



Effectiveness of State and Non-state Land Resource Management Institutions in the Mungo Landscape of Cameroon

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Institutions play pivotal roles in the governance of land, especially in the realm of conflict management around resource sites. This validates the continuous interest to uncover the relative roles of state and non-state institutions in resource management in sub-Saharan Africa, including Cameroon. In several ecological zones of Cameroon, studies that explore the role of state and non-state institutions in land resource management are lacking – the Mungo Landscape is a classic example. The aim of this study was to explore local awareness and effectiveness of state and non-

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state institutions in the management of land resource use and conflicts, and to analyze factors shaping compliance with state and non-state land resource management institutions. This paper adopts a random sampling approach to obtain data from 310 households in the Mungo Landscape, targeting Njombe-Penja, Mbanga and Loum communities. The data was complemented by 20 key informant interviews of land resource users. The data obtained was analyzed using quantitative methods (Chi-Square) and qualitative analysis (content and Thematic Analysis). The study reveals that only 5%, 4% and 6% reported respectively high levels of awareness on land tenure laws, mining laws and laws on Environmental protection and Management respectively in the Mungo corridor. The perceptual evaluations showed no significant difference in the effectiveness of state institutions and customary institutions in land resource use in the Mungo Corridor of Cameroon ($X^2 = 0.833$, $p = 0.361$). The study concludes that state institutions are more effective in shaping land resource management than non-state ones. Based on this, the study suggests the need for the joint engagement of state and non-state institutions in land resource use in the Mungo Corridor of Cameroon. Further studies should be conducted to detail quantify the effectiveness of both the state institutions and customary institutions in land resource use in the Mungo Corridor of Cameroon. Also, the factors promoting compliance with state and non-state resource management institutions should be further researched and quantified.

Keywords: *Effectiveness; state and non-state institutions; land resource management; mungo land scape.*

1. INTRODUCTION

Access and ownership of land in the past decade constitute a topical because of several factors such as rapid population growth, global economic dynamics due to land rush and commercialization by large-scale actors for businesses [1] and political conflicts resulting from land competition by political elites [2]. Raquel (2005) stated that there is a challenge in collaboration between state and None state actors as there is a need for independence and multistakeholder collaboration. Risbud (2002) emphasized the need for citizen participation which enhances deliberations at the ministerial level and prevents uprising. Consequently, land grabbing by richer and politically connected classes at the expense of poor people makes it an expensive and inaccessible commodity to the majority [3,4] and more especially around natural resource sites [5]. The importance of land resource management institutions in managing these challenges cannot therefore be over emphasized. According to March and Oslen [6], institutions are defined as relatively enduring collections of rules and organized practices embedded in structures of meaning and resources that are relatively invariant in the face of turnover. They added that such institutions are relatively resilient to the idiosyncratic preferences and expectations of individuals and changing external circumstances". Be they state or non-state state, these institutions have continuously and will continuously shaped access, use and management of natural resources such as land.

Through their actions, they influence people's behaviour and transactions on said land parcels and their usufruct rights, which has resulted in varying outcomes. In some cases, non-state institutions for instance have led to effective resource management due to their closeness to the community and ability to gather information faster also provide funding. Meanwhile in Countries like Rwanda, state institutions have taken a giant stride in transparent land governance. Manirakiza [7] for example reported that the Rwanda state took a short time to establish a good land policy system that has resolved land disputes in Rwanda after the genocide. On their part, Ariti et al. [8] investigated the role of different institutional actors involved in the development and implementation of land use policies in the Ethiopian Rift Valley and found out that there was a lack of coordination between the different institutions governing land resources due to lack of detailed policy implementation guidelines. Though many countries have developed transparent land management systems that can lead to better land transaction, the success of these institutions in land management largely depends on community involvement and its transparency [9,10,11,12].

Due to the variations, the debate on the effectiveness of State and Non-state institutions continues, particularly regarding the management of resource conflicts in Sub-Saharan Africa. In Cameroon, institutions such as the Ministry of Land Tenure, Ministry of Urban

Planning and Development, Ministry of Justice, Urban and Local Councils and Traditional Authorities play key roles. However, few studies have explored the effectiveness of these institutions in diverse resource management in Cameroon. Cotula and Mayers [13] supported by Egbe [14] for instance maintained that the rate of registration of urban land in Cameroon is about 3%, indicating that 97% of the remaining land is owned by the state. With the notion that National land is divided into two categories: lands occupied with houses, farms and plantations, and grazing lands, manifesting human presence and development; lands free of any effective occupation, understanding the distinction between and amongst lawmakers, the actual owners of national land and the state, the custodian of national land, it is therefore imperative to examine the effectiveness such a porous system poses in land resource management [15,16,17]. The interactions between and amongst state and non-state institutions need immediate attention if we shall derive a more effective actor transient power tussle Model in land Governance (The MEAT model in land Governance) proposed by this study.

The Mungo Corridor as a case study exhibits characteristics of a Hollow Frontier with influx of migrants on the existing landscape which may be experiencing land governance mishaps. Following the works of Tientcheu [18], there is an important and under-recognized distinction in the relationship between public authorities, represented by the state, and land heritage in Cameroon. This necessitates a clarification of this nuance to enable better understanding of the legal and social realities of land tenure in Cameroon. Just as is the case in several ecological zones of Cameroon, studies that explore the role of state and non-state institutions in land resource management are lacking in the Mungo Landscape. This paper therefore aims at exploring local awareness on state and non-state resource management institution in the Mungo Landscape, explore the effectiveness of state and non-state institutions in managing resource use or resource conflict and identify factors inducing compliance with state and non-state resource management institutions in the Mungo Landscape. The following null hypothesis is therefore tested during this paper "State institutions are not effective than customary institutions in land resource use in the Mungo Corridor of Cameroon".

2. STUDY AREA AND METHODS

2.1 Location of the Study Area

This study was conducted in the Mungo landscape is in the Mungo Division of the Littoral region of Cameroon. The Division covers an area of about 3,723km² and as of 2001 had a total population of 452,722 inhabitants. The capital of this Division is Nkongsamba [19]. The Mungo corridor is made up of 13 districts/municipalities, namely Baré-Bakem, Bonalea, Dibombari, Loum, Manjo, Mbanga, Mélong, Mombo, Njombé-Penja, Nkongsamba I, Nkongsamba II, Nkongsamba III and Eboné. From these communities, two were purposively selected: Loum and Penja. They were selected because they harbour a significant number of settlements, have a high population and continue to witness an increase in economic activities. Located in the equatorial climatic domain, rainfall is more than 2000mm but presents significant local variations. In the south of the Mungo, the rainfall decreases towards Mbanga (2300 mm) and increases near the mountain area (2700 mm in Njombe, 3000 mm in Penja and 2700 mm in Nkongsamba). The soils are mostly ferralitic and volcanic and andosols [20]. As of the 2005 Census, Njombe and Penja are populated by about 50,800 inhabitants with a surface area of about 260 km² (195 inhabitants /km²) [21]. The population of Njombe and Penja increased from 33,000 to 50,000. At the same time, that of Loum went from 67,000 to 110, 000 inhabitants [22] and with the ongoing crisis, the population in the Mungo corridor has greatly increased. It is located between latitudes 4°30' and 4°43' North of the Equator, and longitudes 9°35' and 9°54' E of the Greenwich meridian.

2.2 Data Collection

This study employed a mixed-methods approach involving both qualitative and quantitative data collection (semi-structured and key informant interviews) and analysis tools and techniques. In this study, twenty key informant interviews (N=20) were conducted with community members, community chiefs/leaders, traditional authorities, and representatives from decentralized government structures, farmers, and fruit vendors. The key informants were selected based on their knowledge of land resource management institutions and their engagement with land resource use practices. To complement the key informant interviews, semi-structured questionnaires were administered to 310 randomly selected households in the

neighbourhoods of Loum, Penja, Njombe, and Mbanga. Random sampling was used to facilitate access to new respondents within the social networks of the communities. Data collected focused on the awareness of state laws about settlement, agricultural concessions, mining and quarrying. The entire data collection period ran

from November to December 2023. Interviews were supported by a review of policy and legal documents and publications on land resource management institutions. The distribution of the number of households interviewed per community has been summarized on Table 1.

Table 1. Sampling fraction in the different community

Loum	100
Penja	50
Ndjombe	60
Mbanga	100
Total	310

HH=Households Source (Field work 2023)

Table 2. Interview data from Mungo Corridor

Name of community	Informant	Date and time of interview
Loum	Technical service Head and two assistants	29/11/2023 27 minutes
	Secretary of Forestry and wildlife	29/11/2023 11minutes
	Representative of Mayor	29/11/2023 27 minutes
	Chef of Post Forestry and wildlife	29/11/2023 12minutes
	Technical service Head and two assistants	29/11/2023
	Secretary of Forestry and wildlife	27 minutes
Njombe	Resident Carrefour Njombe	One Hour
	A male Notable	01/12/2023
	Resident Carrefour Njombe	One Hour
	Chef Famille Banwa	01/12/2023 30mins 4 sec
	Resident Quartier 9	01/12/2023 45mins
	A male Notable	01/12/2023
Penja	Representative Cheferie Quartier 9Block 3A	1h30mins 01/12/2023
	Chef of Post wildlife and Forestry	30/11/2023
	Technical Service Head (Penja Council)	26mins
	Nguenguep Paulin, Chef of service Hygiene	
	Chef of Post MINADER	
	A male elite	
	Chef of Post wildlife and Forestry	30/11/2023
	A male Notable	26mins
	Technical Service Head(Penja Council)	30/11/2023
		26mins
Chef of service Hygiene	30/11/23	
	27mins	
Chef of Post MINADER	30/11/23	
	10minutes 21 seconds	
Mbanga	Quartier 13 Mbanga (Notable)	02/12/2023
	Quartier 5 head, Mbanga 16	10min 45
	Sa Majeste Hilarion Djami, Cooperative	
	Chef de quartier 3.	20 mins 21 secs

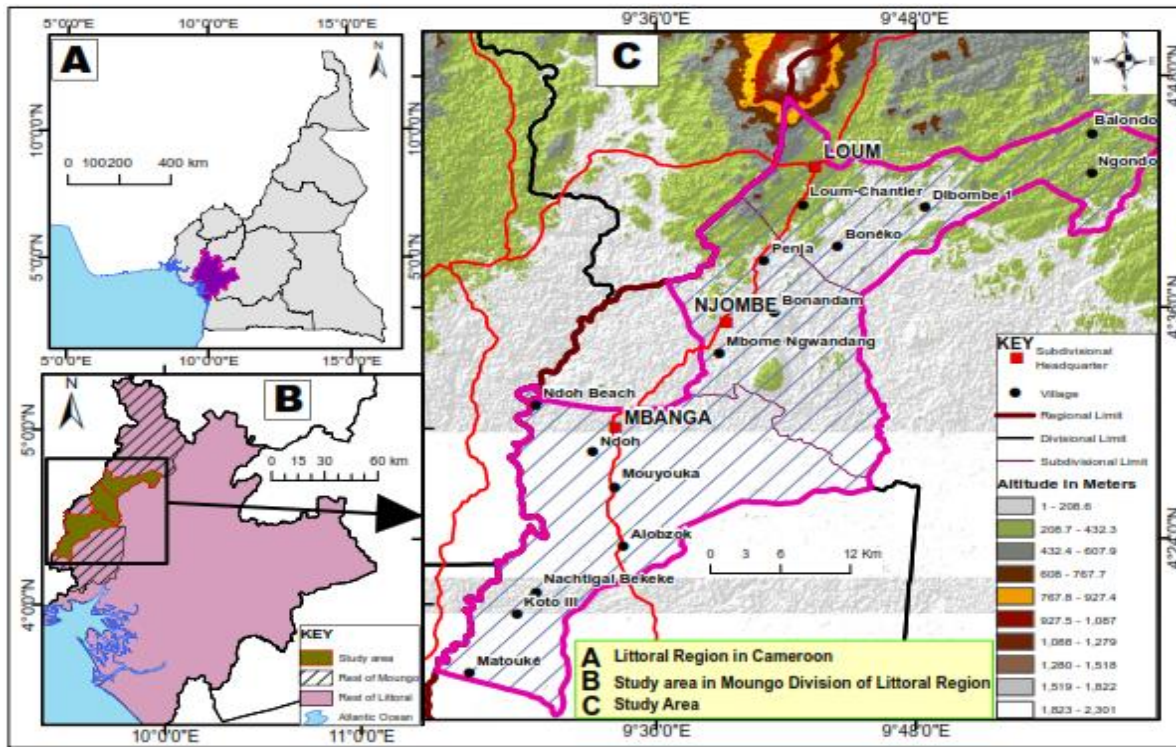


Fig. 1. Location map of Mungo Division

2.3 Data Analysis

Qualitative data were transcribed and content analysis performed to establish lines of thought concerning the awareness and effectiveness of state and non-state institutions in the management of land resources around the Mungo Corridor. Data obtained from the questionnaire were sorted after the collection of data, imputed and treated in Excel, exported and analyzed using the Statistical Package for Social Sciences (SPSS) at the 95% confidence interval. Descriptive analysis was performed using statistical tables with common themes. Quantitative analysis (the Chi-square test) was further performed to analyze the effectiveness of Customary and Statutory laws in the management of land resources around the Mungo Corridor.

3.RESULTS AND DISCUSSION

3.1 Local Awareness on State and State Resource Management Institutions

The current legal framework of Cameroon defining access to land resources is governed by Land tenure law No 74-1 of 1974 and Law No

74-2 of 1974 [23]. Some of the key provisions of relevance to this study focus on awareness of the laws and their effectiveness for the exploitation of land resources (Table 3). The legal provisions demonstrate inconsistency, with disadvantages on poor households. For instance, most traditional authorities still think, and act as though national land belongs to their community, and they affect sales without due conformity with the state Laws.

The results section is structured following the analytical lens of institutional effectiveness in land resource exploitation. Secure land tenure is crucial for subsistence farmers. It provides them the legal right to use the land, which in turn can encourage investment in the land, leading to improved agricultural practices and sustainability. Unclear tenure can lead to conflicts and underutilization of land. Agricultural Policy Framework: This can include subsidies, technical assistance, and access to markets. Policies that support subsistence farming are essential for food security and the livelihoods of rural populations. They can also influence crop diversity, sustainable farming practices and resilience to market or climate shocks. Agricultural Land (Fruit Farms): Health and Safety Standards: These standards are important for ensuring the quality and safety of produce

Table 3. Legal Provisions linked to land resource governance

Law	Specific Article.	Observations.
Land tenure law No 74-1 of 1974.		Only 2% of the population owns land titles 87% of the respondents are affected as there is a need for more settlement and agricultural lands.
Law No 74-2 of 1974		26% of respondents are aware of the law
Mining law No 2016/017 of December 14th 2016	Article 35 and 140 Environmental Protection and Management	75% of respondents were affected by Health and safety measures in the mining sector
Customary Law	Precolonial times	No recognised Statutory Law regarding inheritance, forestry, hunting and Agriculture. In Cameroon, there is the legitimization of the UN Declaration on the Rights of Indigenous Peoples.
Customary Law Decree -Law of January 9th, 1963 and Native and Rights Ordinance of January 1st 1948	Non-Conformity to any article in the Post-independence Cameroon. Francophone Cameroon is governed by Article 51(1) of the Decree of July 1927, organising the traditional justice system.	Excluded due to Repugnancy (Inconsistency). Public Policy Public Order Incompatibility with written law.

which can affect market access and profitability. Compliance with health and safety regulations can also impact workers' well-being and consumer confidence. **Agricultural Policy Framework:** For fruit farms, policies might focus on export promotion, quality standards and innovation in agricultural practices. Supportive policies can lead to increased competitiveness and access to new markets. **Royalties and Taxes:** While typically associated with extractive industries, any form of taxation can influence profitability and investment in fruit farming. Policies need to balance revenue generation for the state with the burden on farmers.

3.1.1 The mining sector

The mining code outlines the legal and regulatory framework for quarry operations including environmental impact assessments, land reclamation and the rights of various stakeholders. It can determine the ease with which quarry businesses operate and their environmental footprint. **Mineral Regulations and Licensing:** This includes the processes for obtaining permits and licenses to operate quarries. Streamlined and transparent regulatory processes can encourage investment and ensure that operations are conducted responsibly. **Health and Safety Standards:** Quarries can be hazardous environments, making health and safety regulations critical for protecting workers. Compliance with these standards can also affect public perception and the social license to operate. Like quarries, sand mining sites must adhere to standards that protect the health and safety of workers. These regulations can also mitigate the environmental impacts of sand extraction such as erosion and habitat destruction. **Royalties and Taxes:** The imposition of royalties and taxes on sand mining operations can provide revenue for local and national governments. However, if these costs are too high, they may discourage legal mining activities and increase unregulated mining. The mining code for sand will regulate how sand is extracted, processed and sold. It can influence the sustainability of the sand mining industry and the balance between economic benefits and environmental protection.

Land tenure law as applied to agricultural land (Subsistence farming) is creating significant changes in landscape as 89.35% of the respondents are affected by this law. As the growing need for food escalates, there is a need for more land to farm food for local consumption

and the market. However, getting access to land is linked to a bundle of rights. Customary land rights are usually in conflict with statutory rights, where millions of Cameroonians manage their land rights according to custom. In the Mungo Corridor where few people have land titles, smallholder farmers resort to customary laws in the resolution of land as well as access to land. Cameroon has experienced a gradual decline in land and forest tenure since colonial times; today, community lands and forest tenure in Cameroon are deeply insecure for indigenous people and local communities. Regarding the agricultural framework in the Mungo Corridor, 44.52% of respondents indicated that they are affected, which means that regarding household food security and self-sufficiency, subsistence agriculture is below the standard for food security in the landscape despite the increasing agricultural activities. This is attested by some residents in Penja, that most agricultural production in the Mungo is headed for the market, with very little for the population to feed. However, there is high economic growth in the landscape and job creation since the major agricultural companies still have opportunities for migrants. The producers are earning more than before since they are adapting to improved agricultural techniques in crop production.

More so, the living conditions of smallholder farmers are better. From an interview with the Quarter head of Quarter 3 in Mbanga, he stated that the living conditions of local farmers have greatly improved, which was supported by the head of the cocoa farmers' cooperative. Regarding the health and safety standards in the Mungo Corridor, 85% of respondents reported not using safety standards in smallholder farms. Health and safety is a fundamental requirement of a sustainable farming business and should be considered essential to farm business management. The Mungo Corridor has a lapse in health and safety standards from the sprays used by Plantation Haut Penja, which is spread in the air and causes air pollution to drip into the nearby streams. Farming is a hazardous industry where farmers and workers work with potentially dangerous machinery, vehicles, chemicals etc. They are exposed to bad weather, dust and noise. The risk includes family members working at the farm and children living there. Nkemele and Kuete [24] reported that the pesticides used by agricultural holdings expose the population and wreak havoc on farmers' health. The school-going population was exposed to pesticides and adverse effects were seen. It should be noted

that the Mungo Corridor has attracted many migrants for schooling since the crisis in the North and Southwest Regions. With increasing exposure of the human population to chemical leaks, it comes with huge health consequences. Table 4 presents field evidence on the mining law on land resources in Cameroon.

Mining is presently being carried out in the Mungo landscape. The current regulations of sand mining and relevant actions to protect the ecosystem were evaluated using structured questionnaires. It was reported that 75.5% of respondents were affected by Health and safety measures in the mining sector of sand in the Mungo. Approximately 300,000 tons of sand are extracted annually. The means of extraction are gradually moving towards semi-mechanized techniques; which comes with the inconvenience of air and noise pollution. It should be noted that permit holders are authorised to mine sand anywhere along the river, with no limit to the quantity of materials being extracted. As reported by Manga et al. [25], the current legislature is inadequate in terms of achieving sustainable mining operations. Little is usually done regarding the sensitive areas, extraction and deposit rate as well as the methods of extraction.

Royalties and Taxes are very important in the mining sector. In this study, 81.29% of respondents stated that they are involved in paying royalties and taxes in the extraction process, but little record was found to justify payments from councils or community. Similarly, over 49% of the sand miners reported making contributions in terms of taxes and royalties. This sector is increasingly becoming a major job producer in the Mungo corridor since it requires little formal education. Sand is in high demand in the neighbouring communities and the nearby economic headquarters. Kimengsi et al. [26] showed that the exploitation of quarries was carried out using mechanized or industrial methods, with a small percentage of the population which claimed not to be involved in the exploitation of natural resources. However, only very few companies like Dangote and MENOUE employing the mechanized method of exploitation compensate for their exploitation of unquantifiable material extraction using the

mechanized method [26]. For instance, Dangote company handed over to the Population of Loum and Penja a water catchment in Benakale as reported by the Guardian newspaper of 08/02/2024. The same company also handed over a rehabilitated emergency ward of the Integrated Health Centre in Penja, which could be seen as their corporate social responsibility.

Field evidence indicates varying levels of awareness regarding certain laws among individuals. The data shows that 75% are less knowledgeable about the existing land resource laws. This is the largest group, suggesting that while these individuals have some awareness of the laws in question, their understanding is limited. This could be due to lack of accessible information, insufficient outreach by responsible agencies or a perceived irrelevance in their daily lives. This group may benefit from targeted educational campaigns to improve their understanding of the laws. The next level was those who were unaware, with 42% respondents indicating they had no idea about laws that exist, indicating a complete lack of awareness from them. This lack of awareness can be a major obstacle to the effective implementation and compliance with the laws.

Finally, 6% of respondents indicated they were very knowledgeable about land resource laws. This is a small fraction of individuals considered. This group likely includes professionals or individuals with a direct interest or involvement with legal topics. They might serve as valuable resources for disseminating knowledge and could potentially be engaged in peer education or advocacy efforts. Overall, the data suggests that there is a significant gap in awareness and knowledge of the laws among many of the respondents. Efforts to increase awareness and understanding could involve clearer communication strategies, community engagement and the inclusion of relevant stakeholders in disseminating information. Ensuring that people are aware of and understand the laws is crucial for fostering compliance, empowering individuals to exercise their rights and facilitating the laws' intended benefits to society.

Table 4. Mining law or the mining Code in Cameroon

Quarry sites		Mining sites (Sand)	
Mining code	106 34.19	Health and safety standards	234 75.48
Mineral regulations and licensing	126 40.65	Royalties and taxes	153 49.35
Royalties and taxes	252 81.29	Mining code	211 68.06

3.1.2 Awareness of land tenure law No 74-1 of 1974 and Law No 74-2 of 1974

The responses to the question regarding awareness of Land Tenure Law No 74-1 of 1974 and Law No 74-2 of 1974 reveal significant insights into the public's familiarity with these specific legal frameworks as 26% of the respondents have some awareness (Little Knowledge) of the laws. This suggests that while there is some degree of public exposure to the legislation, understanding the specifics and implications may be shallow. However, most respondents (68%) are unaware of the land tenure laws in question. This highlights a substantial awareness gap that could have implications for the effective implementation and enforcement of the laws. Notwithstanding, 5% of respondents indicated that they were very Aware: this group likely consists of individuals who are either directly affected by the laws such as landowners or legal professionals, or those with a particular interest in land tenure issues.

The survey data concerning awareness of Mining Law No 2016/017 reveals a significant knowledge gap among respondents. With 71% of individuals not aware of the Mining Code, there is a clear indication that the majority are uninformed about this legislation, which could have critical implications for community engagement and regulatory compliance. Only 23% of respondents claim little knowledge, suggesting a slight familiarity that may lack depth or practical understanding. A mere 4% of respondents reported high levels of awareness of the law, pointing to a small subset of the population that is potentially directly involved with or affected by mining activities. This disparity in awareness underscores the need for enhanced educational efforts and accessible information dissemination regarding mining legislation.

3.1.3 Awareness of Law No 2016/017 of December 14th, 2016, Article 35 and 140 environmental protection and management

The survey results reveal a substantial lack of awareness regarding Law No 2016/017, specifically articles 35 and 140 pertaining to Environmental Protection and Management. With 70% of respondents indicating no awareness and 22% with only a little knowledge, it is evident that the majority are not adequately informed about these critical environmental provisions. Conversely, only 6% of respondents are very

aware, likely those directly involved in environmental management or legal sectors. This data underscores the necessity for targeted educational initiatives to enhance understanding and compliance with environmental legislation.

3.1.4 Awareness of Law No 2004 /003 of April 21st 2004 to regulate Town planning in Cameroon

The data reflects a significant knowledge gap concerning Cameroon's Town Planning Law No 2004/003. A majority of 68% respondents are not aware of this legislation, indicating a widespread lack of engagement with urban planning regulations. Only 24% of participants have a cursory understanding, which suggests minimal exposure to the law's content or implications. In contrast, 6% of respondents are very familiar with the law, pointing towards a small, informed demographic potentially involved in urban development or governance. These findings highlight the need for increased public education on town planning policies to foster informed community participation.

3.2 Effectiveness of Statutory and Customary Laws in the Mungo Landscape

The effectiveness of State and Non-state institutions in managing resource use or resource conflict in the Mungo corridor has been summarized on Table 5. According to Burns et al. [27], tenure efficacy and effectiveness are measured by these criteria: security, clarity, simplicity, timeliness, fairness, accessibility, cost and sustainability.

This framework could be used for Effectiveness in promoting sustainable land use, the balance between economic development and environmental protection, and the social implications for communities dependent on these land uses. The interplay between these legal frameworks and actual land use practices can reveal gaps in policy, areas for improvement, and the need for integrated approaches to land governance.

3.2.1 Effectiveness Village land allocation schemes

The data indicates that perceptions of the effectiveness of village land allocation are predominantly negative. A significant majority (59%) of respondents rate the allocation as less

Table 5. Indicators of the effectiveness and efficiency of land administration systems

Sn	Land Tenure Law No 74-2 of 1974 and	Law No 2016/017 of December 14th 2016, Article 35 and 140 Environmental protection and Management	Mining Code	Law No 2004 /003 of April 21st, 2004 to regulate Town Planning in Cameroon	Francophone Cameroon by Article 51(1) of the Decree of July 1927 organized a traditional justice system	General observation of Effectiveness.
Security	Very Secured with a land title.	Very Secured but not easily maintained, with 85.48%	Once the licence is available, it is secured	Very Secured	Not very secure in compared to State law	89.35% attest to security of land tenure law.
Simplicity	Not so simple	Simple guidelines.	Not so simple	Not simple	Complex in Francophone Cameroon	
Timeliness	Takes longer time as compared to other countries	Shorter time for implementation	Longer time because of bureaucracy	Time-consuming and bureaucratic	Less time as compared to State land registration	
Fairness	Fair	Fair	Not Fair.	Not fair.	Fair.	
Accessibility	Many land users are ignorant and use middlemen.	Accessible to those concern	It is not accessible to community, but rather to rich investors, mostly foreign.	Not knowledgeable by many.	It is very Accessible yet complicated because of issues of succession.	
Cost	Very Expensive	Less costly	Very Costly	Costly and highly corruptible	Less costly compared to statutory system	
Sustainability	With the introduction of E-Titling, it will be very Sustainable.	Back by International conventions and UN Treaties.	Very Unsustainable and environmentally harmful.	Very Sustainable.	Less sustainable.	

effective, suggesting widespread dissatisfaction or issues with the current system. Furthermore, 108 (34.8%) individuals consider it not effective at all, reinforcing the sentiment that the land allocation process fails to meet community needs or expectations. Only a small fraction (6% of respondents) viewed the allocation as very effective, implying that there are some instances of success or approval. These insights call for a critical review and potential reform of village land allocation practices to enhance effectiveness and community satisfaction.

3.2.2 Effectiveness of the land resource laws in mediating land disputes

The data reflects a mixed assessment of the efficacy of land resource laws in mediating land disputes. A notable portion of respondents (41% in total) perceived these laws as very effective, suggesting that the legal framework successfully resolves conflicts for some. However, 36% of respondents view the laws as less effective and 21% as ineffective, indicating a substantial number of individuals who experience deficiencies or shortcomings in the dispute resolution process. The nearly even split in perceptions underscores the complexity of land mediation issues and points to the need for a more nuanced understanding of where and why the laws succeed or fail in mediating disputes.

3.2.3 Effectiveness of land laws in Regulation of resource use

Evidence from the field suggests that most respondents indicated that land resource laws were less effective in land governance in the Mungo Corridor of Cameroon. The data suggests that there is a general perception of ineffectiveness regarding land resource laws in the regulation of resource use. Many respondents (56%) consider these laws to be less effective, indicating potential gaps in the legislation or its enforcement. Furthermore, 32% of respondents view the laws as ineffective, further emphasizing the critical sentiment among the surveyed population. In contrast, only 10% evaluated the laws to be very effective in land governance in the Mungo Corridor of Cameroon, a stark minority that could represent specific areas or cases where the laws are well-implemented. This disparity highlights a clear demand for legislative or policy reforms to enhance the regulation of resource use.

3.2.4 Factors inducing compliance with State and Non-state management institutions

The question aims to discern the social factors that impact adherence to customary rules within a community. The provided answers suggest a diverse range of influences. Education likely affects compliance as it shapes individuals' understanding of and attitudes towards traditional norms, potentially enhancing or diminishing their perceived relevance. These are powerful tools that can spread awareness and shape public opinion about customary rules, influencing the degree of compliance through societal discourse and peer influence. The data indicates that modernization is perceived as the most influential social factor affecting compliance with customary rules, with 84% of respondents identifying it as such. This suggests that as communities evolve with technological and infrastructural advancements, traditional practices and norms may be challenged or disregarded. Education follows closely, with 71% of individuals considering it a significant influence, implying that increased knowledge and critical thinking skills might lead to questioning or reinterpreting customary rules. Communication and social media also play a notable role (reported by 41% of respondents), highlighting the impact of these platforms in shaping and spreading ideas that could support or undermine traditional customs. Changing consumption patterns have a moderate influence (reported by 33% of respondents), reflecting how economic and lifestyle shifts can affect adherence to customs. Health issues are seen as the least influential factor, with 27% of respondents suggesting that while important, they may not be as central in the decision-making process regarding compliance with customary rules. Overall, these insights point to a complex interplay of factors that drive community adherence to traditional norms in the face of change.

This study hypothesized that "state institutions are not effective than customary institutions in land resource use in the Mungo Corridor of Cameroon". The Chi-square distribution was used to analyse the results. As a rule of thumb, if the p-value for the Chi-square distribution is less than 0.05, the null hypothesis is rejected. On the other hand, if the p-value for the Chi-square distribution is greater than or equal to 0.05, the null hypothesis is not rejected. The results of the Chi-square distribution have been presented on Table 6.

Table 6. Chi-square test

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.833 ^a	1	.361		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	1.185	1	.276		
Fisher's Exact Test				1.000	.600
Linear-by-Linear Association	.667	1	.414		
N of Valid Cases	5				

The results for the Chi-square distribution showed no significant difference at the 5% level ($\alpha = 0.05$) in the effectiveness of state institutions and customary institutions in land resource use in the Mungo Corridor of Cameroon ($X^2 = 0.833$, $p = 0.361$). Based on these statistics, the null hypothesis is therefore not rejected in favor of the alternative hypothesis. The study thus concludes that there is enough evidence to show that State Institutions are more effective than Customary Institutions in land resource use in the Mungo Corridor of Cameroon.

3.3 Discussion of Findings

The findings of this study show that only 5% of the respondents in the Mungo Corridor of Cameroon reported high levels of awareness on land tenure laws. Also, only 4% reported high levels of awareness on mining laws and 6% on the laws on Environmental Protection and Management in the Mungo Corridor of Cameroon. The perceptual evaluation of this study suggests that state institutions demonstrate greater effectiveness than customary institutions in the Mungo Corridor of Cameroon in the efficacy of land resource governance, the difference was found not to be statistically significant ($X^2 = 0.833$, $p = 0.361$). This finding however agrees with that of Deininger et al. [28] who reported that customary systems are considered inadequate in providing the much-needed tenure security for land-based investments. This is also asserted by Sone [29] who stated that there is disparity in the land acquisition process in Francophone and Anglophone Cameroon. This variation is because of the bijural system of Cameroon land acquisition in Cameroon. It was faulted for not being consistent with the requirements of modern market economies, and despite the myriads of criticisms against customary tenure systems, most Africans still depend on the customary tenure system because it is their most accessible (and affordable) means of accessing land, especially in the Mungo Corridor. Thus, as explained by McAuslan's [30], customary tenure in the Mungo Corridor of Cameroon may ultimately resemble statutory tenure more closely soon. This notion is supported by the observation that new customary tenure systems are increasingly aligning with, rather than diverging from, statutory tenure arrangements. Chimhowu [31], in his study of the 'new' African customary land tenure, characteristics, features, and policy implications of a new paradigm, reported that poor or limited state capacity also meant that the

effectiveness of these formal institutions was limited. For the moment, the evidence points to a 'new' Mungo Corridor Customary/Statutory tenure in Cameroon that is much variegated across sectors but increasingly formalized, more legible and relatively more predictable to capital than in the past.

The state of Cameroon has made legal praxis for usufruct rights on national domains. Loh [32] agrees with this result that discrepancies exist in implementing state laws in Cameroon, and this is usually the source of conflict. However, from the study, many individuals are utterly ignorant of such laws pertaining to land (less than 6%). The development of plantation agriculture was seen as a means of boosting the economy of Cameroon, where large-scale concessions were given to some individuals. These lands were used for agricultural development such as plantation, subsistence and fruit farming. However, with the rise in urbanization, many started illegal exploitation of natural resources without due recourse from the administrative authorities. From the findings, respondents indicated that they were not aware of land tenure law or mining laws, including environmental laws (less than 6%). This is vexatious in that all these individuals actively participate in land resource use practices and contribute massively to the changes in the Mungo landscape. From the findings, it was concluded that customary institutions effectively allocated village lands as state institutions. Sunjo [33], in carrying out a study in traditional authorities in land disputes, agrees with the study that many people don't trust government appointees to handle land registration matters, so they revert to traditional authorities.

Land resource actors in Mungo suffer from different levels of governance; however, in the study, it was observed that state actors steer land resource governance more significantly than non-state actors. Additionally, the effectiveness of land resource institutions in Mungo is salient as the study seeks to propose a solution. Land holds very important resource attributes, making it a veritable natural resource to study in its governance in many parts of sub-Saharan Africa. Yet, very little is known about the land resource governance dynamics in the context of the Mungo Corridor. The results processed in this study however revealed that Land resource use practices have evolved more in settlement land than in other resource use domains, e.g. more from dense forest to urbanization of settlement

land. This increase in urbanization was justified by the influx of migrants from Northwest and Southwest region who migrated to the Mungo Corridor to seek refuge. Many came to take advantage of the fertile soil in the Mungo Corridor for agriculture and commerce as well as for educational purposes. This increase in population has led to an increase in urbanization and, thus a spatial variation in the land use practice in the Mungo Corridor. Moreover, it was observed that significant factors have influenced land resource utilization practices, with economic considerations playing a predominant role. For instance, the fertile volcanic soil has attracted migrants from nearby regions, particularly the West Region to engage in agricultural activities, driven by the rising demand for food. "These migrants also constitute cheap labour which is a significant pull factor in the Mungo Corridor of Cameroon. Similarly, it was realized that, nearness to the market was another salient reason why people migrated to the Mungo Corridor as post-harvest and perishability is greatly minimized when the market is closer to the farms. This has been further promoted by the good road network linking the Mungo Corridor to the economic capital, Douala, the destination of choice for many farmers.

4. CONCLUSION

The study examined the effectiveness of state and customary land resource management institutions in the Mungo landscape. Based on the analysis, the following conclusions are drawn: Firstly, less than 10% of the community members are aware and understand the land tenure laws, mining laws and environmental protection and management laws in the Mungo Corridor of Cameroon. Secondly, though State institutions were found to be more effective than Customary institutions in land resource use in the Mungo Corridor, the difference as perceived by the respondents was not statistically significant ($p > 0.1$). This paper therefore suggests a need for initiatives to raise public awareness and deepen the understanding of land tenure laws in the Mungo Corridor of Cameroon. Such efforts could ensure that citizens are better informed about their rights and responsibilities, leading to more effective land governance and conflict resolution. Moreover, the data could inform policymakers and educators about the current state of public knowledge on land tenure laws, prompting them to develop targeted educational programs and communication strategies. Further studies should be conducted to detail quantify the effectiveness

of both the state institutions and customary institutions in land resource use in the Mungo Corridor of Cameroon. Also, the factors promoting compliance with state and non-state resource management institutions should be further researched and quantified.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

CONSENT

During the data collection process, written consent was obtained, and all respondents were assured of confidentiality.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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