

# **An Evaluation Framework for Urban Cadastral System Policy in Ethiopia**

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## **Abstract**

Land is the most vital resource on earth from which humankind derives almost all its basic needs. In order to administer and manage this vital resource in a sustainable way, there are several mechanisms, of which, cadastral system is the prime one. Many literatures have proved that the role of cadastral systems have been functioning as an engine for sustainable land administration system though their systematic performance evaluation mechanisms seemed to be poor. Being the nature of systematic performance evaluation of cadastral system depends on the circumstance of specific country, as in most developing countries, Ethiopia has no such systematic evaluation framework to measure and evaluate the state of cadastral systems. This article is aimed to develop an evaluation framework to measure and evaluate the performance of urban cadastral system at policy level based on the successful implementations of robust countries. It is also intended to present a set of good practices and their indicators to provide an objective basis that supports systematic evaluation of urban cadastral system in Ethiopia. In line with this aim, the research has endeavoured to answer the question; with which indicators can one measure and evaluates urban cadastral system of Ethiopia? In order to achieve this aim, the study has employed a desk review research strategy being qualitative approach is at the heart of the analysis. State of the art literatures (theories on cadastral system policies) are reviewed, and existing laws and policies focusing on urban cadastral system are analysed in order to understand the circumstance and context of Ethiopia. Finally, this article has contributed an evaluation framework with a set of qualitative and quantitative indicators and their good practices that can evaluate the performance of urban cadastral system, which is not currently available in Ethiopia.

**Keywords:** Performance indicator; Evaluation Framework; Cadastral System

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## 1. INTRODUCTION

Land is the most vital resource on earth from which humankind derives almost all its basic needs. Much effort is invested in order to administration land, of which, cadastral systems are one of these efforts which are developed all over the world for this purpose (Dale *et al*, 1989). The United Nations and organizations such as the International Federation of Surveyors (FIG) have for many years undertaken studies to understand and describe land administration systems and particularly the cadastral system component (Ting and Williamson, 1999).

For this paper, the term cadastral system is defined as a formal sub-system of land administration that includes the organizational system (a set of professional actors with responsibilities responsible and accountable to carry out cadastral activities and maintain cadastral information systems), procedures and regulations which altogether ensure that the cadastral system is kept up-to-date. In short, cadastral system is an organizational system usually referring to the operations that a cadastral organization is conducting (Walter, 2016).

The establishment of urban cadastral system in developing countries is a means of providing security of tenure, by ensuring that people can live with certainty and safety on their own land (Silvaa and Stubkjaerb, 2002; De Soto, 1993). De Soto (2000) argues that the lack of a reliable and efficient cadastral system can have serious implication for the social and economic welfare of a country. In order to determine the fulfillment of objectives, effectiveness and sustainability of the cadastral system implementation, performance evaluation is needed as systematic and objective as possible, of on-going or completed projects (Danida, 1999).

Globally, there are variety of frameworks and methodologies that can evaluate, characterize, and assess cadastral systems in the world though they could not properly address local problems and situations of progressive cadastral systems in developing countries (Burns, 2007). Standardized methods or a quality framework to measure and evaluate urban cadastral system around the world is still lacking (Ali, Tuladhar, & Zevenbergen, 2010). The research to date has a tendency to focus on describing notions such as the usage, principles, advantages, and disadvantages of the existing implementations of urban cadastral system whereas evaluation of the system is overlooked (Ahmet *et al.*, 2014). Most literatures show that several evaluation frameworks focus on the different aspects of land administration and management (Steudler, 2002; Steudler *et al.*, 2004; Gebeyehu, 2014; Ali, Tuladhar & Zevenbergen, 2010), however, urban cadastral system seems to be a missing component. According to LGAF (2016), the key difficulty for the success of cadastral system is the absences of standardized frameworks which enable evaluate the performances of undertaking institutions (LGAF, 2016). In this respect, Ethiopia as an implementer of two types cadastral systems (urban and rural), there is no nationally accepted methodology which can measure and evaluate the performance of both urban and rural cadastral system.

Therefore, the objective of this study is to develop a framework, with a set of good practices and their indicators, which can measure and evaluate the performance of urban cadastral system policy of Ethiopia. So that an objective based systematic evaluation of urban cadastral system can be made. In line with this objective, the research has endeavored to answer the question; with which indicators can one

measure and evaluates urban cadastral system of Ethiopia at policy level? And hence, the overall contribution behind evaluation of the cadastral system performance at policy level is to inform policymakers, practitioners, and stakeholders about the progress of the cadastral system projects in achieving its intended objectives.

## **2. THEORETICAL FRAMEWORK: AN EVALUATION FRAMEWORK**

An evaluation framework is a systematic approach, which provides an objective basis, which removes subjectivity by identifying good practices and their indicators in order to assess the strengths and weaknesses of the performance of an organizational system (Ahmet *et al.*, 2014). According to international standards, a framework provides an evaluation technique that enables the identification of indicators for cadastral systems subject to improvement. An indicator is a specific, observable and measurable characteristic that can be used to show changes or progress a programme is making toward achieving a specific outcome (<https://www.cdc.gov/eval/indicators>).

When evaluation involves good practices and their indicators, it eliminates the subjectivity and provides an objective basis for learning from the success and experience in improving the performance of others. By understanding how urban cadastral system of robust countries have been efficiently implemented and maintained, it is possible to define the good practices and the success factors in terms of different aspects (Ahmet *et al.*, 2014).

International experiences show that there are a number of evaluation frameworks which helps to measure and evaluate organization's performance. As stated by the UN-Habitat (2003) good practices and indicators are reference points for evaluations and they constitute a critical component of an evaluation framework. According to Agenda 21, under chapter 40(4), one of the key underlying assumptions about indicators is that they are a precondition for improved decision-making (Agenda21, 1992).

Although plenty of cadastral projects have been attempted to implement, successful outcomes could not be achieved so far. In each of the pilot projects, there have been trials which are not complementary each other, and resulted in useless activities. The big problem of these projects was the absence of progress performance evaluation of the project in each phase. When one project commences, it doesn't assess and evaluate the strengths and weaknesses of the earlier project and commence from the scratch. But, to do so, there are standards or indicators set by international organizations in order to assess the success and effectiveness of a land administration system. For instance, International Federation of Surveyors FIG (1995) has proposed a set of criteria in 1995. In 2004, Daniel Steudler developed an evaluation framework for land administration. Gebeyehu (2015) has developed a framework to evaluate the status of land administration systems in Ethiopia in the areas of political and legal context. Rajabifard *et al.* (2006) developed the cadastral template, which is mainly a standard form to be completed by cadastral organizations presenting their national cadastral system. There is also an evaluation framework developed by European Foundation for Quality Management. The framework/model is aimed at evaluating the effectiveness of an organization based on nine indicators in the form of input-process-output pattern, in which, five of them are "enablers" and the rest are "results" (EFQM, 2012).

Another example of such framework is Land Governance Assessment Framework which is an investigative instrument to assess the status of land governance (LGAF, 2013).

Therefore, the aforementioned approaches are aimed at measuring and evaluating the performance of urban cadastral systems policy.

### **3. METHODOLOGY**

This study has adopted a desk review research strategy. The desk review in this regard has focused on exploring and looking into state of the art literatures in order to develop a framework based on indicators and their good practices, to measure and evaluate the performance of urban cadastral system policy of Ethiopia. Secondary data sources such as books, journals, conference proceedings, have been served as a reference document. The article has benchmarked the following five frameworks and/or models: EFQM Excellence Model (EFQM, 2012), Land Governance Assessment Framework (LGAF, 2016), Land Administration Evaluation Framework (Steudler, 2004), Statements on cadaster (Cadaster, 2014), and Cadastral template (<http://cadastraltemplate.org/>) are analyzed, and contextualized evaluation framework is developed. The rationale behind selecting these frameworks and/or models is their flexibility, reliability, comprehensiveness, and attainability. Qualitative approach is at the heart of the analysis.

### **4. RESULT AND DISCUSSION**

#### **4.1. Urban Cadastral System Policy of Ethiopia**

Ethiopia's urban cadastral system policy is enshrined and incorporated under the urban land development and management policy. This policy aspires a system where urban land is served as a driving force for political, social, economic, and environmental transformation through efficient and well-functioning cadastral system. To accomplish this vision, the federal government has formulated policies related to urban cadastral systems in order to modernize the system of land administration. Proclamation No. 818/2014 that describes about the urban land holding adjudication and registration is ratified to implement urban cadastral system of the country. In line with this proclamation, regulations, directives and manuals have been prepared. The overall objective of the scheme is to accelerate the social-economic and environmental development of urban centers by ensuring land holders' security of holding and recognition of title to immovable property by certifying their right, restriction and responsibility through adjudication and registration. In line with this proclamation, Reg. No. 323/2014 and 324/2014 are issued to enact the proclamation.

To implement proclamation No. 818/2014, the government of Ethiopia has incorporated the whole urban cadastral system processes in to its Growth and Transformation Plans (GTP). The Federal Urban Land and Land Related Registration and Information Agency, which is the responsible organ for all urban cadastral system, has developed an aspiring agenda of urban land registration to support GTP II. Within this framework, adjudication and registration of 1.6 million and 1.2 million landholdings respectively across 91 cities are planned in five years with 200,000 adjudicated and 150,000 registered in just the first year across prioritized 23 cities (GTP-II: 2008-2012 E.C).

## **4.2. An Evaluation Framework for Urban Cadastral System Policy**

The proposed framework consists of four components: level, which indicates focus of the study; dimension, which indicates the evaluation aspects; indicators, which are variables that can measure quality; and good practices, which indicate successful achievements. As it is explained in Table 2, different dimensions are stated under the policy level which needs to be incorporated: Political aspect, Policy aspect, Legal and institutional aspect, Social aspect, Economical aspect, Environmental aspect, Technical aspect, and Public-Private Partnership aspect. Performance indicators are measurable value that demonstrates how an organization is achieving targeted objectives. Organizations use performance indicators to evaluate success in relation to their objectives. By understanding how cadastral system can be efficiently implemented and maintained, it is possible to define the good practices and the success factors in terms of different aspects (Stuedler, 2004).

## **4.3. Urban Cadastral System Policy Evaluation Dimensions**

Currently, there is an increasing demand for cadastral system, which, supports economic development, environmental management and social stability in both developed and developing countries (Williamson, 2001). In-line with this increment, there is a need for performance measurement to assure the quality of cadastral system. The dimensions listed in the Table 2 are indicators for the evaluation of urban cadastral system performance. These dimensions are explained in the following section.

### **4.3.1. Political Dimensions**

The cadastral system success is driven by the level of political will and commitment which take into account the social, economic, and cultural contexts and makes the necessary resources available (Murunga *et al.*, 2013). A well-functioning urban cadastral system can never be achieved without positive political will. Although all dimensions (Table 2) have their own contribution to the successful implementation of cadastral system, Enemark (2015), has highlighted most importantly, strong political will and leadership as a fundamental requirement at national level. Without the courtesy of strong political will and commitment, cadastral system would not be successful. The good practice is thus, political situations of the country under investigation should demonstrate its will and commitment to accomplish the objectives envisioned.

Table 2: An Evaluation Framework for Urban Cadastral System

Level	Dimensions	Performance Indicators	Good practices
Policy level	<i>Political</i>	Existence of political will in support of the cadastral system (y/n)	When there is clear political will to advance cadastral system of the country.
	<i>Policy</i>	Existence of a government policy for cadastral system (y/n)  Are the identified visions and objectives SMART? (y/n)  Existence stakeholder focused strategy (y/n), if yes, what is the strategic approach that has been adopted to meet the objectives?  Frequency of revisiting objectives and strategies	When cadastral policy aspects are mentioned in the land policy and laws, and when they are suitable to circumstances.  Specific, Measureable, Achievable, Realistic and Timely (SMART)  There should be a strategic tool to know how to achieve mission, vision and targets. Excellent organizations implement their Mission and Vision by developing a stakeholder focused strategy. Plans, objectives and processes are developed and deployed to deliver the strategy (EFQM).  When there are progress monitoring mechanisms on the basis of objectivity.
	<i>Legal and institutional</i>	Existence of legal basis, such as laws: regulations, legislations, standards? (y/n)  Uniformity of cadastral system policy throughout the country?  Do regulations of cadastral system involve institutions with clear mandates as well as policy processes that are transparent and equitable? (y/n) if yes, explain.	Legal recognition through enabling legislation which covers all the details and standard procedures of the processes.  When the legal aspects are suitable to cadastral system through protecting ownership rights that people have on land and property  When there are institutions with clear responsibilities and easy processes in the cadastral system (LGAF).
	<i>Social</i>	Does participation ensured in the cadastral	When participation is ensured. Implementations are possible when

	<p>system policy development such as stakeholders? (y/n) if not, why?</p> <p>Does the society benefited from and acknowledge the policy?</p> <p>Is there any mechanism for resolving disputes arising among landholders?</p>	<p>Public-Private sector partnership cooperates and increases achievability of missions and objectives.</p> <p>And society should be benefited from and acknowledge the need of the cadastral system policy.</p> <p>Good practice is when there is an hierarchical dispute resolution mechanisms (negotiation, arbitration)</p>
<i>Economical</i>	<p>Is the cadastral system policy cost recovery? (y/n) if yes, how and in what mechanisms?</p> <p>Is there a well-functioning land and property market as a result of the cadastral system policy? (y/n)</p>	<p>Cadastral system procedure should be self-financial and should ensure cost recovery.</p> <p>Cadastral system policy should support a well-functioning land market.</p>
<i>Environmental</i>	<p>Does the cadastral system policy ensure sustainability of the environment? (y/n), if yes, in what aspects?</p>	<p>Cadastral system policy needs to support duties such as environmental protection, monitoring of land resources, zoning, etc.</p>
<i>Public-Private Partnership</i>	<p>Does the system encourage involvement of the private sector? (y/n), if not, why?</p>	<p>Private sector is the indispensable partner of the public sector in terms of its capability in using and adjusting high technologies. Thus, a good practice is when there is partnership of public and private sectors under the condition of well-determined limits of both parts' duties and responsibilities (Cadastre 2014).</p>
<i>Technical</i>	<p>Does the cadastral system policy follows international technical standards? (y/n), if not why?</p>	<p>When cadastral systems follow international standards so as to share information, taking into account international standards (LADM).</p>

#### 4.3.2. Policy, Legal and Institutional Dimensions

Cadastral system policies could include principles on the roles and responsibilities of the various cadastral related activities such as: land surveying, mapping, and land registration. These principles could be included in the national cadastral system policy. In-line with this, there should be a strategic tool to know how to achieve mission, vision and targets. Excellent organizations implement their mission and vision by developing a stakeholder focused strategy. These strategies should be designed in a SMART way: i.e. **Specific**: objectives are concrete, detailed, focused, well-defined, straight-forward, and emphasizes action; **Measurable**: the standard used for comparison, it answers the question of quantity; **Attainable**: objectives need to be realistic, possible, and achievable; **Realistic**: what results can realistically be achieved, given available resources; **Time bound**: the deadlines to meet the objectives.

The federal government of Ethiopia has issued a proclamation and the respective subordinate laws to ensure that the boundaries of real property are accurately marked, measured and mapped. In the contrary, inadequate policy formulation and implementation will hinder the well-functioning of cadastral systems. In this case, the good practice is the provision of legal recognition through enabling legislation which covers all the details and standard procedures of the processes. In addition, it is good when the legal aspects are suitable to cadastral system through protecting ownership rights that people have on land and property.

Although dependent on policy and legal dimensions, inappropriate institutional arrangements are often a severe limitation in any cadastral system (Pienaar, 2009). So, it is important to combine all of the different cadastral system activities under the control of one specific state department, though the decentralization of the activities and functions to regional level is likewise important. In support of this issue, Williamson has proved that the most successful cadastral systems have been established as a result of all cadastral system activities being combined into one government agency.

#### 4.3.3. Social, Economic and Environmental Dimensions

Urban cadastral system policy plays significant roles in improving and boosting the social and economic dimensions of a country. In terms of social dimension, a well-functioning cadastral system is the foundation of national stability and social welfare. A government can make a thousand promises or grandly announce a comprehensive vision to boost the country's economy, but without an efficient and effective cadastral system the government will never be able to deliver. When considering the economic status of a country, it is wise to zoom in on the progress of its cadastral system policy.

A cadastral system offers countries a means of escape from poverty (Wegen, 2018). Economic development is one of the common goals of many developing countries like Ethiopia. The policy issued by the Ethiopian government to implement urban cadastral system advances the level of economic development. Cadastral systems are the mechanisms that translate and implement such policies into practice. In-line with the social and economic dimensions, cadastral system policy needs to support duties such as environmental protection, monitoring of land resources, zoning, etc.

#### 4.3.4. Public-Private Partnership (PPP) and Technical Dimension

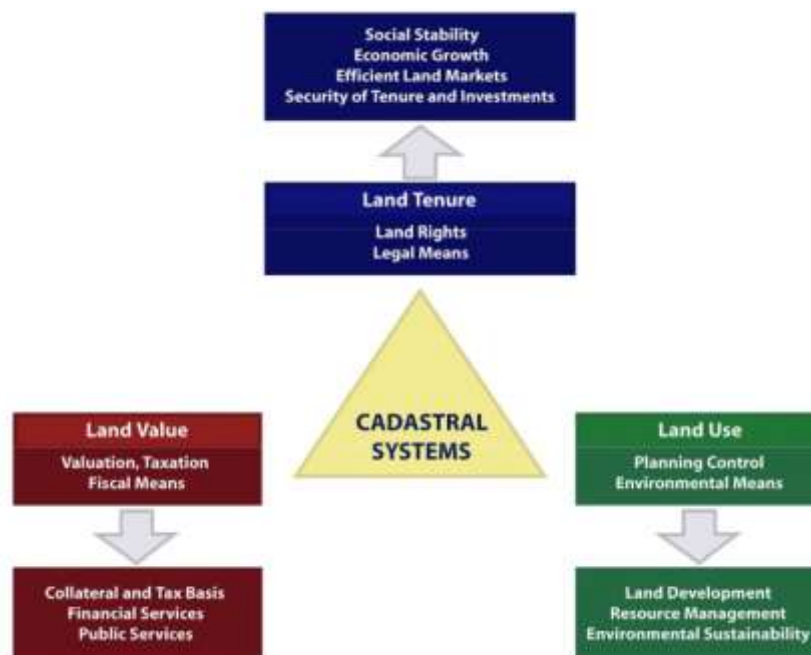


Private sector is the indispensable partner of the public sector in terms of its capability in using and adjusting high technologies. Thus, a good practice is when there is partnership of public and private sectors under the condition of well-determined limits of both parts' duties and responsibilities (Cadaster 2014). The surveying and mapping, which should be performed by the private sector, quite needs huge amounts of resources. The technical solutions should be user driven land information system. Lack of technical standards, PPP and ability to share information hinder the proper delivery of functional cadastral system. So, incorporating these issues in the cadastral system policy will support the other evaluation dimensions.

#### 4.4. The Nexus among Cadastral System, Land Tenure, Land Use and Land Value

The land management paradigm (Enemark, 2004) makes a cadastral system the engine of land administration system, underpinning the country's capacity to deliver sustainable development. Cadastral systems, which produce cadastral information of land, have always been used in various ways to make and implement different decisions on land. They give location of land parcels, define boundaries, gives sizes which are fundamental pieces of information on the issues of land allocation procedures, valuation of properties and reduction of litigation.

Cadastral systems are not ends in themselves rather they are a means to support a variety of purposes (Williamson, 1985). Cadastral systems facilitate administration of three main areas: Land Tenure, Land Use, and Land Value (Enemark, 2005).



Source: Enemark (2005)

All these three systems are interrelated through cadastral system since it serves as an engine for those systems. Without appropriate cadastral system, land tenure will not be guaranteed. Cadastral system is also a base for land use in order to control the use of land through the adoption of planning policies and regulations. Land Use Management is the system of legal requirements and regulations that apply to land in order to achieve desirable and harmonious development of the built environment. Land

valuation and taxation are also the results of appropriate cadastral system. The actual economic and physical use of land and properties influence land value. Land value is also influenced by the possible future use of land as determined through zoning, land use planning regulations and permit granting processes. And the land use planning and policies will, of course, determine and regulate future land development.

## **5. CONCLUSION AND RECOMMENDATION**

This paper was intended to propose an evaluation framework for urban cadastral systems policy based on a desk review approach with the justification that Ethiopia has no a benchmark for urban cadastral system evaluation. And so, the paper has developed and contributed an evaluation framework with a set of qualitative and quantitative indicators and their good practices from the perspective of urban cadastral system policy. The evaluation framework is developed by considering Political, Legal and institutional, Social, Economic, Environmental, Technical and Public-Private Partnership dimensions. It is believed that the framework provides a basis for evaluating urban cadastral systems in a more standardized and comprehensive approach. Thus, the organization operating urban cadastral system should follow and act in accordance with the proposed framework so that an objective basis performance assessment system will be in place to evaluate urban cadastral system policy of Ethiopia.

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