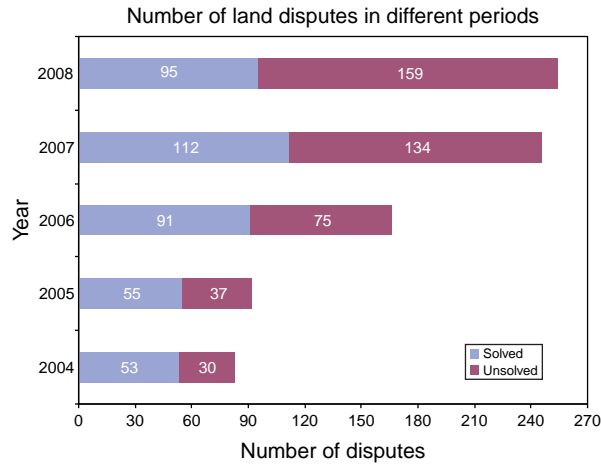


Figure 3. Land dispute trend in Swabi district.

officials in their interviews. The legal and policy framework governing land records is governed under several pieces of legislation and two parallel systems of adjudication exist under the revenue courts and civil courts. The revenue courts and civil courts intermingle on similar points, leading to court cases that take decades. Ninety-four percent of the law professionals said that the present status of legislation governing land administration is scattered and outdated. The Director of Land Records (DLR) pointed out that the legal

framework does not provide enough clarity and transparency on land holdings. He also said that the whole complex of valuation and taxation of land for gathering revenues is neither defined nor enforced. He indicated that no perfect system has evolved so far to take into account the impact of land taxation on use of land and on land markets. Most of the stakeholders also questioned whether the valuation method for land taxation fits its societal needs. The DLR stated that people comply with these rates because they do not

Table 3. Access to formal credits.

Questions	Response	Frequency	
		Bank Officials (n = 25)	Land Owners (n = 50)
Are the financial institutions/banks willing to mortgage land?	Not willing	–	–
	Less willing	–	06
	Fully willing	25	44
Do land owners apply for credits against their land?	No	06	34
	Yes	19	16
How much time does it take to mortgage land?	1 week	09	–
	2 weeks	07	–
	3 weeks	09	05
	More	–	11
Is the number of land owners applying for credits against their land increasing or decreasing?	Decreasing	–	×
	Stable	10	×
	Increasing	15	×

have another choice. He said that the legal framework needs to be tailored as per societal changes and users' demands to make the system more efficient.

Land dispute resolution

As mentioned earlier, land-related matters are governed in several pieces of legislation and two parallel systems of adjudication under the revenue and civil courts. Most of the stakeholders objected that the land conflict resolution mechanisms are very complicated and it takes a very long time to resolve land disputes. They said that these mechanisms are expensive and time-consuming as well. They further argued that the procedures in land dispute resolution are not clear and are unknown to them. The land owners said that the Patwari (a land record keeper at village level) keeps all the original land records with him all the time and he has the authority to make changes relating to ownership in the original record which is always questionable and can create land disputes. This is further verified by the type of land disputes as most of the ownership disputes were found among other types of land disputes such as boundary disputes etc. in both districts, as presented in Table 4.

Organisation and mandates

There is an independent land board and the Board of Revenue (BOR) is the only organisation in the country at provincial level with a mandate to manage land-related data for tax collection and dispute resolution. The BOR works under the provincial government and their mandates are already defined by the provincial government. The SMBR said that these mandates are clear and manageable. He also pointed out that these mandates are not overlapping and the allocation of mandates reflects a well-balanced approach towards decentralisation. He further said that the organisational structure of the BOR is well designed for the execution of work processes

and the management of customer relations is clearly defined in allocating these mandates.

Human resource development

The human resource development issue has not been dealt with effectively in the existing LAS as only one training school is available for BOR officials at provincial level with few training facilities. The DLR stated that no effort has been taken to develop human resource capacity in the existing system. The qualification criterion for the appointment of new staff in the land administration agency is also found ineffective to overcome new challenges in human resource development.

Land administration processes

The main Land Administration (LA) processes carried out by the BOR include land settlement, land revenue collection, land titles, land transactions and land transfers. These processes are not clear and simple to understand for the general public, as admitted by 61 percent of the stakeholders. Moreover, 65 percent of the stakeholders said that these processes are time-consuming and do not provide the necessary information in a timely fashion. The stakeholders' views about the quality of the existing LA processes are presented in Table 5.

Answering a question regarding the fairness of the present system, 75 percent of the stakeholders said that the LA processes and records themselves are less reliable. They also said that land records are not kept up-to-date and in most cases they are outdated.

Although the BOR officials said that the approach to land records is not significant for creation of land disputes due to administrative checks, the land owners as well as the law professionals pointed out that it is significant due to the lack of security provided in the present system of maintaining these land records at different levels.

Most stakeholders said that the deeds of sale registration and land transfer processes in the present system are too complicated and it

Table 4. Land disputes.

Questions	Responses	Frequencies	
		Land owners (N = 50)	Law professionals (N = 52)
What types of disputes are there in land?	<i>Ownership</i>	25	29
	<i>Boundary</i>	14	13
	<i>Both</i>	11	10
How much time does it take to resolve land disputes?	<i>1 year</i>	13	–
	<i>2 years</i>	10	–
	<i>3 years</i>	16	22
	<i>More</i>	11	30
Are the present procedures in land disputes resolution clear?	<i>Not clear</i>	30	14
	<i>Ambiguous</i>	20	35
	<i>Clear</i>	–	03
Present status of the legislation governing land administration?	<i>Scattered</i>	×	35
	<i>Out-dated</i>	×	14
	<i>Updated</i>	×	03
	<i>Other</i>	×	–
What is the level of disputes in land?	<i>Low</i>	×	02
	<i>Moderate</i>	×	12
	<i>High</i>	×	38

takes a long time to register a deed of sale or transfer land. Their responses about time and steps required in these processes are presented in Table 6. They also said that these processes are not so easy for them.

Moreover, the BOR officials said that the information in land registers is updated every four years while all the graphical information in cadastral maps is to be updated every 25–30 years. Due to this long time span, most of the stakeholders said that the existing system does not provide up-to-date information in a timely fashion. The BOR officials said that only the field survey technique is used in the present system, which is too old and time-consuming for them, especially in areas where the weather is harsh and the terrain is mountainous.

Strategic plans

The strategic level requires exclusive links with changing views on Geo-ICT. The quality of a LAS largely depends upon two strategic elements. The first element is about the analysis of users' requirements. The second element is the adoption of the latest technol-

ogies in land administration processes and services to achieve a high quality of products that are easily accessible and reliable for land data supply. The SMBR said that a list does not exist which can define the strategic targets and all the procedures followed as it was in the past. Furthermore, he said that the objectives and strategies of the BOR are not reviewed and there is no regular process for review. He also said that no GIS development plan is published for adopting GIS technology in the present system.

Coordination and data sharing

The SMBR said that the BOR has its own institutional and organisational arrangements at provincial level to carry out all land-related activities. These arrangements are further narrowed down at local level in each district under the BOR organisational set-up to prepare and maintain land records at local level. He said that the BOR shares their data and coordinates in an efficient manner as the user agencies ask for the desired data. He said that all the land-related information is created and maintained

Table 5. Stakeholders' view on LA processes.

Questions	Responses	Frequency			
		Bank Officials (n = 25)	Law Officials (n = 52)	Land Owners (n = 50)	Estate Agents (n = 53)
How reliable is the process and the record itself?	<i>Less reliable</i>	08	48	50	34
	<i>Reliable</i>	17	04	—	17
Is the present system fair in development and operation?	<i>More reliable</i>	—	—	—	02
	<i>Less fair</i>	×	23	39	39
	<i>Average</i>	×	29	11	13
	<i>Fair</i>	×	—	—	01
Is the system clear and simple to understand for general public?	<i>Not clear</i>	×	×	50	43
	<i>Less clear</i>	×	×	—	10
Is the system providing necessary information in a timely fashion?	<i>Fully clear</i>	×	×	—	—
	<i>No</i>	17	31	35	34
The information stored about land in land registers is up-to-date?	<i>Yes</i>	08	21	15	19
	<i>Not updated</i>	—	24	36	41
	<i>Less updated</i>	25	26	14	12
	<i>Fully updated</i>	—	02	—	—

Table 6. Stakeholders' view on registration and transfer processes.

Questions	Responses	Frequencies		
		<i>Land Owners (N = 50)</i>	<i>Estate Agents (N = 53)</i>	<i>Patwaris (N = 50)</i>
How much steps are involved in the land transfer?	<i>3 steps</i>	50	05	50
	<i>4 steps</i>	–	17	–
	<i>5 steps</i>	–	15	–
	<i>More</i>	–	16	–
	<i>1 week</i>	–	01	03
How much time does it take to transfer land?	<i>2 weeks</i>	01	–	15
	<i>3 weeks</i>	22	26	27
	<i>More</i>	27	26	05
	<i>1 week</i>	–	03	–
How much time does it take to register a deed?	<i>2 weeks</i>	07	05	12
	<i>3 weeks</i>	39	18	24
	<i>More</i>	04	27	14
	<i>Not easy</i>	14	39	×
How easy is the procedure for deed of sale registration?	<i>Less easy</i>	36	10	×
	<i>Easy</i>	–	04	×

only by the BOR and the private sector is not involved in carrying out these activities.

Financing and data cost

The DLR said that the provincial and district governments provide financial support to the BOR and approximately 5 percent of the cost is recovered from fees and data sales. He said that the land revenue then goes to the provincial revenue acknowledgement and becomes part of the annual budget. Regarding fees and cost structure in the present system, 65 percent of the stakeholders (including real estate agents and land owners) showed their disagreement with the present system. The DLR further said that the BOR does not have sufficient financial resources to adopt Geo-ICT in the present system. Similarly, 75 percent of BOR officials accepted that the financial mechanisms are not appropriate to meet the business demands.

Analysis of technical perspective

Data organisation

The BOR is the only authority which is responsible for keeping and updating land records. Although the BOR has land records for all 24 districts of the province, there are still areas where no proper land records are prepared

due to the absence of land consolidation and settlement operations since they were carried out in the past. Land records are maintained at local level in each district but improper maintenance of land records (Figure 4) leads to a lot of difficulties. The stakeholders objected that improper maintenance of land records and utterance in record-of-rights also leads to problems concerning the protection of these land data.

The stakeholders said that all the temporal archives are only stored in the district-level records room and there are still occasions where the entire records are wiped out due to fire or floods. Furthermore, all the existing land records are in manual form and no data are available in digital form. Eighty percent of the stakeholders said that they have equal access to land offices, but 70 percent of them also pointed out that it is not easy for them to access their land records.

Users' needs

Although different users exist in the government and private sectors, unfortunately the BOR officials did not have any specific list of these users. Most of the stakeholders said that the process for accessing land records is not convenient and simple for them (Table 7).



Figure 4. Land record room at district level.

Table 7. Access to land data.

Questions	Response	Frequencies		
		Bank Officials (N = 25)	Land Owners (N = 50)	Estate Agents (N = 53)
How can land records be made more accessible to everybody?	<i>Introducing Geo-ICT</i>	17	35	24
	<i>Re-structuring</i>	08	15	29
How convenient is the process to access land records?	<i>Other</i>	–	–	–
	<i>Not convenient</i>	15	31	39
	<i>Less convenient</i>	10	19	14
	<i>Convenient</i>	–	–	–
How simple is the process required to access land records?	<i>Not simple</i>	–	14	39
	<i>Less simple</i>	10	31	10
	<i>Simple</i>	15	05	04
How much (formal and informal) payment is involved in accessing land records?	<i>Not affordable</i>	–	48	48
	<i>Affordable</i>	25	02	05
How much time does it take to access land records?	<i>Short time</i>	–	–	02
	<i>Average time</i>	17	10	14
	<i>Long time</i>	08	40	37

Moreover, 66 percent of stakeholders said that it takes a long time to access their land records. The stakeholders, including land owners, bank officials and real estate agents, also objected that the present system only partially provides all the essential data according to their needs.

Technology adoption

The DLR said that no land records are available in digital format and all land records exist on paper in the form of registers and maps. He said that only some small efforts have been taken to convert land data into a digital format, but they are at a snail's pace. The SMBR further said that the BOR does not have enough financial resources for providing new hardware and software facilities in the existing land administration system.

The DLR objected that no GIS technology has been introduced in the present system and only in Chitral district is a settlement operation in process using the whole station. However, no skilled staff are available to fully operate these devices effectively. Eighty-five percent of the stakeholders said that new technology should be adopted in the present system, while 59 percent of them were expecting that the introduction of Geo-ICT in the present system will make land records more accessible to everybody. The SMBR further said that the BOR does not have sufficient trained staff for implementing new technologies in the system. He said that a lot of effort will be required in institutional and human capacity-building to introduce new technology in the present system. He argued that there is only one training school for the whole BOR staff in the province to train their officials.

Training and development

Institutional and human capacity-building is found insufficient in the study area. The SMBR said that the BOR does not have sufficient trained staff for implementing new technologies in the existing system. He said

that a lot of effort will be required on the institutional and human capacity-building side to introduce new technology. He pointed out that few training facilities are available for the land administration agency in the province to train their staff.

Land information system design

The SMBR said that the structure of the existing system is useful and clearly defined. He said that the existing system has been time-tested in practice for many decades. He indicated that the BOR does not have any consultation with other foreign (external) agencies for system design and all the processes are followed as they were in the past. The DLR said that the existing system is entirely based on maps and records in paper format and no new concepts have been introduced in the present system. Moreover, no spatial reference (coordinate) system is followed by the BOR for cadastral map generation, and all the measurements are carried out using methods not generally applied in more current systems.

Workflows for land administration processes

The DLR said that the allocation of tasks and responsibilities to managers is appropriate but the internal and external information flow is less clearly specified. The SMBR pointed that the managerial tools in terms of planning control, accountability and liability are appropriate. However, the DLR objected that the performance monitoring in the present system is less appropriate for good performance. He said that the organisational culture encourages sharing of values towards good performance, but there are fewer coordinated efforts amongst all stakeholders to share their valuable comments and knowledge.

Quality standards

The DLR said that the performance of the BOR is only monitored internally and there is no external monitoring system available for performance monitoring and evaluation. The

stakeholders objected that there are no surveying standards for cadastral map generation in the existing system. They questioned that these maps have quite out-dated information which restricts their operational usefulness for extracting precise information on land parcels and ownership. The DLR also accepted that there are no quality parameter matrices to maintain land records and all the processes are carried out in a conventional way. He said that technology adoption will improve the quality of data/services and will bring tremendous changes for improving service delivery. Fifty-six percent of the stakeholders complained that the information stored in land registers is not up-to-date. The DLR said that the BOR has land data covering the whole province (24 districts) including land registers and cadastral maps. These cadastral maps are available at approximately 1:2500 scale (Figure 5).

All these maps are prepared and maintained manually, but no quality standards are followed to prepare these maps. Furthermore, these maps do not follow cartographic rules and no projection system is followed to prepare them. The condition of the record rooms for keeping these cadastral maps is also very poor (Figure 6).

Services and products

The BOR officials said that all the services and products are partially delivered to users at local level. The DLR said that there is a very large establishment of revenue offices and officials at district and tehsil (sub-district) level, but there are not enough offices nor an infrastructure to provide their services effectively. Moreover, 61 percent of the stakeholders also objected that the BOR does not have sufficient infrastructure to deliver their services in an efficient manner.

5. Summary of the LAS's quality situation in Pakistan

This assessment identified the quality issues for all the elements from institutional and technical perspectives within the country's existing LAS. The existing quality situation of the LAS in Pakistan, as identified for each element of the institutional and technical perspective, is summarised in Table 8.

The quality situation of institutional perspectives of the existing LAS in the country was found to be unclear, inadequate or complex for the different elements, making it hard to manage land records in an efficient way. This assessment highlighted all the contributing issues from an institutional



Figure 5. An existing cadastral map.



Figure 6. Record room for cadastral maps

perspective for further development of quality improvement guidelines to overcome these issues and ultimately improve the quality of the LAS.

Similarly, the quality situation of the existing LAS in Pakistan is found to be unclear and inadequate in all elements of technical perspectives to perform land administration effectively. This assessment pointed

out the issues from a technical perspective to be included in the quality improvement guidelines to improve the quality of the system as per quality requirements.

6. Conclusions

The increasing requirements as a result of environmental issues and technological devel-

Table 8. Quality situation of LAS in Pakistan

Elements	Quality Situation
Tenure security	Unclear
Land policy	Unclear
Legal framework	Complex
Land dispute resolution	Complex
Organisation and mandates	Clear
Human resource development	Inadequate
Land administration processes	Complex
Data organisation	Inadequate
Coordination and data sharing	Clear
Financing and data cost	Inadequate
Strategic plans	Unclear
Users' needs	Inadequate
Technology adoption	Inadequate
Training and development	Inadequate
Land information system design	Unclear
Workflows for LA processes	Unclear
Quality standards	Inadequate
Services and products	Inadequate

opments demand that the administration and management of land should be done in an efficient, transparent and integrated manner. Land administration systems have to respond to such needs through appropriate and efficient tools. The development of a quality assessment framework to investigate the quality of the existing LAS is a very helpful tool. However, the assessment is more meaningful when it is based on a standardised approach to investigate the objectives and issues of the existing system in a holistic manner. This study has developed a conceptual and methodological framework for analysing the quality of a standalone LAS. This research applied a quality assessment framework to assess the quality of the LAS by considering all the elements, variables and quality indicators of the system. The quality assessment framework took the institutional and technical issues of the LAS into account and suggested a set of indicators and variables for assessing the quality of a standalone LAS within a country's environment. These indicators and variables were analysed by collecting the qualitative as well as the quantitative data in the field through participation of all the stakeholders using an explanatory case-study approach. The resultant methodological framework, especially the quality assessment framework, maximised the capabilities of an explanatory case-study approach in analysing the quality of a standalone land administration system within a country's environment.

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