

Towards a Framework for Assessing the Impact of Cadastral Development on Land Rights-Holders

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Key Words: cadastral development, land administration, impact analysis, evaluation framework, land rights.

SUMMARY

Although there is a published lack of accepted frameworks and methodologies for the comparison and evaluation of national land administration systems, several frameworks for assessing the performance of LAS in terms of different aspects of these systems have been proposed. The bulk are biased towards analysis of technical, institutional, or cost/benefit aspects, or focus on economic efficiency and effectiveness. There is a dearth of frameworks for evaluating the external impact of land administration and cadastral developments, i.e. how do these developments affect citizens and communities having rights in land?

This paper constitutes a review of recently published frameworks related to land administration and cadastral development. The underlying theories are explored and frameworks are identified as belonging to two general groups: those providing recommendations or guidelines, and those providing a hierarchical analysis that conforms to the general structure of evaluation frameworks. This latter category is further explored in terms of the motivations for development of the framework and three sub-groups are identified: those that address a gap in knowledge, those that address issues related specifically to developing contexts, and those with a pro-poor and good governance focus.

Finally key lessons are drawn from the reviewed publications. It is proposed that land administration systems should be developed in such a way that they can become successful, sustainable, and significant. To this end good leadership is seen as very important, as are public participation, the (temporary) adoption of fit-for-purpose standards, a focus on providing secure tenure, and good governance. The theoretical underpinning for development should be adaptation or unified theories, not formalisation or replacement theory.

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1 INTRODUCTION

Although there is an apparent lack of accepted frameworks and methodologies for the comparison and evaluation of national land administration systems (Williamson & Ting, 2001; Steudler, 2004; Chimhamhiwa et al., 2009), several frameworks for assessing the performance of land administration systems (LAS) in terms of different aspects of these systems have been proposed (see e.g.

Table 3). The bulk are biased towards analysis of technical, institutional, or cost/benefit aspects, or focus on economic efficiency and effectiveness (Nkwae, 2006; Ali, Zevenbergen & Tuladhar, 2013). There is a dearth of frameworks for evaluating the external impact of land administration and cadastral developments (Mitchell, Clarke & Baxter, 2008; Deininger & Feder, 2009), i.e. how do these developments affect citizens and communities having rights in land?

This paper constitutes a review of frameworks related to land administration and cadastral development that have been published over the last decade. We begin by describing evaluation frameworks generally. This is followed by an overview of pertinent theories in land administration reform and cadastral development. A description of the methodology applied when choosing frameworks for review follows. The frameworks are then briefly described in terms of their underlying motivation / purpose and key lessons are highlighted. These lessons may be used as guidelines for developing land administration systems that are successful, sustainable, and significant. It is proposed that success is contingent on meeting the system's originally intended purposes. Sustainability is the system's robustness and longevity. Significance is determined through the impact the system has on its beneficiaries, stakeholders, and the general public. This last factor addresses the shortcoming identified in the previous paragraph.

2 EVALUATION FRAMEWORKS

“There is no consensus among scientists or policy makers on what an evaluation plan or framework should look like” (Gonzalez Garibay & De Cuyper, 2013: 11). Drawing on several authors' definitions, two features of evaluations are identified (Ibid.). Firstly, an evaluation implies a normative decision or analysis about social facts or processes, and secondly, this normative decision is based on certain criteria. These criteria are defined in an evaluation framework. The purpose of the framework is to improve researcher objectivity and generate common ground by which a policy's success or failure can be judged (Ibid.), and to identify and measure indicators of success (Queensland Government, 2011). Evaluation frameworks can also be used to establish causal models and methodologies for testing the relationships between interacting elements that work together to achieve certain pre-determined goals (Reenstra-Bryant, 2010). The form of a particular evaluation framework will depend on the level at which it is applied (national, local, etc.), the purpose of the evaluation, the priorities of the policy, the available sources of information, the intended audience, and the types and significance of activities being evaluated (Queensland Government, 2011; Gonzalez Garibay & De Cuyper, 2013).

Some of the key elements of a good evaluation framework are (Queensland Government, 2011):

- uses a participatory process;
- describes the purpose of the evaluation;
- describes evaluation questions, *a priori* agreed performance criteria and indicators, and the type and method of data collection;

- clear timetable for implementation of evaluation;
- identification and understanding of unexpected outcomes;
- takes the political, cultural, and socio-economic context into account in evaluating the outcomes;
- has a plan for sharing the results of the evaluation.

3 IMPORTANT THEORETICAL CONSIDERATIONS

Land administration systems fall under the influence of land policy (Enemark, 2005), which is the “highest level in a land hierarchy” (Törhönen, 2004: 548). Land reform initiatives are dictated by land policy, which is itself informed by the underlying land reform theories. Hence the manner of land administration reform and the interplay between customary and formal tenure systems are influenced by higher level policy and theory. The tension between land registration programmes driven by land titling theory, and customary land tenure systems that rely on more social forms of land ownership, is a challenge for land administration reform (Burns et al., 2006). There are three main issues at stake (Arko-Adjei, 2011): whether tenure security should be provided through the provision of land titles (land titling theory) or alternative, unconventional approaches; whether existing land tenure systems should be integrated into the formal system (unified model), replaced with land ownership and formal land rights (market-based models), or secured using approaches that emphasise the existing social and economic structures (traditionalist theory); and whether land administration should vest in centralised state or decentralised local institutions.

Globally, land tenure information system (LTIS) research is dominated by **land titling theory** (LTT) (Barry & Roux, 2012), which proposes that “economic benefits are a likely outcome of land titling” (Ibid, 303): a land title provides security of tenure that can then be used as collateral for mortgage finance, stimulating economic development, and rapidly reducing poverty (Feder & Nishio, 1999; de Soto, 2000; Griffith-Charles, 2004; Steudler, Törhönen & Pieper, 2010). **Replacement theorists** embrace the ideas behind land titling theory and see individualisation, titling and registration as the means of solving land management and administration problems in Africa. They consider customary land tenure to be a hindrance to the development of land markets and modernisation of the economy, and propose to replace it with a ‘better-suited’ tenure system, namely individual private property rights. This is perceived to foster successful land development, increase credit opportunities, and promote the development of land markets (Platteau, 1996; de Soto, 2000; Nkwae, 2006).

LTT has its roots in the **Evolutionary Theory of Land Rights** (ETLR) a central tenet of which is that, “under the joint impact of increasing population pressure and market integration, land rights spontaneously evolve towards rising individualization and that this evolution eventually leads Rights-holders [*sic.*] to press for the creation of duly formalized property rights” (Platteau, 1996: 29). But Platteau (1996; 2000) clearly shows that these aims are not always achieved, especially with reference to Sub-Saharan Africa (see e.g. Akrofi, 2013). Platteau asserts that perhaps “the most delusive idea behind the ETLR is that land titling can be expected to increase land security for *all*

customary Rights-holders” (1996: 73, emphasis added) and calls such an assumption “naïve”. Whittal (2014: 17) concurs: “The assumptions underlying evolutionary land rights thinking require critique [because] change is not always unidirectional”. An approach based on LTT and the ETLR ignores the multi-functional, multi-generational view of land from an African perspective in which land forms the foundation of socio-economic, religious, and political systems (Okoth-Ogendo, 2002; Nkwae, 2006; Arko-Adjei, 2011; Akrofi & Whittal, 2013). The ETLR does reflect the idea that land tenure arrangements and practices are changing more or less autonomously under the pressure of growing scarcity of land, and that these changes are leading to increased individualisation of land tenure and increased transferability of land (Platteau, 1996; Arko-Adjei, 2011). But it fails at the point of formalisation and registration of private property rights in the context of sub-Saharan Africa (Platteau, 2000). In evaluating the impact of some property rights reforms projects, Conning and Deb (2007) concur that the benefits achieved in practice do not match up with theory (as proposed by e.g. de Soto, 2000). This theme is also taken up by Deininger and Feder (2009).

Some scholars have strongly criticised the introduction of land titling and registration in Africa, especially sub-Saharan Africa (see e.g. Platteau, 1996). They cite the failure of tenure reforms, using as evidence the increased marginalisation of the poor and vulnerable and their exploitation by the elite. By contrast, **traditionalist theory** sees customary tenure as providing sufficient tenure security because “land acts as a social, political and economic tie between kinship groups” (Nkwae, 2006: 39). Land titling programmes in these sorts of contexts fail because individualisation of land title breaks down the social structure of rural African communities (Ibid.). Locally-driven tenure models (Arko-Adjei, 2011) allow communities to decide which rights are important and should be recorded. Such a participatory approach is important because it creates a sense of ownership of the process of formalisation (Burns, 2006), as opposed to the top-down approach of the replacement theorists. It also allows for flexibility and the adoption of fit-for-purpose technology and standards (Johnson, 2008; Enemark, 2012) and low-cost tools to record land tenure information (Augustinus, Lemmen & van Oosterom, 2006; Lemmen, 2010; Zevenbergen et al., 2013). On the downside, this approach is criticised for being vulnerable to inequalities within communities and open to the abuse of power by chiefs and landlords (Arko-Adjei, 2011).

Using the premises of the ETLR, proponents of **adaptation theory** reject the criticism that indigenous tenure is a constraint to land development. They also reject land titling and registration programmes as the solution to the economic problems in Africa, but instead support an incremental approach to tenure reform that places relatively few demands on resources and institutional capacities (Arko-Adjei, 2011). The provision of individual titles is not entirely rejected, but is instead considered to be a long-term objective (Ibid.). This approach is criticised because it may merely increase the time taken and the number of steps involved to arrive at a ‘final’ result, which might only be a transitional solution (Arko-Adjei, 2011). Nonetheless, Nkwae (2006) concludes that adaptation theory is the most viable and practical option for land tenure reform in customary periurban environments.

“Unified tenure models build on the identified strengths of existing customary tenure by incorporating some non-conflicting elements of formal tenure concepts” (Arko-Adjei, 2011). They hence minimise the risk of losing the link to the traditional tenure system while promoting a kind of tenure that is still close to this. **Unified models** emphasise land use rights over individual ownership and explore innovative means of land administration that serve the needs of customary communities and investors alike (cf. van Asperen, 2014). They also promote democracy, human rights and gender equality. Yet there is difficulty in achieving the best balance between local and public regulations and this approach is open to contradictions and insecurities. Providing a clear legal framework that recognises local rights and restrictions without contradicting the statutory system, is difficult (Arko-Adjei, 2011). Modern tools, such as the Social Tenure Domain Model (Augustinus, Lemmen & van Oosterom, 2006; Lemmen, 2010), land information systems (Furuholt, Wahid & Sæbø, 2015), and other innovative land tools (van Asperen, 2014) are useful in this regard (Nkwae, 2006; Arko-Adjei, 2011), although the adoption of modern technology should be done with sufficient forethought and capacity building (Burns et al., 2006; Enemark & van der Molen, 2008).

These different theories are briefly presented here because the frameworks described in the following section all draw from them. Frameworks for land administration reform and cadastral development especially draw from replacement and land titling theories (e.g. Törhönen, 2004; Mitchell, Clarke & Baxter, 2008), though increasingly use is being made of traditionalist and adaptation theories (e.g. Arko-Adjei, 2011; Zevenbergen et al., 2013).

4 CHOOSING FRAMEWORKS TO REVIEW

Simbizi, Bennett & Zevenbergen (2014) have applied a rigorous and well-documented methodology in their choice of documents to review in their work on land tenure security in sub-Saharan Africa. They describe two processes of conceptual modelling: knowledge acquisition and model abstraction (Kotiadis & Robinson, 2008). Knowledge acquisition consists of problem definition, goal formulation, and selection of relevant elements of the system. These tasks were completed using a research synthesis methodology comprising five stages: problem formulation, literature search, data quality evaluation, analysis and interpretation, and presentation of results (Cooper, 1998). The literature search was done with respect to peer-reviewed articles, books, technical reports by large international organisations (Silva & Stubkjær, 2002), and national land policy documents. Searches were performed using online databases. The results were filtered to reflect only those sources with relevance to sub-Saharan Africa or developing countries in general. Documents from 1980 to 2012 were reviewed, 1980 being identified with the approximate introduction of the evolutionary theory of land rights (see Section 3). From the resultant body of work three schools of thought were identified (selection of relevant elements) and used to formulate a conceptual model as part of the model abstraction phase.

Drawing on the methodology described above, and with reference to Silva & Stubkjær (2002) and Çağdaş & Stubkjær (2009), the following methodology is followed for choosing frameworks for

inclusion in this research. The processes of knowledge acquisition and conceptual modelling are followed. Using the keywords¹ *framework AND "case study" AND cadastr* AND "land administration" AND (reform OR development)*, we interrogated Google Scholar, the Web of Science, ScienceDirect, Springer Link, and JSTOR for peer-reviewed journal articles, doctoral theses, conference proceedings, books, policy documents, and technical reports by large organisations such as FIG, UN, FAO and the World Bank. In order to draw on established experience while focussing on the latest (most relevant) research, we only searched for documents published since 2004, i.e. within the decade (Silva & Stubkjær, 2002) prior to the commencement of this research. The first 100 results returned per source, sorted according to relevance to the keywords, were then collated into a list of nearly 500 ‘hits’. By reading through the abstracts of each of these, this list was initially filtered down to 99 articles using the following criteria:

- Only publications involving the **development / assessment / testing of a framework / methodology / improvement**, preferably related to some aspect of land administration or cadstral systems research, are considered.
- Sources with **broad geographic scope** are considered (Silva & Stubkjær, 2002) in order to include diversity of frameworks.
- Notwithstanding the previous criterion, **preference is given to sources focussed on sub-Saharan Africa and related developing contexts** (Simbizi, Bennett & Zevenbergen, 2014) as this is the focus area for future research by the authors.
- Publications with a **high citation count** are preferred, though this criterion is not strictly enforced in order to make sure that the above three criteria are satisfied.
- The research design should *preferably* include or be based upon **case study** in order for the developed framework to be grounded in reality, though this criterion is not strictly applied so that appropriate theoretical frameworks are not excluded.

A more thorough analysis of the 99 articles was done and these were further filtered on the above listed criteria until only 20 remained as a more manageable number for initial review (Silva & Stubkjær, 2002; Çağdaş & Stubkjær, 2009; cf. Yilmaz, Çağdaş & Demir, 2015). They are listed in

¹ The * in *castr** is a wildcard intended to pick up both *cadastre* and *cadastral* and variants of these. One of the reviewers noted that *cadast** should have been used instead in order to include the variation in spelling of *cadaster*. This is gratefully noted for inclusion in future research.

Table 3. Data analysis is done in the spirit of the grounded theory approach to qualitative data analysis as described by Hull (2014), with reference to Allan (2003) and Johannessen & Hornbæk (2014), i.e. themes are allowed to emerge from the data rather than being imposed on the data, and data acquisition and analysis follows a cyclical process (Barry & Roux, 2013; Hull, 2014). In further research (not presented here) gaps in the existing frameworks are identified and further, specific searches are done for existing frameworks that might fill these gaps. This process is repeated until no further gaps / frameworks remain ('saturation' in the grounded theory parlance). The themes and remaining gaps (if any) are then used in the development of a conceptual framework / substantive theory.

5 IDENTIFIED FRAMEWORKS AND GUIDELINES

In this paper, 20 publications are reviewed (see

Table 3), most of which relate to the development and/or testing of evaluation frameworks. All but two of these (Kim, 2005; Emerson, Nabatchi & Balogh, 2012) relate directly to land administration. From this review it is noticed that frameworks for evaluating land administration systems (LAS) have broad commonalities and they seem to come in two general types. The first type, despite being referred to as a framework, does not conform to the description of an evaluation framework given in Section 2 and is more like a set of guidelines or recommendations for future development (Burns, 2006; Johnson, 2008; Deininger & Feder, 2009). Through analyses of literature and/or case study data, shortcomings in existing LAS are identified and targeted recommendations are made for their improvement.

The second type comprises distinct levels of evaluation – a hierarchy of analysis. Organisational levels / elements of LAS are expanded into goals / aspects which are evaluated by means of qualitative or quantitative indicators linked to benchmarks where feasible. The indicators and benchmarks are derived from extensive literature reviews and sometimes case study data as well. This second type conform to the general description of evaluative frameworks given in Section 2. As an example, Kim's (2005) sustainability evaluation framework follows this approach such that the identified themes are broken down into development goals and associated objectives. Objectives are evaluated in terms of indicators using five levels of progress towards sustainability. The indicators are all derived from a literature review of models and definitions of sustainable development. While this framework is not related to land administration and cadastral development per se, the overall structure of the derived framework is similar to others reviewed in this section. It is hence presented here as a 'type' of hierarchical analysis framework.

5.1 Guidelines

Recognising that land administration reform can take many decades to reach completion, a phased approach is suggested by Burns (2006). The pilot phase is noted as particularly important in developing efficient and effective procedures (Burns et al., 2006), building capacity (Enemark & van der Molen, 2008), and generating stakeholder support (Johnson, 2008). Burns (2006) identifies the following key lessons for successful pilots: commitment to reform, placing the emphasis on human resources (building capacity), recognising that technology is not a panacea (Furuholt, Wahid & Sæbø, 2015), adopting a client service orientation, fit-for-purpose standards (Enemark, 2012), influencing legislation (Kim, 2005), and recognising the importance of strong public support.

The themes of fit-for-purpose standards and generating (and securing) public support are taken up by Johnson (2008). Given that the "purpose of a cadastral system is to support sustainable socio-economic development" (Johnson, 2008: 4), and that this depends in part on appropriate and accessible land information, an innovative land registration system is adopted in parts of the Caribbean. This system builds on the experience of colonialism and brings together the best of the English and Torrens registration systems. Those jurisdictions with complete and sustainable cadastral systems use systematic, compulsory titling (drawing from **land titling theory**) and a model of land registration using up-to-date and consistent parcel index maps linked to public registers via unique parcel identification numbers. Additionally they have all benefitted from

external donor support in implementing the system. External support is helpful in overcoming the high cost of implementing formal cadastral systems. High costs discourage public participation. Costs can be substantially reduced by adopting a less rigorous, fit-for-purpose approach. “By relaxing the surveying requirements, people, particularly the poor, are not denied the opportunity to register their land and gain from any benefit that may flow from formally held title” (Ibid: 7), and the cadastral system theoretically meets the socio-economic obligation referred to at the beginning of this paragraph. Public support is again noted as essential for sustainable and up-to-date land registers, so in addition to reducing costs, on-going encouragement from the State (commitment to reform) is required for continued public participation (cf. Burns, 2006).

To ensure that the proposed socio-economic benefits of land registration are realised (as per **land titling theory**), governments are prompted to clearly define and enforce property rights, provide reliable land-related information (a complete and sustainable cadastre), and ensure cost-effective management of the outcomes of land registration (Deininger & Feder, 2009). Yet the reality does not always live up to the promise made by theory, as alluded to previously: even when governments perform these functions, tenure security may remain low or even decrease. Deininger and Feder state the main reason for this is the disparity between the idealised **land titling theory** and the complexity of reality. Bad governance plays a role, as does the cost-effectiveness and sustainability of LAS. The authors recommend low cost, fit-for-purpose surveying and mapping (cf. Burns, 2006; Johnson, 2008), combining the advantages of the formal and customary approaches (i.e. **unified theory** of land tenure reform), and responding to community needs flexibly as opposed to systematic formalisation of tenure (in contrast to Johnson, 2008). Finally, the authors caution against highlighting access to credit as the main outcome of formalisation programmes (de Soto, 2000), because this may lead to disappointment. Emphasis is placed on the need for good governance, which “is of overriding importance to ensure that clear property rights and institutions to administer them contribute to the desired socio-economic outcomes instead of providing a means to enable elites and officials to usurp the rights of the poor and socially weak groups” (Deininger & Feder, 2009: 257).

From the recommendations outlined above we see support both for formalisation theories (Burns, 2006; Johnson, 2008) and a unified approach (Deininger & Feder, 2009). Emphasis is placed on involving the community in the process of land administration reform, reducing costs through adopting fit-for-purpose standards, and maintaining a strong commitment to see the reform process through. Strong State leadership is crucial for generating public support in this regard (Kim (2005) refers to the need for a ‘project champion’). Good governance and context-specific innovation are also promoted as important for effective and sustainable land administration.

5.2 Hierarchical analysis frameworks

5.2.1 Motivation / purpose

Having interrogated all of the frameworks, three general, interrelated types of motivation are identified. Firstly, several frameworks have been developed in response to a gap in knowledge. While many of these frameworks also address land administration issues in developing contexts, the

second group of frameworks focus specifically on such issues. Some of these frameworks also address the disparity between theoretical and practical outcomes. Lastly, frameworks have been developed to promote pro-poor aspects and good governance, with acknowledgement that these issues are also addressed in the other two groupings. These three groupings are briefly presented below and summarised in Table 1.

Group 1: frameworks to address a gap

Stuedler (2004) notes the dearth of accepted frameworks and methodologies for comparing or evaluating national land administration systems, and hence develops such a framework and methodology, taking economic, social, and environmental issues into consideration. There is also a noted need for impact studies to gauge how well the equity, efficiency and sustainability goals of land administration are being met. Mitchell, Clarke & Baxter (2008) hence consider the objectives of land administration projects, their evaluation, and whether monitoring and evaluation effectively assess their success. These objectives are summarised as: a reduction in poverty, an increase in tenure security, improved governance, economic growth, and sustainable land management, which can all be amalgamated into the aim of improving the circumstances of the poor and hence improving their well-being. Within the context of sustainability, Kim (2005) notes that concerns are raised regarding public health, safety, community building, environmental protection, and public participation in decision-making. Yet there is little progress towards sustainable neighbourhood design. Hence Kim (2005) proposes a sustainability evaluation framework to assist and promote sustainable neighbourhood design.

Bandeira, Sumpsi, and Falconi (2010) identify two prominent international attempts to evaluate LAS: a World Bank and USAID commissioned comparative study (Burns et al., 2006) and the Cadastral Template project (Stuedler, Williamson & Rajabifard, 2003; Rajabifard et al., 2006). They note significant shortcomings in these two projects with regard to the definition of land administration used, the reliance on overly descriptive qualitative indicators, and the lack of suitable benchmarks for the quantitative indicators used. To address the shortcomings of the abovementioned projects, the authors propose a methodology for evaluating LAS in a way that identifies those aspects requiring improvement. Similarly the Land Governance Assessment Framework (LGAF) (Deininger, Selod & Burns, 2012) has been developed in response to the need to strengthen land governance and the rule of law (Burns et al., 2010). It is a diagnostic tool for evaluating the legal framework, policies and practices regarding land and its use, and hence allows the identification of areas for improvement. If used comparatively, the LGAF can also identify best practices for benchmarking. Identifying weak links between land administration components is also the function of the inter-agency integration assessment framework (Agunbiade, Rajabifard & Bennett, 2014), the primary goal of which is to evaluate the collaborative efforts across land administration functions and between different levels of government.

The comparative nature of existing frameworks for evaluation of LAS is a source of concern for Ali (2013). “Due to the distinct nature of the geographical, social, cultural, and economic conditions among different countries of the world, there is a need to develop a methodology for analysing the quality of an existing [LAS] within a country as a standalone exercise via a single case study” (Ali,

2013: 2). His framework applies total quality management (TQM) concepts to LAS. Yilmaz, Çağdaş & Demir (2015) note that, while many countries embark on land readjustment practices, there is no uniform means of evaluating their success. In response an evaluation framework is developed to systematically assess a country's land readjustment practices and hence to develop a set of good practice indicators as an objective basis for systematic evaluation and monitoring of land readjustment.

Group 2: frameworks addressing developing country issues

Törhönen (2004) notes that the assumed outcomes of formalisation through land registration programmes (**land titling theory**) are not often realised in developing countries (cf. Platteau, 1996). He hence develops a framework for sustainable land tenure and registration in developing countries. Land administration processes in developing countries are not the most efficient: lengthy and costly procedures inhibit the smooth operation of the land market. To address this problem and hence facilitate improved service of LAS, Chimhamhiwa et al. (2009) propose a multi-organisational approach to detect and assess challenges in land administration in developing countries. Through this framework, the authors aim to strike a balance between measures of external success and internal performance, taking cognisance of indicators of past and potential future successes.

Arko-Adjei (2011) recognises that land administration in peri-urban areas of developing countries is not meeting the needs of the population. His work focuses on the adaptation of land administration to existing local institutional frameworks of customary tenure (**adaptation theory**), with a focus on peri-urban areas. Additionally, in response to the challenges posed by rapid urbanisation in sub-Saharan Africa, van Asperen (2014) analyses various methods used to upgrade informal land to formal status, with a focus on the peri-urban context (cf. Arko-Adjei, 2011). He identifies the failure of authorities to provide tenure security for the peri-urban poor as a major constraint on peri-urban development. Conventional tools, such as land titling have failed to deliver in this regard (Platteau, 1996). As a result, innovative land tools are being developed. He hence develops an evaluative framework to assess and improve innovative land tools in order to ensure the provision of tenure security for the poor in peri-urban areas of sub-Saharan Africa. Lastly for this grouping, evaluations of the anticipated benefits of land administration (e-land administration) and cadastral developments (3D cadastral) form the motivation for Akingbade et al. (2012) and Griffith-Charles & Sutherland (2013) respectively.

Group 3: frameworks promoting pro-poor aspects and good governance

Participatory, collaborative governance is promoted by several authors as being crucial for effective and sustainable development (e.g. Burns, 2006; Johnson, 2008; Deininger & Feder, 2009). Despite the fact that “the notion of collaborative governance is attracting considerable attention as a new paradigm in public administration [and] is seen by many as the new way of doing the business of government” (Emerson, Nabatchi & Balogh, 2012: 23), there is a noted lack of clarity and consistency surrounding the term ‘collaborative governance’. The authors address this issue by developing an integrative framework for collaborative governance, drawing on existing frameworks, research findings, and experience. The framework is intended to be used by public managers and those involved in collaboration and conflict resolution, which implies its usefulness

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in land administration. It provides a means of navigating the various dimensions, components, and elements of collaborative governance. Participatory, collaborative governance also features prominently in the work of Zevenbergen et al. (2013). They introduce preliminary efforts towards the creation of a framework for pro-poor land administration. This affordable land recording system makes it possible for different types of land rights to be recorded and operates from a position of community-state co-management. Building capacity is important in this regard, and the International Federation of Surveyors (FIG) and the Food and Agriculture Organisation of the United Nations (FAO) propose a logical framework for assessing the capacity of LAS for developing and transition countries (Enemark & van der Molen, 2008). This is a tool for addressing the problem of poor institutional capacity of land administration agencies in developing and transition countries.

Table 1 Motivations for framework development

Citation	Addressing a gap in knowledge	Addressing developing country issues	Promoting pro-poor and good governance aspects
(Stuedler, 2004)	✓		
(Törhönen, 2004)		✓	
(Kim, 2005)	✓		
(Burns, 2006)			✓
(Enemark & van der Molen, 2008)			✓
(Mitchell, Clarke & Baxter, 2008)	✓		
(Johnson, 2008)			✓
(Deininger & Feder, 2009)			✓
(Chimhamhiwa et al., 2009)		✓	
(Bandeira, Sumpsi & Falconi, 2010)	✓		
(Burns et al., 2010)	✓		
(Arko-Adjei, 2011)		✓	
(Emerson, Nabatchi & Balogh, 2012)			✓

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Citation	Addressing a gap in knowledge	Addressing developing country issues	Promoting pro-poor and good governance aspects
(Akingbade et al., 2012)		✓	
(Griffith-Charles & Sutherland, 2013)		✓	
(Ali, 2013)	✓		
(Zevenbergen et al., 2013)			✓
(van Asperen, 2014)		✓	
(Agunbiade, Rajabifard & Bennett, 2014)	✓		
(Yilmaz, Çağdaş & Demir, 2015)	✓		

5.2.2 Key lessons

Space does not permit the summary of all twenty of the reviewed publications, so the key lessons are presented here as a concise, overall summary. This is an initial step towards the identification of factors to be considered in the development of a framework for assessing the impact of land administration reform / cadastral development on land rights-holders.

Emerson, Nabatchi & Balogh (2012) identify **leadership** as an essential driver of collaborative governance. Burns (2006) noted that leadership is essential for ensuring sustained commitment to land reform processes and for promoting continued public participation in the process. Kim (2005) attests to the need for an independent ‘project champion’ to promote sustainable integrated project management and avoid / resolve conflicts between parties involved in development projects. A lot of the basis for successful implementation of the LGAF and derivation of meaningful results therefrom rides on the experience and skill of the ‘country coordinator’ (Burns et al., 2010). From these examples we learn that successful, sustainable, and significant land administration reform requires a single, strong, State-supported leader who is able to facilitate collaborative governance between the government and the community. **Public participation** is identified as important in most of the frameworks. For land administration reform that takes the needs of land rights-holders into account, a participatory process is required. Participation should be encouraged at every stage of the development project, from the establishment of goals, objectives and outcomes, through project implementation, to the evaluation of the success of the project in terms of the established goals, objectives and outcomes (Queensland Government, 2011).

The “approach used for building land administration systems in less developed countries should be flexible and focused on citizens’ needs, such as providing security of tenure and control of land use, rather than focusing on top-end technical solutions and high accuracy surveys” (de Zeeuw & Lemmen, 2015: 10). The **fit-for-purpose** theme featured prominently in the publications reviewed. Steudler (2004) used the term *suitable to circumstances*, which is equivalent. Although this term is ill-defined and open to interpretation, adherence to this principle will avoid the danger of having systems in place that do not meet the needs of the people they are supposed to serve. The danger lies in not adequately defining what constitutes *suitability* for a given context and hence leaving the evaluation of this aspect open to interpretation. The difficulty is that *suitability* cannot be generically defined because it is specific to the local social, economic, and political context (Steudler, 2004).

In recognising that technology is not a panacea, Burns (2006) and Johnson (2008) advocate for fit-for-purpose accuracy. This also reduces costs and hence promotes public acceptance and participation (Deininger & Feder, 2009). The use of cadastral index mapping (Zevenbergen et al., 2013) using remote sensing (Johnson, 2008) is recommended over cadastral land surveying. Following **adaptation theory** (Section 3), it is our view that fit-for-purpose solutions should be gradually improved as the ‘fitness’ of the context for land administration increases (Hull & Whittal, 2013). The ultimate goal should be nationwide, survey accurate boundaries, because these offer the best security and the least opportunity for dispute. While embracing the need for fit-for-purpose standards and technology in the early stages of cadastral development, we must not lose sight of the ultimate goal: a survey-accurate, e-cadastral system (Ibid.) to be implemented when the context is ‘fit’ enough.

The provision of **secure land tenure** is an underlying motivation for most of the frameworks (e.g. Mitchell, Clarke & Baxter, 2008; Arko-Adjei, 2011; van Asperen, 2014). To this end, publications tend to advocate adaptation and unified models of land tenure reform over land titling and replacement theories. Törhönen (2004) cautions that imposing statutory tenure on situations where customary tenure regimes dominate may result in multi-layer tenure systems without clear rules. Burns (2006) stresses the need to recognise informal and customary tenure systems. In addition to low-cost, fit-for-purpose surveying and mapping, Deininger and Feder (2009) suggest combining the advantages of the formal and customary approaches, and responding to community needs flexibly as opposed to systematic formalisation of tenure. Arko-Adjei (2011) acknowledges a paradigm shift in research into securing tenure in customary areas. This shift is from formalisation strategies based on economic and market-led approaches to the integration of informal and customary rights into land administration. The evidence from the foregoing is in favour of ensuring the tenure security for all land rights-holders, including the poor and vulnerable, through recognition and accommodation of customary systems in formal land administration processes. The **adaptation or unified theories** are hence supported over land titling and replacement theories.

Linked to tenure security is **good land governance**, which also features prominently. Hull & Whittal (2013) have identified aspects of good governance that relate to land administration, and these aspects are repeated in most of the frameworks. The principles of good governance can be fostered through the shift towards e-government and the development of e-governance in an attempt to curb / avoid problems of corruption and other data vulnerability issues (Hull & Whittal, 2013). But the adoption of new technology is not a panacea and should be done appropriately for the context of development of the cadastral and land administration system (Furuholt, Wahid & Sæbø, 2015). Users and rights-holders in developing contexts might be disadvantaged by systems that rely heavily on the latest ICT. To ensure a move towards good land governance, the idea of democratic land governance is put forward by Borrás and Franco (2010). This model links governance to the human rights-based approach to development (Jonsson, 2003; Cornwall & Nyamu-Musembi, 2004; Uvin, 2007) by promoting citizen engagement (bottom-up) along with government obligations (top-down) in an accountable and transparent, democratic environment. Essentially, successful, sustainable, and significant land administration requires good land governance with cognisance of

human rights issues to ensure that land administration programmes benefit society (Zevenbergen et al., 2013; Enemark, Hvingel & Galland, 2014).

6 ONCLUSION: SUCCESSFUL, SUSTAINABLE, AND SIGNIFICANT LAND ADMINISTRATION

In this paper we have reviewed some theories underlying land administration reform. We have also reviewed several frameworks related to evaluation and land administration. The motivations behind these frameworks are generally described as addressing a gap in knowledge, with specific foci on issues related to developing contexts and good governance to alleviate poverty. Some key lessons are derived from the review, which should inform land administration and cadastral development in terms of success, sustainability, and significance. These are summarised in Table 2.

Table 2 Key lessons for Successful, Sustainable, Significant land administration

Key lessons	Successful	Sustainable	Significant
Strong leadership	✓	✓	✓
Participatory process	✓	✓	✓
Improving tenure security	✓		✓
Fit-for-purpose standards	✓	✓	
Adaptation / unified theory as basis	✓	✓	✓
Good land governance	✓	✓	✓

Successful land administration systems meet their intended goals, targets, and outcomes. **Sustainable** land administration systems do this without fail, for as long as is needed, and may need to adapt over time in order to continue to meet changing needs. **Significant** land administration systems yield positive impacts for beneficiaries, stakeholders, and the general public. Achieving these three goals requires strong leadership for collaborative governance, commitment to reform, and to foster public support and engagement in the programme. Public participation is also crucial, especially if the goal of significance is going to be met. Without public engagement, land administration reform projects may have positive internal significance only and may yield unintended negative consequences for the public. The underlying driver for cadastral development and land administration reform should be to improve tenure security for all land rights-holders. Using fit-for-purpose technology and standards is an acknowledged and accepted means of achieving this, but it should be seen as a means to an end. The benefit of survey accurate cadastres should not be forgotten and cadastral index maps should only be used until such time as the systems and capacity are in place for these to be upgraded. The theoretical basis for development should no longer be that of land titling, formalisation, or replacement theories. Further investigation into the benefits of traditionalist, adaptation and unified theories needs to take place, with these forming the basis for future evaluation frameworks. Finally, success, sustainability, and significance can only be realised in the context of good land governance that promotes citizen engagement while recognising the State's obligations in an accountable, transparent, democratic environment.

With these initial conclusions in mind, further work is proposed as described at the end of Section 4, with specific focus on the different types of indicators used in the reviewed frameworks.

Table 3 Chosen frameworks compared to inclusion criteria

Citation	Abbreviated Title	Type	Scope	Citations / year ²	Case study area/s
(Stuedler, 2004)	A framework for the evaluation of land administration systems	Framework	Global	3.9	Switzerland, Sweden, Latvia, Lithuania
(Törhönen, 2004)	Sustainable land tenure and land registration in developing countries	Framework	Developing	1.8	Cambodia, Finland, Zanzibar and Zimbabwe
(Kim, 2005)	Towards sustainable neighbourhood design	Framework	Global	0.9	England
(Burns, 2006)	International experience with land administration projects	Guidelines	Global	0.7	India
(Enemark & van der Molen, 2008)	Capacity assessment in land administration	Framework	Developing	0.8	None
(Mitchell, Clarke & Baxter, 2008)	Evaluating land administration projects in developing countries	Framework	Developing	3.5	Ghana, Indonesia, and Laos
(Johnson, 2008)	Building the cadastral framework	Guidelines	Developing	0.4	English-speaking Caribbean
(Deininger & Feder, 2009)	Land Registration, Governance, and Development	Guidelines	Global	16.1	None
(Chimhamhiwa et al., 2009)	Towards a framework for measuring end to end performance of land administration business processes	Framework	Developing	2.1	South Africa, Namibia, Zimbabwe
(Bandeira, Sumpsi & Falconi, 2010)	Evaluating land administration systems	Framework	Developing	3.3	Peru, Honduras
(Burns et al., 2010)	Implementing the land governance assessment framework	Framework	Global	1.5	Peru, Ethiopia, Kyrgyzstan, Tanzania
(Arko-Adjei, 2011)	Adapting land administration to the institutional framework of customary tenure	Framework	Developing	2.6	Ghana
(Emerson, Nabatchi & Balogh, 2012)	An Integrative Framework for Collaborative Governance	Framework	Global	68.8	None
(Akingbade et al., 2012)	The impact of electronic land administration on urban housing development	Framework	Developing	1.0	Nigeria
(Griffith-Charles & Sutherland, 2013)	Analysing the costs and benefits of 3D cadastres	Framework	Developing	0.7	Trinidad and Tobago
(Ali, 2013)	Developing a framework to apply total quality management concepts to land administration	Framework	Developing	0.7	Pakistan
(Zevenbergen et al., 2013)	Pro-poor land administration	Framework	Developing	4.7	None
(van Asperen, 2014)	Evaluation of innovative land tools in sub-Saharan Africa	Framework	Developing	0.5	Namibia, Zambia, Botswana
(Agunbiade, Rajabifard & Bennett, 2014)	Land administration for housing production	Framework	Global	1.0	Australia, Nigeria
(Yilmaz, Çağdaş & Demir, 2015)	An evaluation framework for land readjustment practices	Framework	Developing	0.0	None

² Based on Google Scholar statistics gathered during August 2015.

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