A Conceptual Framework, Model, and Continuum of Legal Pluralism in Land Administration

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SUMMARY

Our conceptual framework, model and continuum, derived from Nigerian experiences, is a practical and actionable tool for enhancing legal pluralism in land administration systems, measuring land tenure security and the continuum of understanding of legal pluralism theories and practices. Grounded in soft systems theory, it provides a profound understanding of complex situations and aids in diagnosing ill-structured problems. Combined with land administration theory, it determines responsibleness and fitness-for-purpose. By applying this robust and sustainable framework, we can design and manage land administration systems, ensuring their relevance and usefulness over the long term. The framework is derived from an analysis of Land Administration Systems in Ekiti State using a case study research strategy, Soft Systems Methodology, Responsible Land Management, and Fit-For-Purpose Land Administration. Also, institutional isomorphism theory was used to determine the conflicting pressure exerted on the customary legal framework, comprising the customary courts and the Customary Court of Appeal of a State. Combining qualitative and quantitative techniques, primary and secondary data were collected using three peri-urban cases from Ekiti State, Nigeria (Ikere-Ekiti, Ijero-Ekiti, and Oye-Ekiti). A legal pluralism lens informed the study which resulted in the development of a conceptual framework and a model. The three peri-urban areas show a range of expressions of legal pluralism in LASs. The framework is practical and straightforward to implement. This paper is helpful for those interested in LAS development in the context of LAS reform in Africa and the developing world. Policymakers, academics, and government officials involved in policy formulation would benefit from using the conceptual framework and the model because the purpose is to influence LAS reform to incorporate jurisdiction, legitimacy, and collaboration.

List of Abbreviations

CCAS	Customary Court of Appeal of a State
FFPLA	Fit-For-Purpose Land Administration
LASs	Land Administration Systems
LEAP	Legal Entity Assessment Project
MHUD	Ministry of Housing and Urban Development
NCLRM	New Continuum of Land Rights Model
NSJS	Non-State Justice Systems
RLM	Responsible Land Management
SSM	Soft Systems Methodology
SERVICOM	The Service Compact with all Nigerians

1 Introduction

1.1 Land Administration Systems

Land administration systems (LASs) control the interaction between humans and the land (Fisher and Whittal, 2020). They support the core functions of land governance safeguarding land tenure, generating revenue from property taxes, regulating and planning future development, preserving and sustainably managing the natural environment, and maintaining cultural artefacts (Fisher and Whittal, 2020). The core objectives of LAS reform are to enhance the security of land tenure, support land and property taxation, provide the security of credit, develop and monitor land markets, protect land resources, support environmental monitoring, facilitate the management of state-owned lands, and reduce land disputes (Bruce 2014). LAS reform can help improve the tenure security of the poor, the vulnerable, and peri-urban farmers.

Diversity of choice of LASs allows the LAS to achieve its full potential to improve livelihoods, agricultural development, and social stability (Zhou, Li and Liu, 2020). LAS should respect, recognise and record land rights of peri-urban farmers, the vulnerable, and women, which is challenging with African customary law (Babalola et al. 2023b). Many countries prioritise LAS reform in recent reform agendas (Bruce, 2014). However, the urgency of this reform is underscored by the fact that although multiple legal systems may be recognised in legislation and policy, one dominates. The failure of the post-colonial LAS reform is exacerbated by the failure of land policies to recognise multiple legal systems as equal. Despite operating for over four decades in Nigeria, the LASs are ineffective and inefficient because of the conflict between customary and statutory laws, tenure, and administration systems (Babalola et al. 2023a; Babalola et al. 2024). The people's needs are not addressed due to dysfunctional land administration (Babalola, 2023). In a post-colonial constitutional state, the hierarchy between the state and non-state actors and legal systems is used to argue against the necessity of legal pluralism in land administration.

1.2 Legal Pluralism

Legal pluralism is a state or system in which two or more states, groups, principles, or sources of authority coexist. At the same time, individual entities exhibit a degree of autonomy and self-determination in which state control is not absolute (Babalola *et al.*, 2022). Some say that there is no legal pluralism in land administration because statutory laws suppress customary law (Westermark, 1986; Phiri, 2022; Babalola, et al. 2022). Others state that all legal regimes are plural (Sack and Minchin, 1986; Tamanaha, 2007; 2008; Griffiths, 2004). In sub-Saharan Africa (SSA), legal pluralism is a normative concept sustained by non-western law contexts, essential in the instrumentality of law and legal institutions and processes (Gebeye, 2019). Statutory legal reform that begins with constitutional reform requires the recognition of legal pluralism (Schmid, 2001; Berman, 2007).

Managing legal pluralism in land administration is crucial to achieving balance and harmony. The current understanding of the management of legal pluralism means the way the legal system treats the existence of one or more legal systems in the same territory with the same people and concerning the same matters (Otis and Thériault, 2023). It refers to the approach one legal

system uses to determine the consequences of one or more additional legal systems through articulation or adaptation (ibid). Articulation is simply acknowledging the existence of an alternative legal system by the managing system with some relative legal effect given to the alternative legal system. Adaptation is when the managing system adapts and transforms without recognising the reference system as a separate and binding legal source of principles, rules or processes. An example of articulation is when a state imposes sanctions on those applying or enforcing a non-state legal system. In this regard, a non-state (alternative) land justice system is repressed by making it illegal to deal with land cases. Thus, the existence of the alternative system is acknowledged through the creation of criminal and prohibitive consequences intended to extinguish the validity of the alternative system. An example of adaptation is the development of statutory law inspired by the alternative legal system, but without overt reference to it or acknowledging its existence, The result is that judicial decisions apply statutory law inspired and modified by customary law, but they do not apply customary law directly. Both articulation and adaptation do not give alternative normative legal systems their rightful place. The thinking behind developing the conceptual framework for enhancing legal pluralism is to extend or modify the management process of legal pluralism beyond articulation or adaptation. The managing system should give equal weight to all forms of alternative normative legal systems (ibid).

In SSA, long-lasting, successful and significant LASs require the 'enhancement' of legal pluralism in practice (Babalola, et al. 2022; Babalola, et al. 2023a; Babalola, et al. 2023b). Woodman (1998) identified forms of legal pluralism as falling somewhere along a continuum between weak legal pluralism and deep legal pluralism. Week legal pluralism implies that a sovereign or statutory law recognises alternative normative legal systems as bodies of law and it is only through this recognition that they are understood to be part of the legal system. Deep legal pluralism acknowledges that other legal systems are equally legitimate to official state law and independent of state approval (Woodman, 1998). By 'enhancing' legal pluralism, we mean finding a state of balance and harmony between weak and deep legal pluralism (Babalola, 2023). Allowing for a balance or harmony in land law, tenure, and administration, people and communities may choose the legal system that benefits them. When benefits are derived from a LAS, it is significant to the people – they will then use the system - and success can be measured.

Several frameworks and continuums exist to assess, analyse and conceptualise a LAS. Such frameworks and continuums usually combine systems thinking and systems concepts. Systems thinking treats the LAS as a whole with properties of the whole being more than the properties of the parts of the LAS. It is a suitable approach in complex contexts, such as plural legal ones. In addition, it is imperative to understand the management of legal pluralism in LASs. It is instructive to understand the factors impeding the achievement of LAS and legal pluralism objectives. This may help identify whether intervention is needed in land administration and management functions.

1.3 The Emergence of a New Continuum of Land Rights Model

Traditional aspects of societies become eroded in the movement of people from rural and peri-urban areas to more urban areas (Coetzee, 2001a; 2001b). This movement is in line with

modernisation theory which is understood to be in a trajectory in as much as development conditions are favourable (ibid). Related research is dominated by the development agenda (Coetzee, 2001a). Theoretical constructs in the land tenure domain reflect an evolutionary approach to understanding the human-to-land relationship that is in support of the underlying theory of modernisation and development (Ting and Williamson, 1999; Barry and Roux, 2012). Despite several critiques, it has endured (Tan, 1999). Evolutionism is "A theory which proposes that long-term social change happens in stages, that it is linear, gradual and irreversible, and that it is progressive" (Le Roux and Graaff, 2001: 46).

The continuum of the Land Rights model (Figure 1) of the UN-Habitat is underscored by the evolutionism theory which depicts a trajectory from a perceived tenure approach to a registered freehold on a continuum from informal to formal land rights (UN-Habitat, 2008). Several critiques of this model have led to the development of a new model by the Legal Entity Assessment Project (LEAP). Using two arrows on a linear scale moving from a more formal to a more informal tenure type the LEAP developed a model to measure land tenure security which is criticised for the multifaceted nature of land tenure (Cousins et al. 2005). Also, formal vs informal and legal vs illegal practices emerged from the critiques (Royston, 2007, Kihato et al. 2012). The monitoring of land tenure security should go beyond "formal vs informal or ownership vs renting" (Sietchiping et al. 2012: 16). A new land tenure model? was advocated to reflect the complexity and heterogeneous rules, procedures etc (Royston, 2005).

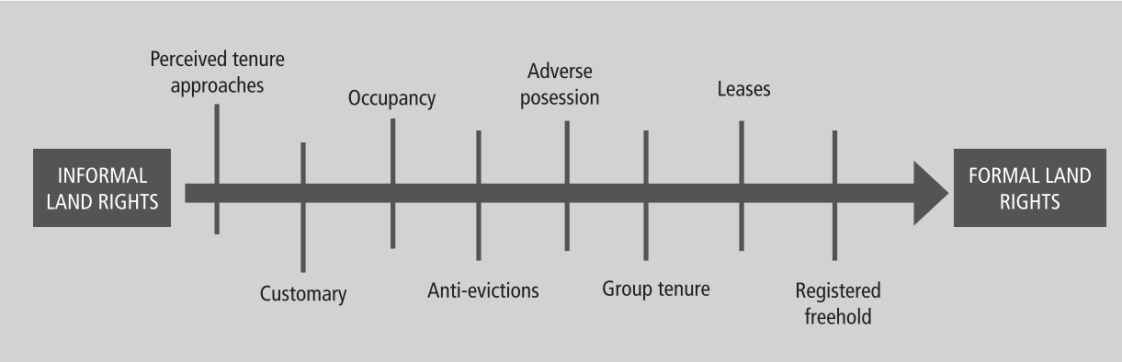

Figure 1. The Continuum of Land Rights (UN-HABITAT and GLTN, 2011: 7)

Figure 2. LEAP Continuum of Land Rights Model (adapted from Whittal, 2014, p. 15 with ref. to Royston 2005 and 2012).

Previous researchers identified various modes of measuring land tenure security. Legitimacy, legality, and collaboration are important social network perceptions of tenure security (Cousins et al. 2005; Royston, 2012; Whittal, 2014; Babalola et al. 2023a). Eurocentric approach to tenure security tends to reflect in the linear continuum of land rights which Rakai (2005) warns against but promotes tenure duality, pluralism and the notion of continuum as desirable. The desirability must be a neutral land tenure framework that can transcend worldviews, values concepts, goals and institutions (ibid). Kihato and Royston (2013) also advocated for pluralism.

The inability of the continuum of land rights to accommodate movement in both directions and diversity in land tenure types prompted Whittal (2014) to develop a New Continuum of Land Rights Model (NCLRM). This measures tenure security using land tenure indicators of legitimacy, legality, and certainty along the vertical axis while land rights are mapped along the horizontal axis. The land rights indicate the simplicity and complexity of land value (Figure 3). Different land rights holders moving to land with different types of rights are represented by mobility while flexibility is used to describe the change in land rights over a particular land parcel. The NCLRM has been tested in South Africa and Nigeria in rural and legally plural contexts (Whittal and Rikhotso, 2016; Babalola and Hull, 2019). The modelling in Giyani and Itaji-Ekiti provides an in-depth understanding of the land rights types and tenure situation. While the three land tenure indicators were successfully represented in Giyani certainty was an issue in Itaji-Ekiti as bad land governance resulted in land tenure insecurity (ibid).

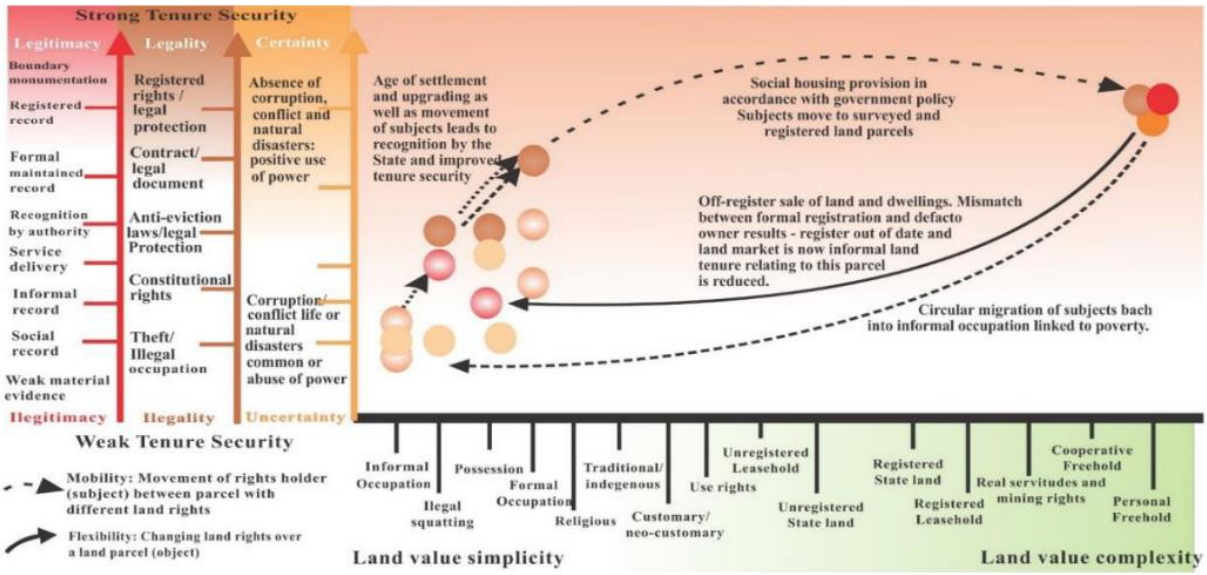

Figure 3. The New Continuum of Land Rights Model (Whittal, 2014: 23)

This article develops a conceptual framework and model to enhance legal pluralism in LASs, and to provide more understanding of the continuum of legal pluralism using empirical research in post-colonial Nigeria. The first objective is to assess legal pluralism in LASs in Ekiti State using the continuum of weak to deep legal pluralism. The second objective is to develop conceptual tools for enhancing legal pluralism in LASs.

The development of the conceptual tool is based on RLM, Soft Systems Methodology (SSM), FFPLA and institutional isomorphism theory. The findings from the first three are published (see Babalola et al. 2023a; 2024; 2025) while the institutional isomorphism theory is undergoing peer review. These findings are used in the development of the conceptual framework and model. Thus, we present a conceptual framework and model that frames the management of legal pluralism in LAS from a different perspective.

The rest of the article is structured as follows: Section 2 discusses legal pluralism in land administration. The methodology is presented in Section 3. Peri-urban land administration in Ekiti State is analysed in Section 4 using the eight Indicators of RLM. Section 5 presented the developed conceptual framework for enhancing legal pluralism in land administration systems in Ekiti State. The advancement of legal pluralism and measurement of tenure security is presented in Section 6. The article's conclusion is presented in Section 7.

2 Legal Pluralism and Administration of Land

Before colonisation in the 18th century, indigenous laws prevailed and applied in land administration (Ndulo, 2011). Different customs and traditions co-existed, hence customary law was not homogeneous and legal pluralism was already evident. This is often ignored, with the coexistence of statutory and neo-customary rules dominating the discourse in SSA

(Babalola, 2023). Statute law was introduced in the colonial period and thus reflects Western legal constructs. Neo-customary law developed from customary law (ibid) but it is acknowledged that neither body of law are independent of the other. The nature of legal pluralism in Nigeria thus falls along the continuum between deep legal pluralism and weak, state-centred legal pluralism (Woodman, 2011). This coexistence of weak and deep legal pluralism is the "manifestation of the unity of legal systems and the plurality of laws in Africa" (Gebeye, 2017: 228). Weak legal pluralism is an indication of some level of recognition of alternative legal systems and attempts by the State to manage legal pluralism through articulation, while the concomitant existence of deep legal pluralism (largely ignoring state laws and processes) shows the real-world limitations of the State's capacity to transfer and enforce their laws throughout their area of jurisdiction (Gebeye, 2017). Presently, in Nigeria, there are primary and secondary sources of law. Primary sources of law are the Constitution, customary law, Nigerian legislation (statutes, Ordinances, decrees, bylaws, and edicts), the received English law (common law), Islamic law, judicial precedents, and international law. Secondary sources of law serve as supplementary authorities to clarify primary sources of law. These include materials produced by lawyers in practice and academia and other documents that critique the Constitution, statutes, and judicial precedents. Despite 65 years of independence, Nigerians perceive that the legal system has not changed much more than it has since independence. It is still underscored by same legal and political logic of its colonial predecessor. Respect for and recording land rights remained the same as during the colonial era.

Swenson has categorised different forms of legal pluralism. These can be interpreted in land administration systems as well. They are combative, competitive, cooperative, and complementary (Swenson, 2018). In combative legal pluralism, the alternative normative legal system rejects the official state system of land administration in a non-violent manner (ibid). Both systems may attempt "explicitly to undermine, discredit, supplant, and ideally destroy the other" *(ibid*.: 443). For example, traditional institutions established community policing and security organisations to combat herders in Southwest Nigeria who are forcibly occupying land for grazing, operating in tandem with their counterparts in the State. In nations experiencing insurgencies or separatist movements, combative legal pluralism is prevalent, and alternative normative legal systems have been employed to administer justice in several campaigns (Kasfir and Mampily, 2015). Additionally, combative legal pluralism flourishes in state-building following a conflict (Swenson, 2018).

Non-state actors retained some autonomy in land administration in competitive legal pluralism while not challenging the state's overarching authority. This is often evident in developing and post-conflict countries. Where there is a conflict of ownership in areas in which the jurisdiction of the state is poorly executed, the state may exercise control indirectly through customary leaders who maintain autonomy in the jurisdiction without recourse to state officials or processes (Migdal, 1988). According to Tamanaha (2008), the characteristic of competitive legal pluralism is that the variety of legal standards causes significant conflicts between state and non-state legal systems. Since non-state actors do not replace state power, the state's official judicial authority does not feel threatened despite the ambiguity. To give alternative normative legal systems some degree of autonomy, there is mutual recognition of each other's rights to coexist (Baker and Scheye, 2007).

The alternative normative legal system retains significant autonomy and authority in situations of cooperative legal pluralism. It is willing to accept the state's normative legitimacy for the common benefit of the people. State actors may undermine the alternative normative legal system causing frequent clashes between customary and state actors. However, non-state actors do not undermine official state law. When democratic governance is based on the rule of law, cooperative legal pluralism thrives. Neither democracy nor the rule of law facilitates cooperative relationships between state and non-state actors (Swenson, 2018). Collaboration between both systems is purely relational and lacks substance (ibid.). Both state and non-state entities can violate human rights and oppress persons or certain groups that face systematic discrimination (Swenson, 2018).

Complementary legal pluralism occurs in a state with a high capacity and an effective legal system. Non-state actors are responsible to the state with processes and responsibilities well-defined. Two key features of complementary legal pluralism are its legitimacy to enforce law and the accepted rule of law (MacGinty, 2008). Settlement of some civil cases is allowed outside the court before the disputant is allowed access to court (Stipanowich, 2004). There are still substantive and procedural clashes when applying state and non-state laws despite all the alternative ways of resolving disputes. Alternative Dispute Resolution is defined as systems, processes, and strategies created to supplement the current dispute resolution procedures with quicker and more efficient ones (van der Bank and van der Bank, 2017). Although there may be violations of state law and the legal system during arbitration agreements, the severity of these violations varies according to state authorities' preferences. The natural and perceived "inefficiencies and injustices by the traditional court open the channel for Alternative Dispute Resolution processes" (Edwards, 1986: 668). From the governance standpoint, there is complementarity because there is an alternate method of settling the conflict outside of the official judicial system. Cooperative and complementary legal pluralism share several characteristics, except the NSJS players are not required to oppose state choices under complementary legal pluralism since they are subject to state power without significant autonomy. The requirements of the rule of law may only be upheld by complementary legal diversity (Carothers, 1998). In legal pluralism, the relationship between state and non-state justice is complementarity.

Different approaches to incorporating the non-state justice sector are bridging, harmonisation, incorporation, subsidisation, and repression (Swenson, 2018). In the bridging approach, there is a continuous demand for state justice which undermines the authority and autonomy of non-state leaders. Using state law, participants' preference, and venue appropriateness state authorities allocate cases between the state justice system and NSJS. Under the bridging approach, serious crimes like murder, rape and theft are resolved in state courts while civil matters are left to NSJS. The populace is helped with access and understanding of the state legal system by providing legal aid to assist citizens in accessing the courts. This strategy is useful in competitive and cooperative legal pluralistic environments.

The harmonisation approach allows the streamlining of NSJS to have an output in line with the state system's values by incorporating and legitimising NSJS to some extent (Swenson, 2018). NSJS practitioners act activities are funded by international donors and the state and are in line

with the state law. To the state actors, it is believed that the non-state actors maintain an important level of autonomy, authority, and independent legitimacy. Differences in the adjudication process are accepted unlike trying to make the NSJS act like the state justice system. Campbell and Swenson (2016) point out that state law and not accepted norms and practices are used by judicial actors to discriminate against women. The ability of the state to offer a valid dispute resolution process is essential for a successful harmonisation strategy (Swenson, 2018), and this usually takes place in cooperative and competitive legal contexts (ibid.).

NSJS decisions are regulated before they are endorsed under the incorporation strategies with the distinction between the state and NSJS removed from the state's perspective (Swenson, 2018). The creation of a customary court with state support and regulation is an indication of incorporation strategies. It allows appeals from non-state courts to state courts by ratifying the decisions of the non-state courts. Independence and jurisdiction of non-state actors are limited by imposing authority over non-state actors. A new non-state law is created when the state uses codification of customary law. The success of the incorporation strategy depends on the state's capacity to force non-state judicial actors to cooperate. This dynamism is likely to occur in competitive and cooperative settings but unlikely in combative ones.

The non-state system is excluded, but "the state system receives assistance to increase its capacity, performance, and appeal relative to the non-state system" (Swenson, 2018: 448). Subsidisation occurs across sectors "legislative reform, capacity building, and establishing physical infrastructure" (ibid.), used by the justice sectors, supporting symbolic representation, and promoting public engagement" (Swenson, 2018: 457). Unlike harmonisation, bridging, and incorporation where non-state judicial actors are actively involved the non-state judicial actors are not required in subsidisation strategies. The main tasks of subsidisation strategies are how law, courts, and judges are constructed and the enforcement mechanism provided (Fukuyama, 2004). This strategy can be implemented in any environment whether competitive, combative, or cooperative legal pluralism. It is common in post-conflict settings and the building of state judiciaries. The relationship between the state and non-state judicial systems is impacted because subsidisation enhances state justice, legitimacy, and efficacy (Swenson, 2018).

The repression strategy allows the state mandate to be enforced by outlawing the NSJS (Forsyth, 2009). The state is predominant where the state can prohibit the NSJS. There is repression when an effort is made to undermine and eliminate the non-state actors by eradicating the non-state actors. The violence by non-state actors may also result in state repression efforts. Constructive engagement is lacking in the repression approach unlike the incorporation, harmonisation, and bridging practises. The authority and effectiveness of the state justice system are ensured and protected from external attacks. Repression may be helpful when non-state judicial actors threaten the state, especially during an insurgency. The monopoly of one single legal system is not sustainable. Hence using repression alone may not be sufficient (Beetham, 2013).

3 Methodology: RLM, SSM, Institutional isomorphism, and FFPLA

A case study approach in peri-urban Ekiti State, Nigeria, underpins this research. This area was chosen since the first author had schooled and worked for several years, which immerses him in the rapidly changing situation of LASs. Three peri-urban areas of Ikere-Ekiti, Ijero-Ekiti, and Oye-Ekiti (Figure 4) were selected for data collection using the purposeful selection method. The selection criteria are published in Babalola et al. (2023a, 2024, 2025). Central to these criteria is the high demand for land for residential and commercial purposes, leading to the loss of agricultural land, which impacts subsistence farmers and affects the livelihood of the peri-urban dwellers (Babalola, 2023).

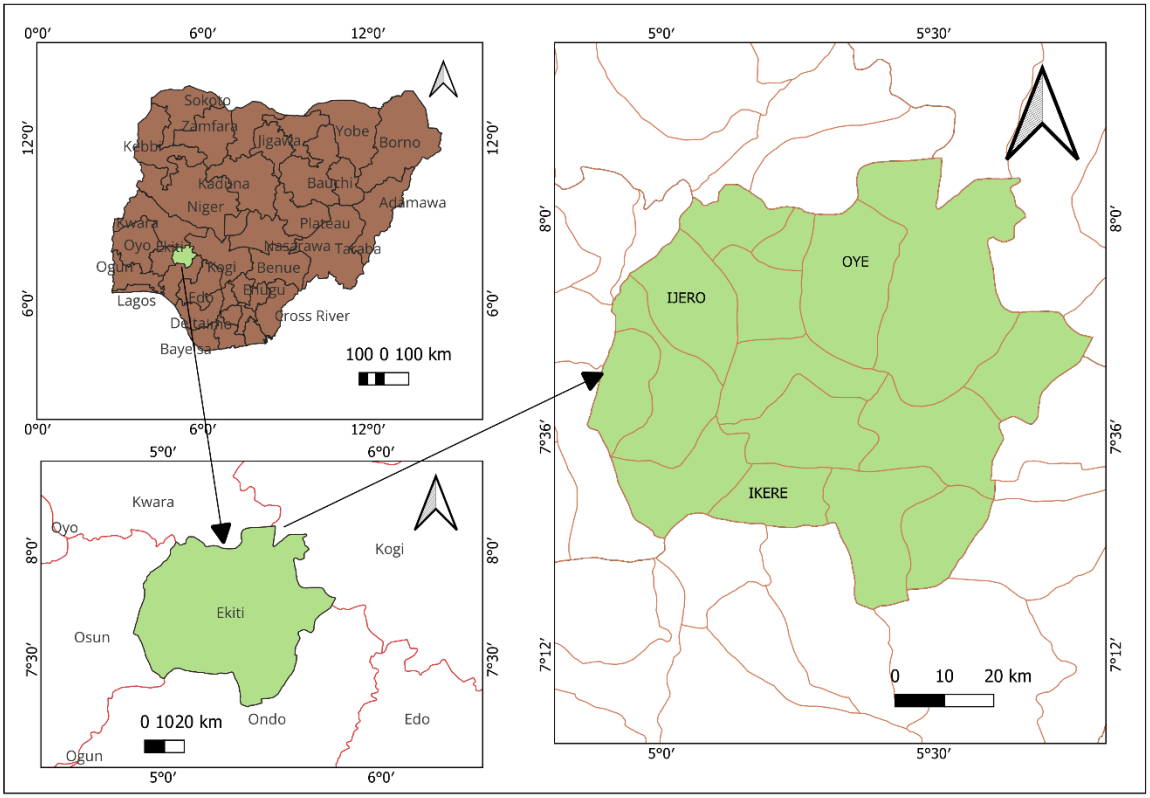

Figure 4. Ekiti-State Showing The Three Peri-Urban Areas.

RLM, SSM, FFPLA and institutional isomorphism were used in those research processes, particularly in analysing the case study data. The use of RLM, SSM, FFPLA and institutional isomorphism are explained in detail in Babalola et al. (2023a, 2024, 2025). This paper takes data and analysis from these articles and further analyses it to address the primary objective of assessing legal pluralism in LASs in Ekiti State using the continuum of weak to deep legal pluralism and the second objective to develop conceptual tools for enhancing legal pluralism in LASs. Table 1 highlights the articles that contributed to this paper. In the first article, the 8Rs of responsiveness, robustness, respectfulness, recognizability, resilience, reliability, reflexiveness, and retraceability were analysed using the data from the case study area which was later used to develop the RLM matrix (Babalola et al. 2023a). RLM matrix shows the

structures, processes, and impact of land management intervention when combined with 8Rs. It ranked each of the 8Rs indicators of RLM according to their structure, process, and impact. The analysed data is further analysed in Section 4 of this article. The remainder of the paper's findings and theories contributed to this article.

Table 1. Articles Contribution

Articles	**Aspect used in this Article**			**Theory and Methodology**
Babalola et al. 2023a	Data	Analysis		RLM
Babalola et al. 2024	Data	Findings	Theory	SSM
Babalola et al. 2025	Data	Findings	Theory	FFPLA
Babalola et al. 2025 (ongoing)		Findings	Theory	Institutional Isomorphism

The 8 Rs of RLM (de Vries and Chigbu, 2017) are considered important in the design of land management systems. These are responsiveness, robustness, respectfulness, recognisability, resilience, reliability, reflexiveness, and retraceability. The 8R's framework provides for inclusiveness and collaborations between customary and statutory institutions by measuring the three pillars of structures, processes and impacts of land management systems.

Barry and Fourie (2002) and Whittal (2014) understand land administration and cadastral systems using a systems approach (Checkland 1999). This approach allows the movement from "conventional, simplistic, hard interventionist, sub-system-focused design exercises and instead undertakes holistic analyses of complex situations, which include human behaviour and a range of non-statistic land management sub-systems" (Barry and Fourie, 2002: 23). Research on fit-for-purpose and institutional isomorphism by Enemark (2004) and DiMaggio and Powell (2012) assists in identifying elements of LASs, while various analyses from RLM and SSM provide the foundational elements used in the development of the conceptual framework and models. The measures of land tenure security are informed by RLM, SSM, institutional isomorphism, and FFPLA analysis.

To develop a conceptual framework and model, the findings from the analysis of peri-urban land administration using RLM, SSM, FFPLA and institutional isomorphism, were undertaken by triangulating evidence from each case study area to classify weak and deep legal pluralism in LASs (objective 1). The conceptual framework and model were developed using land administration, soft systems, and institutional theories (objective 2). The classification of weak and deep legal pluralism forms the foundation upon which the model was developed. These findings were used to classify the model into three parts of three elements. In classifying weak and deep legal pluralism, the RLM criteria were used. The first part of the analysis of the RLM has been published, which shows the result of the 8Rs indicators and the RLM matrix (Babalola et al. 2023a). The 8Rs are missing in the land management interventions in Ekiti State (ibid).

Structures, processes, and impacts need improvement (ibid), particularly Resilient, Robust, Respected, Reflexive, and Retraceable elements of the RLM framework.

The second part of the analysis is new and therefore discussed in detail in this article. This comprises grading the results from the first part of the analysis to assess weak and deep systems of LASs. Using Likert scales, detailed scoring was done with scores above 60% indicating deep legal pluralism, with below 60% considering weak legal pluralism in LAS (1 is poor and 6 is excellent). The findings contribute to the conceptual framework for enhancing legal pluralism in LASs and were used in developing the legal pluralism model in LASs. The continuum of understanding of legal pluralism theories and practices was developed based on the theoretical understanding derived from forms of legal pluralism and the approaches used in incorporating non-state actors (Figure 5).

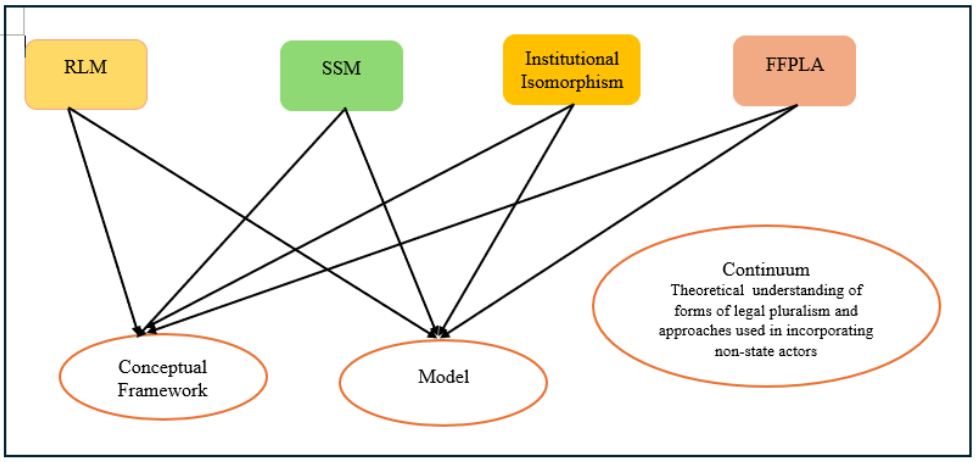

Figure 5. Developing Conceptual Framework, Model, and a Continuum.

4 Analysis of Peri-Urban Land Administration in Ekiti State

Table 2 shows the data from previous research Babalola et. al. (2023a). Using these data, the weak and deep systems of LASs are analysed in this section. The 8Rs of RLM are reported in pairs. The use of the Likert scale is illustrated: for instance, the scores 3, 4, and 2 in Table 3 were obtained using a Likert scale (1 is poor and 6 is excellent) for Ikere-Ekiti, Ijero-Ekiti, and Oye-Ekiti. The three peri-urban area data are shown in Table 2 where the data was analysed. Using these values a score of 3 was assigned based on the response in Ikere-Ekiti because one-third of the respondents' responses were in the affirmative that customary law flexibility is accommodated in peri-urban land administration, 69% were in the affirmative in Ijero-Ekiti, hence the score of 4 and 16% responses was in the affirmative in Oye-Ekiti, therefore a score of 2 was assigned. This process is repeated for all the questions asked under each of the 8Rs indicators of RLM. After determining the score for the three peri-urban areas a summation is done for the scores wherein a total of 26, 23, and 25 was obtained for Ikere-Ekiti, Ijero-Ekiti, and Oye-Ekiti out of an expected total score of 54 (Table 3). From these scores, the percentage for each peri-urban area is then determined. The qualitative and quantitative data have already been published, still, because of space constraints the quantitative data has been used to describe how the scores in Table 3 to Table 6 were obtained.

Table 2. Assessment Questions Used and Responses

	Ikere-Ekiti		Ijero-Ekiti		Oye-Ekiti	
Response	Yes	No	Yes	No	Yes	No
Accommodation of customary law flexibility	32,5%	67,5%	69,1%	30,9%	16,2%	83,8%
Community Dispute Resolution Committee	95,6%	4,4%	66,6%	33,3%	93,9%	6,1%
Collaboration between statutory and customary institutions	10,6%	89,4%	14,3%	83,3%	22,2%	77,8%
Interactions between the people and customary institutions	91,9%	8,1%	78,6%	21,4%	89,9%	10,1%
Interactions between the people and the government	23,7%	76,3%	16,7%	83,3%	5,1%	94,9%
How can you rate statutory land registration processes?	77%	23%	83%	17%	71%	29%
Responses	Yes	No	Yes	No	Yes	No
Is the land use planning functioning well in the community?	11%	89%	12%	88%	21%	79%
Are land administration needs addressed?	34%	66%	48%	52%	42%	58%
In accessing land are women and men treated the same.	72%	28%	52%	48%	77%	23%
Have you ever been evicted from your land in this community?	9%	91%	21%	79%	71%	29%
Are you engaged in the land	54%	46%	45%	56%	32%	68%

administration process in this community?						
Is the customary court addressing land matters the way traditional courts do?	25%	75%	29%	71%	45%	55%
Do you think the exception of traditional authorities from customary court affects the legitimacy of the Customary legal framework?	34%	66%	33%	67%	39%	61%
Do traditional authorities have the institutional capacity to administer land using customary law?	78%	22%	81%	19%	78%	22%

4.1 Resilient and robust

Indicators such as the application of customary law, collaboration between customary and statutory institutions, interactions between the people and customary institutions, and interactions between the people and statutory institutions, and recognition of innovative ways of recording land rights are assessed and graded using a Likert scale (Babalola et al. 2023a and Table 3). Scores 3, 4, and 2 are assigned to the non-recognition of customary law in the land administration process, as this may impact land administration process flexibility. Where inconsistencies and contradictions affect peri-urban land administration has a score of 2. Scores of 6, 4 and 6 are assigned where there is a community dispute resolution committee in the three peri-urban areas. There are collaborative approaches to appointing Traditional Land Governance (TLG) and assembling the family members with the family heads – thus, a score of 4 is appropriate. The lack of innovative ways to record land rights scores 1. There are only informal interactions and collaborations between statutory and customary institutions because it is not mandated by law; hence, scores 1, 1, and 2, respectively. Scores 6, 5, and 6 are assigned to interactions between the people and customary institutions. In contrast, scores 2, 1, and 1 are assigned to interactions between the people and the state because these role players have no cordial relationship. The score is 1 because there is a lack of development of land administration tools to aid land management in both customary and statutory processes.

There are nine questions in this section, each scored out of six. Hence, 54 is a possible score (Table 3). Each peri-urban area has a total score of 26, 23 and 25, which shows that accommodation of the flexibility in customary law, collaborations between customary and statutory institutions, and recognition of innovative ways of recording land rights are lacking

in the case study areas (Table 3). To improve the situation, there is a need to adopt a cooperative approach rather than combative legal pluralism (see Section 3).

Table 3. Assessing Resilient and Robustness in LAS

Resilient and Robust	Ikere-Ekiti	Ijero-Ekiti	Oye-Ekiti
Does the formal land administration accommodate customary law flexibility?	3	4	2
What are the inconsistencies and contradictions in the LUA concerning the structure of the committee in charge of land matters?	2	2	2
Is there a community dispute resolution committee in the three peri-urban areas?	6	4	6
How are members of traditional land governance appointed?	4	4	4
Are innovative ways of recording land rights recognised by the Statutory Legal Framework (SLF)?	1	1	1
Are statutory institutions collaborating with customary institutions**?** in LA in peri-urban areas?	1	1	2
Are there interactions between the people and customary institutions?	6	5	6
Are there interactions between the people and the state?	2	1	1
Are land administration tools**?** developed to aid land management in customary and statutory processes?	1	1	1
Total (54)	26	23	25

Scale 1-poor, 2-fair, 3-average, 4-good, 5-very good, 6-excellent

4.2 Reliable and respectful

The indicators listed in Table 4 were similarly assessed. Because the NSJS is not regarded as legitimate as the State legal system, it receives a score of 1. The state legal system did not acknowledge the NSJS's rulings. The Service Compact with All Nigerians (SERVICOM) procedures hold public authorities accountable, hence it is awarded a score of 6. Corruption still exists in the land administration process, nevertheless. Peri-urban residents give land accessibility a score of 3 since most farmland is being turned into residential space, which drives

up property prices dramatically. The lack of efficient and effective land administration services receives a score of 1 for the statutory land registration and the land use planning process. The mixed results from the three peri-urban areas on meeting the land administration needs receive a score of 3. A score of 2 is assigned to compensation payment, as compensation is only on improvements on land. Lack of flexibility of where to seek redress when there is dissatisfaction with the payment of compensation score 2 as you can only approach the statutory courts. The processes of statutory courts are tedious and require considerable financial means to seek redress. There is an average score in the three peri-urban areas with a score of 5 for Ikere-Ekiti and Oye-Ekiti and 4 for Ijero-Ekiti per the treatment of men and women on land access with a 52% yes and a 48% no. A score of 3 because there are still some forms of corruption in land access, although there are measures in place to dispel it. The three peri-urban areas have different eviction rate scores. Ikere-Ekiti receives a score of 6 because the eviction rate is one in ten. Since eight out of ten respondents stated that there is no eviction, Ijero-Ekiti receives a score of five. Since seven out of ten respondents claimed that there is eviction in land access, Oye-Ekiti received a score of two.

A total of 11 questions were asked in this section, so the total score for the assessment is 66, yet no score was above 50%. Across the three peri-urban areas, the findings are similar, with Ikere-Ekiti having 33 (50%), Ijero-Ekiti 32 (48%), and Oye-Ekiti 30 (45%) (see Table 4). Competitive legal pluralism is observed since the NSJS is not recognised as a state justice system. The NSJS maintains some autonomy without recourse to the state institutions, causing deep tensions between the two. The ineffectiveness of the land registration process and land use planning and the control of the processes by the state institutions without the involvement of customary institutions causes a disconnect in land administration. Lastly, the question of compensation for state-acquired land and related evictions illustrates the lack of legal pluralism in land administration. Since only state entities are involved, the payment method and the procedure for pursuing a remedy for insufficient payment are flawed. Since state systems are antagonistic to non-state systems, the dominant function of state institutions might be described as a condition of combative legal pluralism (see Section 3).

Table 4. Assessing Reliability and Respectfulness in LAS

Reliability and Respectfulness	Ikere-Ekiti	Ijero-Ekiti	Oye-Ekiti
Is NSJS legitimate as a state justice system?	1	1	1
Are public officials, agencies, and non-state actors accountable to the public concerning LA?	6	6	6
How do the state and local governments make land accessible?	3	3	3
How can you rate the statutory land registration processes?	1	1	1

Is land use planning functioning well in this community?	1	1	2
Are land administration needs**?** addressed?	3	4	3
How are people compensated when their land is acquired for public purposes?	2	2	2
Are there free and fair avenues to lay such complaints when unsatisfied with the compensation paid?	2	2	2
In accessing land, are women and men treated the same?	5	4	5
Are there any forms of corruption in the state's access to land?	3	3	3
Have you ever been evicted from your land in this community?	6	5	2
Total (66)	33	32	30

Scale 1-poor, 2-fair, 3-average, 4-good, 5-very good, 6-excellent

4.3 Reflexive and retraceable

The indicators listed in Table 5 are assessed in this section. The same score of 27 (75%) was obtained across the three peri-urban areas, from which a total score of 36 is possible. Since there are areas where statutory laws cannot govern appropriately, customary law is still in existence, hence a score of 6. A score of 3 since there are challenges in integrating customary and statutory law because of the rigidity of statutory laws. Because it is challenging to integrate with statutory law, customary law is still in place but is not as effective as it could be, which accounts for this average outcome. Using customs and norms scores 6, showing a participatory approach to resolving land disputes. A score of 5 is the availability of customary land laws to the community members as the understanding of the law is carefully explained to the people. There are only clear statutory interventions, hence a score of 5. The procedures of LAS lack clarity, so this only scores 2, showing weak legal pluralism. The Land Use Act (LUA) is unknown to peri-urban land rightsholders, with statutory laws being the only ones governing land administration.

Table 5. Assessing Reflexiveness and Retraceability in LAS

Reflexiveness and Retraceability	Ikere-Ekiti	Ijero-Ekiti	Oye-Ekiti
Why is customary law still in existence?	6	6	6

What are the challenges of the integration of customary and statutory laws?	3	3	3
How are customs and norms used to resolve a dispute on land?	6	6	6
How are customary land laws made available to community members?	5	5	5
Are the interventions in land management clearly defined?	5	5	5
Are the interventions in land management clearly defined?	2	2	2
Total (36)	27	27	27

Scale 1-poor, 2-fair, 3-average, 4-good, 5-very good, 6-excellent

4.4 Recognisable and responsive

The indicators listed in Table 6 are assessed in this section. Ikere-Ekiti, Ijero-Ekiti, and Oye-Ekiti scored 28 out of 42, 67%, indicating deep legal pluralism in land administration in the three peri-urban areas. The engagement of community members in land administration scores 4, 4, and 3, respectively, because the participatory approach was adopted but needs improvement in all three peri-urban areas. The customary courts' way of addressing land matters scores 2, 2, and 3 (see Table 6) because the customary court is more of a regulative framework than a cultural-cognitive framework, indicating weak legal pluralism in which statute law dominates. The composition of TLG scores 4 because both men and women are represented in TLG, but men still dominate. The institutional capacity of traditional institutions scores 5 because they use customary laws to administer land in the three peri-urban areas despite the non-recognition by state actors. This is a situation of deep legal pluralism in complementary legal pluralism. The collaborations between TLG and the statutory institutions are poor, indicative of weak legal pluralism. Regarding service delivery, the process to complain about inefficiency scores 6 as there are laid down channels of complaint through SERVICOM.

Table 6. Assessing Recognisability and Responsiveness in LAS

Recognisability and Responsiveness	Ikere-Ekiti	Ijero-Ekiti	Oye-Ekiti
How are community members**?** engaged in the land administration**.** process?	4	4	3
Is the customary court addressing land matters the way traditional courts do?	2	2	3
How are men and women**?** represented in the TLG?	4	4	4

Do traditional authorities have the institutional capacity to administer land using customary law?	5	5	5
What is the level of collaboration of TLG with statutory institutions?	2	2	2
How are complaints of inefficiency**?** made?	6	6	6
Total (42)	28	28	28

Scale 1-poor, 2-fair, 3-average, 4-good, 5-very good, 6-excellent

5 Conceptual Framework for Enhancing Legal Pluralism in Land Administration Systems in peri-urban areas of Ekiti State

The findings from the analysis of the three peri-urban areas summarized above are reflected on and used to design a conceptual framework and model for LASs that enhances legal pluralism. Firstly, the challenges and constraints of LASs were identified using the SSM (Babalola et al. 2024), which shows weakness in the organisation and institutional framework of the peri-urban Ekiti State. The study's findings reveal that the 'inherited' legal system dominates the 'inherent' land administration system. The Ministry of Housing and Urban Development (MHUD) and Bureau of Land Services (BLS) lack decentralisation and a participatory approach to land administration, which the organisation system model reveals. There is land tenure insecurity, which might be linked to discriminatory law and a lack of recognition of local governance. There is a lack of significance in local government governance in peri-urban areas because local land management governance is not as legitimate as statutory governance of land management.

Secondly, using the structure, process, and impact of the 8Rs of the RLM, it was observed that the current land administration and management system is dysfunctional (Babalola et al. 2023a). In determining the weakness and deepness of legal pluralism in LASs, resilience, robustness, reliability, and respectfulness contribute to weak legal pluralism in LAS, while reflexive, retraceable, recognisable, and responsive indicators contribute to deep legal pluralism in LASs. To balance the customary legal framework and the statutory legal framework for land administration, there is a need to improve the indicators for reflexive, retraceable, recognisable, and responsiveness.

> *"Measures that promote accommodation of customary law flexibility, participatory approach to land administration, decentralised institutional structure, decentralised land register, community-based land management, collaborations between customary and statutory institutions, and innovative ways of recording land rights would help enhance legal pluralism in land administration" (Babalola, 2023: 292).*

To strengthen deep legal pluralism in land administration, it is imperative to increase the legitimacy and jurisdiction of traditional institutions (Babalola, 2023).

Thirdly, the use of FFPLA reveals that the current LAS is not fit-for-purpose because it fails to address the needs of the peri-urban populace (Babalola et al. 2025). There is a need for flexibility in the legal and institutional framework in the study area. In the three peri-urban areas, land cases are rare in the customary courts, with only Ikere-Ekiti and Ijero-Ekiti having a few land cases and matters in their customary register. This may be attributed to a need for more legitimacy in customary courts' ability to address land issues. Hence, they prefer to take their land matters to the statutory courts.

The analysis of customary courts and CCAS using institutional isomorphism theory (Babalola et al. 2025-Ongoing) indicates conflicting pressures to maintain their legitimacy and jurisdiction. Respecting jurisdiction and bolstering legitimacy is essential when creating LASs that promote legal pluralism and enable the construction of a traditional court with authority to settle customs-related disputes. The prerequisite for improving legal pluralism in LASs is to enhance traditional courts' capacity to resolve land disputes in peri-urban areas. To create cooperative and complementary legal pluralism, there is a need to incorporate alternative normative justice systems in adjudicating disputes, which will help ensure peri-urban dwellers' tenure security. Incorporating such systems will bring about collaboration between the state justice system and the others. Community members would collaborate to establish LASs that promote legal pluralism and allow for interactive participation in land administration. Weak and deep legal pluralism could be reflected in LASs, which will satisfy flexibility requirements for legal, institutional, and RLM. To design LASs that enhance legal pluralism, policymakers should ensure that the following conditions are fulfilled: application of customary law in land administration, enhancement of legitimacy and jurisdiction, collaboration between customary and statutory institutions, decentralised legal and institutional framework, and improvement in RLM (see Figure 6).

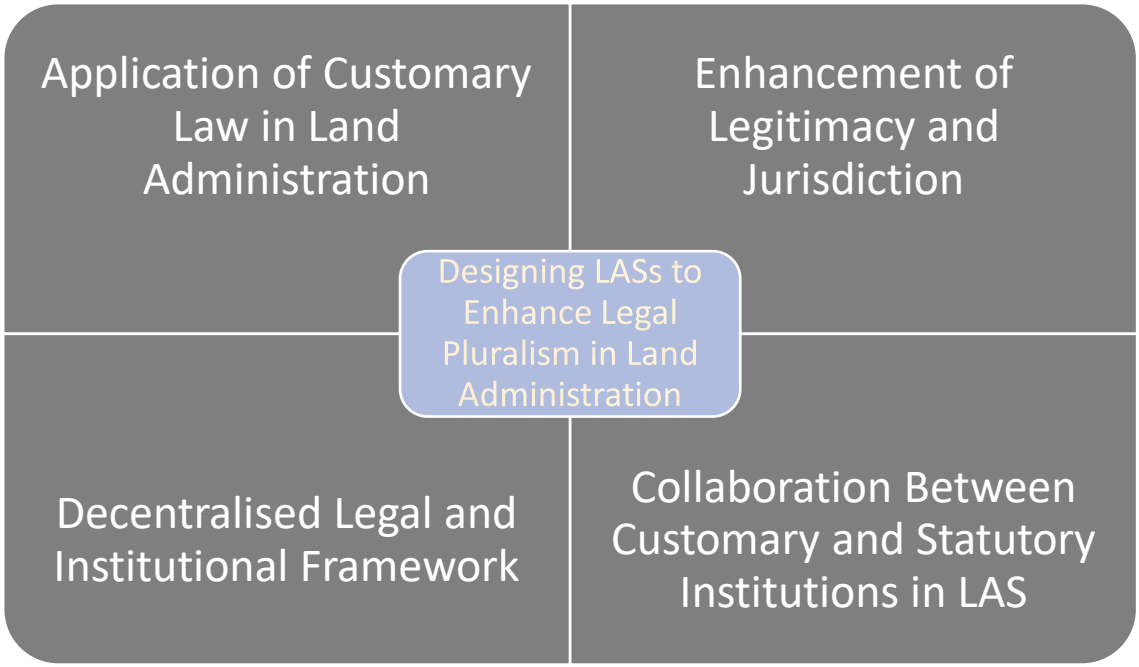

Figure 6. Conceptual Framework for Enhancing Legal Pluralism in Land Administration Systems

6 Advancement of legal pluralism and measurement of tenure security

Land policy and land law should flow from the constitution. Constitutions are a symbol of the social compact between the governors and the governed. Incorporating legal pluralism principles in the constitutions is expected to help improve land administration problems in peri-urban areas (Babalola, 2023). Human rights, rule of law, and legal pluralism are identified as essential aspects that should be considered in a constitution in support of LASs Human rights, the rule of law, and legal pluralism are identified as important principles in LASs (Babalola, et al. 2022).

In this section, the case study analyses from Babalola (2023) are assessed using the legal pluralism continuum from weak to deep legal pluralism. The LPM indicators of jurisdiction, legitimacy, and collaboration are used in this process. This model is illustrated in Figure 7.

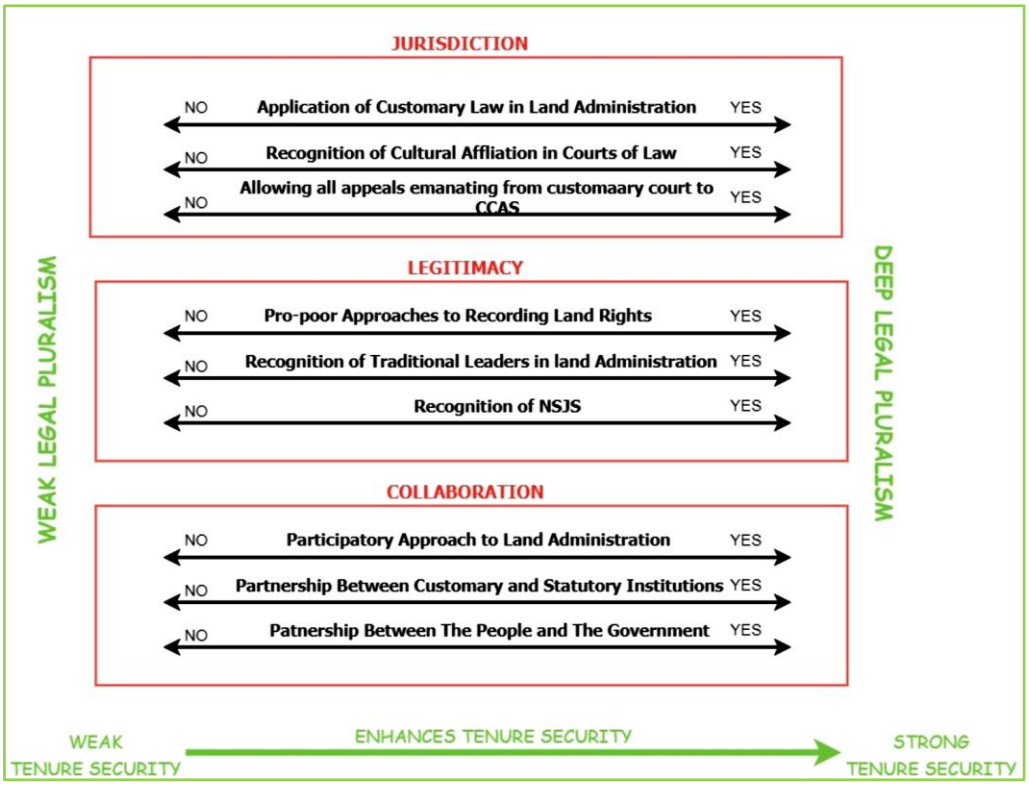

Figure 7. Legal Pluralism Model in Land Administration

6.1 Jurisdiction

Tenure security can be articulated through the variable of jurisdiction by recognising and facilitating autonomy and self-determination. An example is recognising bounded areas in which traditional authorities have powers of land administration. This is incumbent on widespread acceptance of customary law, tenure, and administration as practised and even dominant not only in deep rural areas but also elsewhere, such as in peri-urban areas (Figure 6 and Figure 7). Using customary law in land administration will strengthen human-land relationships. The cultural affiliations in law courts may be improved with the dominant practice of customary tenure and administration. In the Ekiti State context, pluralism in legal jurisdiction would allow all appeals of land matters from customary courts to be heard in the Customary Court of Appeal of a State. This should be the final court of appeal such that appeals are not heard in the statutory courts which would then have a higher status in the court hierarchy (see also Nwauche, 2015). Figure 7 shows that respect for jurisdiction will promote deep legal pluralism and thus would improve land tenure security.

6.2 Legitimacy

Legitimacy has implied the acceptance of fit-for-purpose approaches to land administration, recognition of traditional forms of land governance and dispute resolution. In terms of customary tenure and administration, societal recognition (not implying recognition in law leading to weak legal pluralism) strengthens legitimacy. The recognition of the use of land tools

in recording land rights, recognition of traditional leaders in land administration, and allowing autonomy of alternative normative justice systems is likely to strengthen legitimacy. In post-colonial land policy in Nigeria customary law is recognised within statute law, enhancing legality and legitimacy in the eyes of the State. But legitimacy goes far beyond recognition in statute law – deep legal pluralism does not rely on state recognition for legitimacy.

Section 2 discusses the different forms of legal pluralism and the strategies for incorporating alternative normative justice and dispute resolution systems. Combining forms of legal pluralism and the strategies for incorporating non-state actors as a lens to analyse the findings of this study further, it is observed that the duo tends to fall somewhere on a legal pluralism continuum, which helps to understand customary and statutory law, tenure, and administration in LAS. A continuum theory is proposed based on the deep and weak legal pluralism approach. As shown in Figure 8, forms of legal pluralism and the strategies of incorporating alternative normative justice and dispute resolution systems are ordered per the continuum.

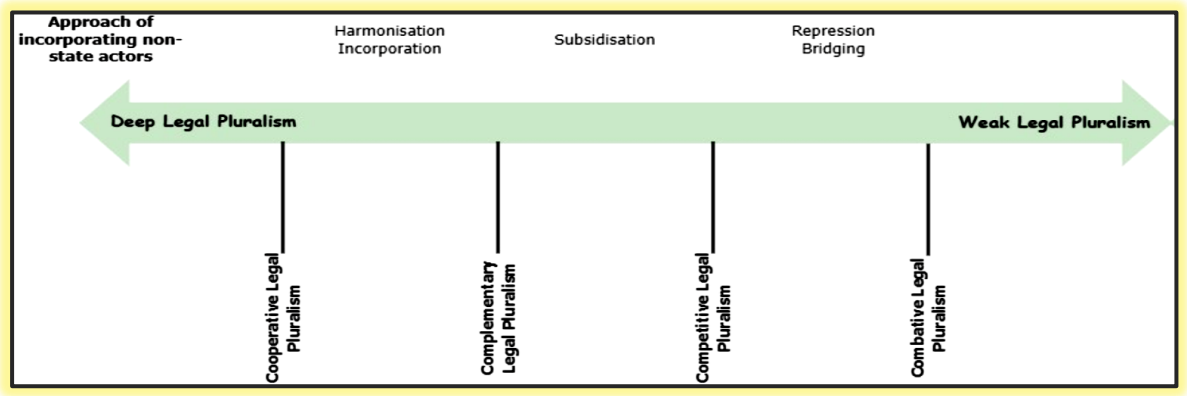

Figure 8. A Continuum of Understanding Legal Pluralism Theories and approaches to Incorporating non-state actors

Deep legal pluralism is associated with complementary and cooperative approaches using harmonisation and incorporation strategies to incorporate non-state actors. Conversely, weak legal pluralism reveals competitive and combative approaches that adopt repression and bridging approaches to recognising non-state actors (Figure 8). In the middle of the continuum are subsidisation strategies (see Section 2), which work between complementary and competitive legal pluralism. The forms of legal pluralism at play will determine the type of legal pluralism, with combative legal pluralism being the weakest form of legal pluralism, followed by competitive legal pluralism (Figure 8).

This study's findings indicate a subsidisation approach, with the RLM indicators scoring 48%. They lie somewhere between competitive and complementary legal pluralism on the continuum of understanding legal pluralism theories and practices. The other indicators scoring 75% are between cooperative and complementary legal pluralism, which are harmonisation and incorporation (see Section 2). If social constructs are used to view law, tenure, and administration in peri-urban areas, the underlying legal pluralism will be cooperative, followed by complementary (Babalola, 2023). Preserving indigenous law, tenure, and administration requires deep legal pluralism (cultural-cognitive legitimacy), while centralised, formal rules

and procedures will promote weak legal pluralism (regulative legitimacy). The legal pluralism forms on the continuum do not depict an exhaustive list and do not exist in isolation on the continuum but sometimes overlap (Babalola, 2023).

6.3 Collaboration

When a participatory approach to land administration is taken, collaboration increases, which reduces differential power and abuse of power and helps develop an inclusive law for all. The partnership between traditional authorities and state officials will encourage collaboration and promote the association between the people and government. The three primary measures of legal pluralism – jurisdiction, legitimacy and collaboration - are essential to improving land tenure security in peri-urban areas of Ekiti State. Policymakers in LASs should implement the legal pluralism model developed in this article to promote LASs to be significant and sustainable. To provide meaning and usefulness, the three measures should be assessed independently.

7 Conclusion

In this article, we have developed a conceptual framework and conceptual tools for enhancing legal pluralism in LAS. The motivation behind the development of the conceptual framework is to address a knowledge gap, with a specific focal point on issues related to developing contexts and legal pluralism to improve the livelihood of peri-urban dwellers. Several challenges in land administration and management systems in Nigeria and elsewhere are evident in several studies – the significance of enhancing legal pluralism within this sector is evident.

The development of this conceptual framework relies on the results of prior research Babalola, 2023, Babalola et al. 2023a, and Babalola et al. 2024. Soft systems theory and land administration theory are used to understand peri-urban land administration and management challenges (Babalola et al. 2024). Firstly, six aspects of SSM were used to understand peri-urban land administration and management systems challenges which resulted in the conceptual modelling of peri-urban land administration and management systems challenges (Babalola et al. 2024). Secondly, the 8Rs of RLM were used to analyse the land management systems intervention to determine the responsibleness in land management (Babalola, et al. 2023a). It is shown that intervention in land management in Ekiti State failed in the structure, process and impact of land management (Babalola et al. 2023a). Lastly, the institutional and legal frameworks of the FFPLA were used to determine if the LASs are fit-for-purpose. There is a need for improvement in the institutional and legal framework (Babalola, et al. 2025). Following the case study research strategy and the combination of SSM, RLM, institutional isomorphism theory and FFPLA, the findings were used to develop a conceptual framework for enhancing legal pluralism in LASs, a model for measuring land tenure security, and a continuum of understanding of legal pluralism theories and practices.

Enhancing legal pluralism in LAS means promoting a state of balance and harmony between weak and deep forms of legal pluralism. The conceptual framework includes some important

aspects: application of customary law in land administration, enhancement of legitimacy and jurisdiction, decentralised legal and institutional framework, and collaboration between customary and statutory institutions in LAS (Figure 5). In the measuring of land tenure security, a legal pluralism model is developed which incorporates jurisdiction, legitimacy, and collaboration. Weak and deep legal pluralism is depicted on a horizontal continuum, and jurisdiction, legitimacy, and collaboration are stacked vertically (Figure 6). For each of these, three different elements are used to reflect legal pluralism in LAS along the continuum of weak to deep. Lastly, the continuum of understanding legal pluralism theories and practices in land administration is developed based on the findings from the conceptual framework and the legal pluralism model, with deep and weak legal pluralism at the ends of the continuum and the strategies of incorporating non-state actors falling somewhere on the continuum (Figure 7).

The legal pluralism type is complementary and cooperative approaches tending towards deep legal pluralism, mainly using harmonisation and incorporation strategies to incorporate non-state actors. Competitive and combative approaches tend towards weak legal pluralism adopting repression and bridging approaches in recognising the non-state actors. In the middle of the continuum is the subsidisation strategies tending between complementary and competitive legal pluralism. The type of legal pluralism determines how well weak legal pluralism is promoted with combative legal pluralism being the weakest form of legal pluralism followed by competitive legal pluralism (Figure 7).

The developed conceptual framework, model and the applicability of the continuum were derived from the case study in Ikere-Ekiti, Ijero-Ekiti, and Oye-Ekiti which provides an in-depth understanding of peri-urban land administration. The case study analysis suggests that peri-urban land administration lacks jurisdiction, legitimacy, and collaboration. This case study analysis demonstrates the usefulness of the framework, model, and continuum in peri-urban and similar contexts in developed and developing countries. The novelty of this study lies in its development of a framework, model, and continuum based on case study analysis which will enable policymakers to identify the critical areas of land administration policy that require urgent reform.

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Simon Hull is an Associate Professor and 2019 PhD graduate at the University of Cape Town (UCT). His doctoral research was in the field of customary land tenure reform. He completed his MSc at UCT in the field of digital close-range photogrammetry in 2000 whereafter he spent two years working as a marine surveyor. He spent four years completing his articles and is a registered South African Professional Land Surveyor. In 2006 he changed careers and became a high school Maths and Science teacher in a rural village in northern Zululand. He has held his current position at UCT since 2012, where he lectures on the foundations of land surveying, GIS, and cadastral surveying. His research interests are in land tenure, land administration and cadastral systems, and the use of GIS to address Sustainable Development Goals.

Jennifer Whittal is a Professor in the Geomatics Division at the University of Cape Town. She obtained a B.Sc. (Surveying) and an M.Sc. (Engineering) specialising in GNSS from the University of Cape Town. In 2008, Jenny obtained her PhD from the University of Calgary applying critical realism, systems theory and mixed methods to a case of fiscal cadastral systems reform. She is a Professional Land Surveyor and lectures advanced surveying and land law. Research interests are land tenure and cadastral systems, sustainable development and resilience in landholding for the poor, historical boundaries and property holding, and cadastral issues in the coastal zone.

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