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Changes in urban land use planning and its implications on socio-economic development in the Drobo municipality

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Abstract
The study was conducted on changes in urban land use planning and its implications on the socio-economic development in the Drobo and Japekrom within the Drobo Municipality of the Ahafo region of Ghana. The objective of this study was to examine the implications of changes in urban land use planning on socio-economic development in the Drobo Municipality. A multistage purposive sampling technique was used. Primary data was obtained from two hundred seventy-eight (278) household members using a purposive and simple random sampling technique. An analysis of the data was carried out and presented pictorially using descriptive statistics. The findings from the study revealed the existence of one type of land use scheme that is being enforced at both Drobo and Japekrom. The remaining schemes are yet to be implemented. Layout and land use in Drobo and Japekrom have not been effective. Large acre of land in area are under litigation and individuals who forcefully and unlawfully acquired parcel of land most at times are unwilling to surrender their land to physical planning department for evaluation and proper demarcation and layout and therefore recommend that the Municipal Assembly should resource the physical planning department to effectively monitor all forms of physical that would conform to land use plans.

Keywords: Urban land, socio-economic development, Drobo municipality, planning and schemes, land-use changes

Introduction
Since the early twentieth century, urbanisation has emerged as a central force shaping societies globally. Cities and metropolitan regions function as dynamic mosaics that incorporate a range of economic, social, political, and recreational land uses. The spatial organisation of these land-use activities reflects not only their primary functions but also deeper structural forces such as accessibility, territoriality, congregation, and segregation (Hall & Page, 2014) [15]. Presently, over half of the global population resides in urban areas, and nearly all nations continue to experience increasing levels of urbanisation (Cohen, 2006) [8]. These trends are significantly transforming the human settlement environment across various contexts.

In Europe and North America, planning systems have increasingly embraced flexibility, shifting away from rigid, prescriptive planning models towards more collaborative frameworks involving public-private partnerships (Verhoef & Nijkamp, 2002; Webster & Lai, 2003) [33, 34]. Conversely, urban development in sub-Saharan Africa faces a range of complex challenges. The prevalence of informal settlements, 'illegal' developments, and broader urban dysfunction highlights the inadequacy and obsolescence of prevailing planning legislation and practices across the continent (Kombe, 2005) [20]. For instance, in Accra, Ghana, approximately 78% of land developments on stool and family lands are deemed illegal (Larbi, 1996) [24]. Similarly, in a medium-income neighbourhood in Ibadan, Nigeria, 83% of housing structures violate zoning regulations (Arimah & Adeagbo, 2000) [5]. In Tanzania, it is estimated that 80% of the urban population resides in informal settlements (Kombe, 2005) [20]. This simultaneous growth in both population and per capita economic output is fundamentally reshaping land use patterns, often at the expense of the natural environment. Demographic expansion, particularly in urban areas, also induces structural transformation via multiplier effects and behavioural adaptations, frequently resulting in

increased migration. Urban centres thus serve as focal points for economic and social activity, expanding spatially and accelerating land-use transformations. These dynamics have significant implications for the formulation and implementation of effective land-use policies. Notably, this rapid change often undermines agricultural land, threatening food security in both rural and urban settings. Beyond physical impacts, land-use changes can also lead to socio-cultural shifts within communities, some of which may provoke resistance or conflict among landowners when perceived as threatening to their livelihoods or traditions.

In the context of Ghana's Drobo Municipality, the area experienced relative stability before the 2018 chieftaincy disputes. This period of peace contributed to a surge in property development, particularly for residential use. The influx of migrants from neighbouring countries, notably Côte d'Ivoire, has intensified land encroachment within the built environment. However, the unregulated nature of property development has begun to undermine the municipality's physical planning framework. In response, the Drobo Municipal Planning Authority has increasingly issued enforcement notices such as "stop work" or "produce permit" on new developments.

There has been a widespread conversion of land from its intended purpose to alternative, often unauthorised, uses. Examples include the transformation of land designated for waste disposal into residential plots, reallocation of road reserves into commercial uses, and the encroachment of institutional spaces, such as those near police stations and schools, by private structures. Moreover, there has been a notable trend in converting cocoa farms into residential developments, further stressing the local ecological and agricultural landscape. These activities continue to evolve, posing considerable challenges to sustainable land-use governance in the municipality.

The intricate relationship between urban land use and socio-economic development necessitates comprehensive strategies to mitigate land management challenges. Consequently, there is an urgent need for coordinated spatial planning and robust land-use policies within Drobo Municipality. These policies must address the current shortcomings in land-use regulation while accommodating the growing demand for land resulting from population growth and urban expansion.

Literature Review

Land Use Planning

Land has historically served as a fundamental resource for fulfilling economic, social, and cultural needs. It provides both direct and indirect inputs for essential human activities, including food production, housing, energy generation, transportation, trade, recreation, and aesthetic enjoyment (Briassoulis, 2009) [6]. Despite its critical importance, land remains a finite resource, leading to competition among diverse uses. Changes in land-use patterns may generate economic and social benefits, but they often come at the expense of critical resources, such as agricultural land, freshwater systems, forests, climate stability, and air quality (Dewan & Yamaguchi, 2009) [11]. For instance, rapid housing expansion in response to population growth has, in many countries, reduced the availability of land for food and timber production.

Land use planning has emerged as a strategic response to these competing demands. It represents a state-led mechanism for regulating land allocation and ensuring its sustainable use. However, the concept and practice of land use planning are under significant pressure globally. In Europe and North America, there has been a shift from rigid, state-controlled planning systems to more flexible models that emphasise public-private partnerships and negotiated planning processes (Nijkamp *et al*., 2002; Webster, 1998; Webster & Lai, 2003) [33, 34].

In contrast, many cities in sub-Saharan Africa continue to operate under colonial-era planning laws that have undergone limited reform. These outdated legislative frameworks often fail to address the contemporary realities of urban growth, informality, and socio-economic transformation. The prevalence of slums, informal settlements, and 'illegal' developments highlights the inefficacy of current land-use planning regimes in the region (Amin & Cirolia, 2018) [3]. Conducting a formal property transaction in the largest business cities of typical African countries costs, on average, 14% of the property value and takes more than 100 days, compared to 2.5% and two days in Europe (Amin & Cirolia, 2018) [3]. As a result, the high costs and administrative inefficiencies deter developers from pursuing formal processes, driving the expansion of informal or illegal land markets.

Empirical evidence from African cities underscores these challenges. In Accra, Ghana, approximately 78% of developments on stool and family lands are considered illegal (Larbi, 1996) [24]. Similarly, in Ibadan, Nigeria, 83% of homes in a medium-income neighbourhood were found to have violated zoning regulations (Arimah & Adeagbo, 2000) [5]. In Tanzania, informal settlements accommodate nearly 80% of the urban population (Kombe, 2005) [20]. These patterns reflect a widespread disconnection between formal planning frameworks and the socio-economic dynamics of urban growth in the region.

The current system of land use planning in sub-Saharan African cities is rooted in colonial administrative models. Following independence, most countries have retained these laws with minimal modifications, resulting in continued reliance on rigid planning tools that are unsuited to current urban development needs. Urban planners and land managers must consider land as both a natural resource and a socio-economic asset, viewing it simultaneously as an input into and an outcome of development processes. Land is often contested between those seeking to transform it for economic gain and those aiming to preserve traditional or existing uses. It also plays a dual role as a vehicle for socio-economic mobility and a potential locus of inequality or crime. As such, effective land use planning requires interdisciplinary knowledge encompassing technical, social, economic, and institutional dimensions.

Ollenu (1985) [27] offers a comprehensive definition of land, encompassing the physical soil, water bodies, trees, built structures, and associated rights and interests. This broad interpretation highlights the multifaceted nature of land, reinforcing the need for holistic planning approaches.

Land use planning also plays a crucial role in transportation systems. In densely populated cities such as Hong Kong, modal choices are shaped by land-use configurations, independent of travel time and cost (Banister, 2007) [37]. However, Zhang (2004, as cited in Banister, 2007) [37] argues that the influence of land use planning on transportation is more accurately assessed when cost components are integrated into the analysis. In addition to

its influence on mobility, land use planning has a direct impact on housing density and development patterns. Schill (2004) emphasises that planning systems control not only the quantity of land available for development but also the intensity of its use.

Peters highlights zoning policies in Australia as an example of land use planning guiding the transition of agricultural land into predominantly residential uses. These regulations shape the supply of land for housing and impact urban form and density. Cervero (2003) [7] supports this perspective, noting that planned urban spaces facilitate more compact and efficient housing developments compared to unplanned or ad hoc growth.

The United Nations Human Settlements Programme (UN-Habitat) emphasises the crucial role of land use planning in promoting physical development, particularly in post-conflict settings such as South Sudan. In collaboration with the South Sudanese Ministry of Housing and Physical Planning (MHPP) and Norwegian Capacity (NORCAP), UN-Habitat produced the manual Planning Urban Settlements in South Sudan, which outlines the spatial benefits of planned development for infrastructure and public service provision.

Public utilities, as defined by Adam, include services such as water supply, sanitation, roads, drainage, energy, waste removal, telecommunications, schools, hospitals, public buildings, recreational areas, and other essential facilities. Effective land use planning facilitates equitable access to these utilities by creating spatial conditions conducive to their optimal location and distribution. It also enhances the functionality of urban settlements by supporting recreational, educational, safety, and welfare needs.

Contrary to views that consider land use planning a peripheral concern in settlement development, Cullingworth and Nadin (2006) [10] reference former UK Prime Minister Gordon Brown, who strongly advocates for its significance. Brown contends that land use planning is vital for ensuring access to decent housing and achieving balanced, sustainable regional and national development.

Principles of Land-Use Planning in Cities

The primary challenge addressed by town planning in the context of urban land development relates to the concept of market failure, as initially theorised by Pigou (1932) [30] and further elaborated by Connolly and Munro (1999) [9]. According to neoclassical economic theory, markets often fail to meet environmental institutional standards because private decision-makers are not fully accountable for the external consequences of their actions. This misalignment leads to a divergence between private and social costs, thereby preventing market-driven resource allocations from achieving Pareto optimal outcomes (Webster & Lai, 2003) [34].

Pigou (1932) [30] proposed that such market inefficiencies could be corrected through the implementation of marginal taxes and regulatory mechanisms that internalise the value of externalities. Externalities, defined as unintended third-party effects arising from private consumption or production decisions, necessitate state intervention to realign private interests with societal welfare.

Beyond economic theory, land-use planning has historically served non-economic purposes, particularly in sub-Saharan Africa. Planning practices were employed during the colonial period not only to manage land uses but also to institutionalise racial segregation through spatial configurations (Kanyeihamba, 1980) [19]. The colonial model imposed a dualistic urban system: one developed for European settlers, and another for African labourers (Wekwete, 1995) [35]. Despite achieving political independence, many African cities have retained the colonial planning frameworks, including associated laws and procedures (Larbi, 1996) [24].

In contemporary African cities, such as those in Nigeria, urban residents often subdivide land to maximise profit, frequently disregarding externalities such as noise, traffic congestion, and environmental degradation. These negative externalities are usually borne by adjacent property owners who were not parties to the original transactions (Arimah & Adeagbo, 2000) [5].

Critique of Traditional Urban Planning

The market failure paradigm, as a justification for urban land-use planning, has been challenged by proponents of free market environmentalism (Anderson & Leal, 2001) [4]. Critics argue that traditional planning theories fail to account for the transaction costs of government intervention, such as regulatory capture and bureaucratic inefficiency. These are considered significant economic costs, weakening the relevance of the Pigovian approach, which assumes a cost-free administrative environment.

Alternative approaches, particularly those influenced by Coasean economics and public choice theory, advocate for the recognition of transaction costs and property rights in achieving efficient land-use outcomes (Krueckeberg, 1995) [21]. Within this framework, government failure is viewed as a competing explanation to market failure. Rather than relying solely on state intervention, the efficient resolution of environmental and land-use issues is posited to depend on the proper allocation and enforcement of property rights.

According to Pennington, the private sector may be more effective at internalising externalities, in contrast to the public sector, which often externalises costs. The government's role, therefore, is redefined to include the enforcement of private contracts and the adjudication of property rights disputes (Webster & Lai, 2003) [34].

Changes in Land-Use Patterns

Urban land-use change is a significant concern for city planners and policymakers, driven by rapid population growth and increasing demand for urban land. These dynamics often result in unplanned city expansion, informal settlements, and pressure on land designated for residential purposes. The consequences include rising land prices, illegal land sales, and the proliferation of unauthorised structures and slums. Addressing these challenges requires integrated strategies and effective monitoring of land-use transformations.

Both biophysical and socio-economic factors drive urban land-use change. Environmental variables such as soil type, climate, and topography influence land-use suitability. Concurrently, land remains a vital and finite resource supporting a broad range of human activities, including agriculture, industry, energy production, recreation, and urban development (Songara & Rai, 2010) [31].

Historically, land has been tightly coupled to economic development, making it a focal point of intense human activity and contestation. Proximate sources of land-cover change include deforestation for agriculture and the

management of grasslands through practices such as grazing and controlled burning (Hobbs *et al*., 1991; Schimel *et al*., 1991; Turner, 1989) [18, 32]. These actions are linked to broader socio-economic motivations, such as the need for food, fibre, and housing.

Land-use decisions are also shaped by institutional factors, such as property rights and governance structures, as well as population dynamics, economic development levels, and technological capabilities. For example, agricultural pricing policies can create incentives that influence land-use patterns.

Interpretations of how these variables interact vary widely across policy and academic domains. There remains debate over which factors most significantly influence land-use decisions, particularly in diverse socio-environmental contexts (Kummer, 1992) [22]. For instance, land degradation in arid regions could be attributed to overgrazing, misguided development projects (e.g., borehole drilling), or political elites exploiting communal land through state connections (Mitchell, 1992; Pearce, 1992) [25, 29].

At the global scale, empirical studies have documented systemic relationships between key drivers and land-cover change during the 20th century (Newell & Marcus, 1987). However, regional studies reveal significant variability in both causes and impacts (Hawkins *et al*., 2013) [17]. Comparative assessments indicate that similar land-use change scenarios recur in diverse geographic contexts, such as rapid population growth combined with international commodity demand in forest frontier areas (Havlík, 2011) [16]. Nevertheless, integrated theories that effectively link human drivers to environmental outcomes are still underdeveloped and difficult to empirically test.

The Impact of Urban Land Use Planning on Development

Urban land use planning plays a pivotal role in shaping the development trajectories of cities and settlements globally. It influences multiple dimensions of development, particularly spatial or physical development, where its impact is most visible. Historical and contemporary examples demonstrate that urban land use planning has significantly influenced the spatial structure and form of urban settlements (Cullingworth & Nadin, 2006) [10]. For instance, the growth of large towns and cities, often driven by the population's desire for improved living and working conditions, has been controlled through planning mechanisms. Without regulatory interventions, such as the granting of development rights subject to approval by local authorities, many urban areas would have continued to expand unregulated into adjacent greenfields and rural settlements (Cullingworth & Nadin, 2006) [10].

In the United Kingdom, particularly in cities such as London, Lancashire, and Wales, urban sprawl has been curtailed through planning measures that prohibit development without official permission. This restriction has proven effective in managing and containing urban growth. A significant impact of such planning interventions is the influence on land values. Cullingworth, Kazda, and Caves (2007) [38] assert that planning permissions have become integral to determining land values. In certain parts of London, for example, the approval of housing developments led to increased land values, not only due to the development rights conferred but also due to restrictions placed on nearby land, thereby limiting competition and improving the value of the approved sites.

Land use planning has also facilitated the structured expansion of cities, ensuring that development occurs within an organised framework. Hall (2005) [14] highlights that areas such as London have maintained extensive greenbelts that act as buffers against unregulated urban encroachment. These greenbelts, along with national parks and protected landscapes designated through land use plans, now cover over 40% of Britain's land area, safeguarding it from large-scale urban development. Before the institutionalisation of land use planning, much of this land lacked protection (Hall, 2005) [14].

Beyond the United Kingdom, similar benefits of land use planning have been observed elsewhere. In Kampala, Uganda, various planning schemes have led to the creation and preservation of open spaces that continue to serve ecological and social functions (Omolo-Okalebo, 2011) [28]. The enforcement of land use regulations in Kampala has ensured the survival of these spaces, indicating the potential of planning to protect greenfields and natural vegetation in urban contexts.

Urban land use planning has also played a crucial role in enhancing accessibility. In Kampala, the development of road networks and other transportation systems has aligned closely with urban plans, thereby improving internal movement and accessibility (Omolo-Okalebo, 2011) [28]. The implementation of planning frameworks also influenced the location of industrial zones and rail infrastructure in the city. Such developments would have been improbable in the absence of systematic planning processes.

The regulation of housing densities, promotion of social cohesion through neighbourhood design, and the transformation of residential areas are additional impacts of urban planning. Hall (2005) [14] notes that the East End of London, once characterised by substandard slum housing, underwent substantial redevelopment following its rezoning for high-rise housing. The area now comprises a mix of tall apartment blocks and modern housing developments. In Uganda, the suburb of Kololo exemplifies planned residential development. Originating from the land-use planning initiatives of the 1940s, Kololo was designed with spacious one-storey housing units, wide plots, and comprehensive utility services, including water supply, electricity, and sewage systems. The area maintains a low population density of fewer than 15 persons per acre, reflecting effective planning (Omolo-Okalebo, 2011) [28].

Land use planning has also contributed to the establishment of entirely new towns in the United Kingdom, in response to population pressures and the need for spatial reorganisation. These towns, such as Northampton, Peterborough, Warrington, and Central Lancashire, were either newly established or expanded from existing settlements. A defining feature of these towns was their large size, with each accommodating over 50,000 housing units, and spatial configurations designed through comprehensive planning (Cullingworth & Nadin, 2006) [10].

In summary, urban land use planning is essential for mitigating unregulated urban sprawl, reducing poverty, promoting equitable spatial development, and minimising the cost of infrastructure provision. Given the dynamic nature of urbanisation, there is a need to continually evaluate and integrate land use planning practices into broader economic and social development frameworks.

The Nature of Urban Land Use Planning and Schemes in Ghana

In Ghana, urban land use planning is underpinned by a system that incorporates zoning, regulatory frameworks, consensus-building mechanisms, and the use of master plans. Planning schemes, which are statutory in nature, outline the objectives, policies, and provisions that guide the development and protection of land within defined areas. These schemes are intended to promote efficient and equitable land use while minimising potential conflicts. Urban land use planning in Ghana encompasses decisions about the location, intensity, and quantity of land allocated for various uses, including residential, commercial, industrial, institutional, recreational, and infrastructural purposes (Food and Agriculture Organization [FAO], 1999) [13].

The planning system in Ghana is structured across three tiers. At the highest level is the spatial development framework, which provides strategic direction for spatial development at national, regional, and district levels. This framework typically spans a 20-year planning horizon. The second tier is the structure plan, which outlines land uses and associated infrastructure networks in more detail, serving as the basis for local planning. The final tier comprises local plans, which are the most detailed, demarcating specific zones and land parcels for various uses, and incorporating elements such as proposed road networks and community infrastructure.

Ghana's planning framework reflects the influence of British colonial planning traditions, particularly the master planning approach introduced through the Town and Country Planning Ordinance of 1945 (CAP 84). Under this legal regime, planning activities are coordinated by institutions such as the Town and Country Planning Department and various levels of local government, including Metropolitan, Municipal, and District Assemblies (Evans *et al*., 2009) [12]. However, the continued reliance on CAP 84 has posed significant challenges, as it is considered outdated and inconsistent with current legislative frameworks such as the Local Government Act (Act 462) (Kuusaana & Eledi, 2015) [23].

Persistent challenges, including limited human resources, inadequate financial support, and logistical limitations at the local government level, further constrain the performance of planning functions. These constraints, combined with the legislative inconsistencies, risk exacerbating uncontrolled urban growth across Ghana (Kuusaana & Eledi, 2015) [23].

Despite these challenges, land use planning remains crucial for infrastructure development and the provision of public amenities. Through zoning and subdivision ordinances, the private use of land is regulated to ensure compatibility with broader development goals. Zoning, in particular, is used to segment urban areas based on their suitability for different land uses. It is regarded as the most widespread form of land-use regulation, helping municipalities direct growth in ways that protect public welfare and community character. Zoning ordinances are not designed to enhance private economic interests, but rather to maintain the overall functionality and aesthetic of cities and towns.

Although Ghana previously relied heavily on zoning, recent trends in urban land-use planning have shifted toward integrated planning approaches. These are designed to ensure that future urban development is sustainable and responsive to contemporary socio-economic and environmental challenges. This evolution reflects a broader global transition from rigid zoning regimes towards more flexible and context-sensitive planning paradigms.

Problem Statement

The rapid pace of urban population growth necessitates the availability of adequate land for development, particularly for housing, transportation infrastructure, health services, and educational facilities. As Afrane (2006) [2] emphasises, urban land use planning constitutes an essential component of the broader development planning process. It involves the optimal allocation of space for various human activities, intending to foster functional spatial relationships. The overarching goal of urban planning, therefore, is to ensure orderly development, conceptualised as "a place for everything and everything in its place."

In the municipality of Drobo, however, recent trends, including urban sprawl, internal migration, natural population growth, and the increasing demand for public infrastructure, have significantly transformed existing land use patterns, planning schemes, and land management practices. Despite the pressing need for planned urban development, challenges persist. The rising cost of land has compelled some landowners to reallocate land away from its intended developmental purposes toward more commercially attractive alternatives. Additionally, many landowners in the municipality have shown a reluctance to engage with professional planners and surveyors, thereby undermining the objectives of urban land-use planning. This has resulted in several spatial and infrastructural deficiencies, including poorly oriented buildings, inadequate access to basic infrastructure, and misaligned roads and drainage systems.

Drobo's status as a border town adjacent to Côte d'Ivoire, its role as a major urban centre within the region, and the presence of a satellite campus of the Berekum Nursing and Midwifery College have further contributed to its demographic and spatial transformation. The city has experienced a marked influx of students, job seekers, and internal migrants, all of whom are drawn by economic and educational opportunities. This population surge has heightened demand for housing and other urban services.

While numerous studies have investigated land use planning challenges across Ghana (Afrane, 2006; Yeboah & Obeng-Odoom, 2010; Larbi, 1996; Adarkwa, 2012; Arimah & Adeagbo, 2000) [2, 36, 24, 1, 5], the specific case of Drobo remains underexplored. Given its unique locational, demographic, and socio-economic dynamics, Drobo presents a distinct urban planning context. This study, therefore, aims to address this research gap by offering a comprehensive assessment of the current land use planning schemes in Drobo, their limitations, and the socio-economic consequences of these inadequacies.

Objective of the Study

The primary objective of this study is to examine the implications of changes in urban land use planning on socio-economic development within the Drobo Municipality. Specifically, the study seeks to:

1. Identify the urban land use planning schemes and systems in the Drobo Municipality
2. Examine the causes of the ineffectiveness of urban land use planning schemes and processes in the Drobo Municipality.

Significance of the Study

This study holds substantial significance for stakeholders involved in urban land use planning, including policymakers, urban planners, landowners, and municipal authorities. It offers practical recommendations for addressing the challenges associated with urban land use transformation, particularly in response to rapid population growth, land management inefficiencies, and the socio-economic development of the Drobo Municipality and, by extension, Ghana.

The insights generated from this study aim to support evidence-based policymaking. By examining the consequences of uncoordinated changes in land use patterns, the findings will help decision-makers formulate strategic policies for urban land use and its associated management frameworks. This will ultimately contribute to mitigating issues such as informal settlements, inefficient infrastructure provision, and environmental degradation.

Moreover, the study contributes to the broader knowledge base concerning urbanisation, land allocation, zoning, and institutional capacity in urban governance. In the context of increasing globalisation and urban expansion, such contributions are essential for guiding sustainable urban development. The research also contributes to the existing academic literature on land use planning in Ghana, providing context-specific insights into the Drobo Municipality. This area has received limited scholarly attention in the past.

Notably, the study has practical implications for urban aesthetics, safety, and the compatibility of functional land use. By addressing challenges such as poor building orientation, slum proliferation, inadequate sanitation, and misaligned road networks, the findings aim to support the realisation of urban planning objectives. Additionally, the data collected in this study will serve as a reference point for institutions involved in land management and development control, aiding in performance improvement and institutional strengthening. It is anticipated that the study will not only inform immediate planning interventions in Drobo but also inspire further academic inquiry into similar urban contexts nationwide.

Limitations of the Study

Several limitations were encountered during the study. One of the primary challenges was the difficulty in systematically tracking changes in land use over time. Institutional constraints, particularly the lack of comprehensive data and inadequate record-keeping by agencies responsible for land use management, impeded the acquisition of longitudinal data necessary for validating historical changes.

This limitation is partly attributable to the rapid rate of urbanisation in Drobo, which has overwhelmed the capacity of local planning institutions. In the absence of verifiable institutional data, the study relied on qualitative insights gathered from landlords, business owners, and other local informants to construct a realistic picture of prevailing land use dynamics.

Additionally, the study was constrained by the limited collaboration among key stakeholders within the land administration and planning sector. The absence of structured inter-institutional dialogue hindered the emergence of critical perspectives that might have enriched the research. This lack of interface limited the ability to gather coordinated and comprehensive responses to land management issues, which are crucial for effective policy and planning reforms.

Nonetheless, all relevant institutions were consulted to the extent possible, and their contributions have been integrated into this study. Despite these constraints, the issues explored remain vital to the advancement of land use planning practices in Drobo. The study, therefore, provides a valuable foundation for future research and underscores the importance of institutional collaboration in achieving effective urban land governance.

Methodology

Research Design

This study employed a cross-sectional survey design, underpinned by both interpretivist and positivist philosophical paradigms. A mixed-methods approach, integrating both qualitative and quantitative data, was adopted to offer a comprehensive understanding of the complex issues surrounding urban land use planning and its socio-economic implications within the Drobo Municipality. The rationale for utilising mixed methods stems from the recognition that neither qualitative nor quantitative approaches alone are sufficient to capture the multifaceted and interrelated dimensions of land use dynamics (Creswell & Plano Clark, 2018) [39].

Sampling Procedure and Techniques

A combination of purposive and simple random sampling techniques was employed. Purposive sampling was used to select respondents who possessed specific knowledge or experience related to land use planning in the study area, particularly officials from the District Assembly's Physical Planning Inspectorate. This technique was deemed appropriate for identifying key informants with in-depth expertise on the subject matter.

Simple random sampling was then applied to select property owners and other community members, ensuring representativeness and reducing sampling bias. Of the total questionnaires administered, 64% (n = 178) were distributed in Drobo and 36% (n = 100) in Japekrom. This proportional distribution was intended to support effective comparative analysis between the two communities.

In total, 278 respondents participated in the study, comprising:

180 property owners and landowners (100 from Drobo and 80 from Japekrom), 25 farmers, 38 representatives from land use–related institutions, and 35 business owners.

Sources of Data

Both primary and secondary data sources were utilised. Secondary data were obtained through a comprehensive literature review of books, peer-reviewed journal articles, policy documents, newspapers, and online publications: primary data collection involved field investigations, structured questionnaire surveys, and face-to-face interviews with selected respondents.

Sample Size Determination

The sample size was determined using Slovin's formula (Slovin), given as:

n = \frac{N}{1 + N(e)^2}

Where:
n = required sample size
N = total population (6,080)
e = margin of error (0.06)
Substituting into the formula:
n = \frac {6080} {1 + 6080(0.06) ^2} = \frac {6080} {1 + 21.888} = \frac {6080} {22.888} \approx 277.7
The final sample size was thus rounded to 278 respondents.

Data Collection Instruments and Methods
The study employed two primary data collection instruments: a structured questionnaire and an in-depth interview guide.
The questionnaire was designed to elicit responses from community members, particularly landlords and property owners. It consisted of both pre-coded (closed-ended) and open-ended questions, allowing respondents to elaborate on their views as needed. The questionnaires were self-administered and personally distributed by the researcher to ensure a high response rate and minimise data collection errors.
An interview guide was used to collect qualitative data from officials in institutions responsible for urban planning and development control. Additionally, focus group discussions were conducted with key informants possessing specialised knowledge relevant to land use planning in Drobo Municipality. These sessions helped validate responses from the questionnaires and provide deeper contextual insights.

Data Analysis and Presentation
Quantitative data were coded, entered, and analysed using Statistical Package for the Social Sciences (SPSS) version 25 and Microsoft Excel 2016. Descriptive statistics, including frequencies, percentages, and cross-tabulations, were employed to summarise and interpret the data. Graphical representations such as bar charts and tables were used to enhance data presentation.
Qualitative data from interviews and focus groups were audio-recorded, transcribed, and analysed thematically. The themes were developed inductively from the data and verified by sharing a draft summary with participants for feedback. Revisions were made based on their comments to ensure the thematic interpretations accurately reflected participant perspectives (Braun & Clarke, 2006) [40].

Results and Discussion
The demographic characteristics of the respondents in terms of sex, age, place of residence, level of formal education, marital status, and living arrangement are depicted in Table 1 below.

Table 1: Demographic characteristics of respondents

Variables	Number of responses (N)	Percentage (%)
Sex		
Male	178	64
Female	100	36
Total	278	100
Age		
18 – 35	27	9.7
36 – 45	63	23
46 – 60	102	37
60+	86	31
Total	278	100
Educational level		
No formal education	39	14
Basic education	104	37.4
Secondary	87	31.3
Tertiary	48	17.3
Total	278	100
Occupation		
Teacher	63	24.5
Trader	55	19.8
Farmer	124	44.6
Civil servant	24	8.6
Others	12	4.3
Total	278	100

Sex of respondents
The Sex distribution of a sample in research has become an important dimension in research analysis. The role of gender in this research is as a way of assessing women vis-à-vis men's participation in general development interventions in ensuring management of land use schemes and sustainable planning schemes. The result of the analysis shows that men in the study area dominated the land and housing market since most men own land and housing. These results agree with Mishra & Sam (2016) in Nigeria, who also discovered that more Men are involved in land-related issues than their female counterparts. The result, as shown in Table 4.1, indicates that 178 respondents, representing 64 percent, are male, while 100 respondents, representing 36 percent, are female.

Age of respondents
The age distribution of landlords/ladies in the study area plays a major role in determining the level of compliance and adherence to land use planning and effective scheme development. An investigation conducted in the study area indicated that the majority of landlords/landladies fall within the age group of 46-60, with a mean age of 48 years. From Table 4.1, in terms of age, 9.7% of the respondents were between the ages of 18–35, 23% between 36–45, and 31% were aged above 60 years. The age distribution confirms

that the landlords are relatively old and can provide an adequate response to the questions being asked.

The educational level of the respondents

As shown in Table 1, out of the 278 respondents, 39 of the respondents, representing 14 percent, have had no formal education, 31.3 percent have completed secondary school, and 17.3 have furthered their education to tertiary institutions. The majority of the respondents (104), representing 37.4 percent, have had at least a basic education in the Municipality. This observation implies that there is high literacy among landlords in the Municipality since the majority of them can read and write. The assumptions of this are that educated ones among them may appreciate some of the benefits they can derive from their property when they are subjected to the appropriate authorities for proper layout and demarcation.

Occupational distribution of respondents

The research on the occupational background of landlords gave a true reflection of the economy of both study areas, with agriculture being the dominant economic activity among the respondents. The data revealed that out of the 278 respondents, 63, representing 24.5 per cent, were teachers, 19.8 percent engaged in trading activities, 44.6 percent were farmers, and 8.6 per cent were civil servants. However, only 4.3 percent of the total respondents were involved in other businesses. The inference from this data is that the major or dominant occupation being undertaken in the Drobo municipality is farming, which can be attributed to the fact that most have had only a basic education. Hence, with their educational qualification, the only occupation they can engage in at the Municipality is farming.

Table 2 below shows the summary statistics of the demographic characteristics of the respondents as discussed above.

Table 2: Summary statistics of Demographic characteristics

Variables	Mean	Std. Dev	Min.	Max.
Sex	0.737	0.440	0	1
HH_size	6.776	3.015	1	18
Age	48.90	11.30	27	85
Mar. status	0.913	0.281	0	1
Edu. Status	2.895	1.026	1	4
Occupation	1.241	0.559	1	4
Land_permit	0.402	0.491	0	1
Ownership of land	0.343	0.475	0	1

Urban Land Use Planning Schemes and Systems in the Drobo Municipality

Land use planning in Ghana is based on discrete zoning, regulations and consensus, and the use of master plans Njoh. Governments use land-use planning to manage the development of land within their jurisdiction. Urban Land use planning or scheme, however, is concerned with the location, intensity, and amount of land development required for various functions, such as residential, commercial, industrial, institutional, recreation, infrastructure, utility, and other activities found in urban areas (FAO, 1999) [13]. The response regarding respondents' views on the urban land use planning schemes that are available in the study area is presented in Table 3. Respondents were asked to indicate whether they had acquired a permit before building. The researcher also quizzed the respondents on whether they had a building permit. From Table 3, the majority of the respondents (193), representing 69 percent, had no building permit. In contrast, only a handful of the respondents (31 per cent) obtained a building permit before erecting their structures on the land. This is in line with Awuah & Hammond, who found that the majority of Ghanaians do not acquire building permits before erecting their buildings. This has led to an increase in buildings sited at unauthorized places within the Municipality since the authorities involved in issuing the permits are not contacted before they put up their structures on the land. This finding agrees with Bates on poor land use systems and water integration. Connoly & Munro (1999) [9] also reported on constraints urban land developers faced in obtaining permits from the relevant institutions mandated to issue such permits.

Table 3: Shows land use planning schemes and systems in the Municipality

Variables	Number of responses (N)	Percentage (%)
Do you have a building permit? Yes No	 85 193	 31 69
Do you own the house you live in? Yes No	 273 5	 98.2 1.8
Do you have a land permit before building your home? Land commission Physical planning department	 66 31	 68 32
Total	97	100
Is your plot located in a layout area? Yes No	 273 5	 98.2 1.8

As shown in Table 3, out of the 278 respondents, the majority of the respondents (273) representing 98.2 percent indicated that they do not own the house they live in whilst only a fraction of the respondents (5) representing 1.8 percent owned the house that they live in. it can be seen from the data that most of the residents in the Municipality do not live in their own houses but live in rented apartments and single rooms. The inference from this is that only 1.8 percent of the population are landlords and landladies in the Municipality and hence, make decisions regarding house rents for the majority of the population.

Moreover, the majority of the respondents, representing 98.2 percent, indicated that their plots are situated in the layout areas, while only 1.8 percent stated that their plots are not located in the layout areas. Finally, as shown in Table 3, in terms of respondents indicating where they acquired the permits, 66 percent of the respondents indicated that they acquired their permits from the Lands Commission. On the other hand, out of the 97 respondents, 34 percent indicated they also obtain their building permits from the physical planning department.

Reasons accounted for the landlord/ladies not acquiring permits before putting up their building.

This section, under the first objective, sought to solicit respondents' reasons why landladies/landlords do not acquire permits before putting up their buildings. The result is presented in Figure 2 below.

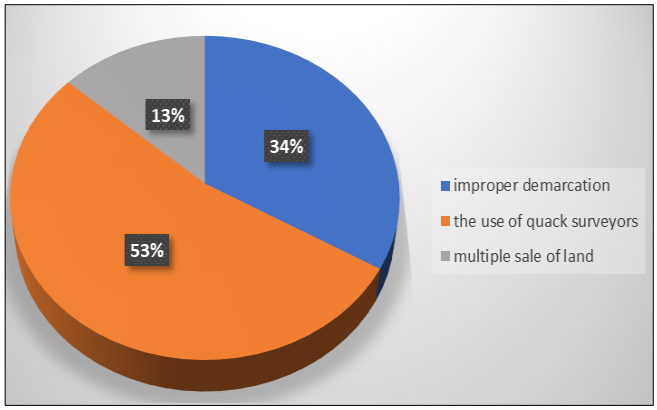

Fig 1: Reasons accounted for the landlord/ladies not acquiring permits before putting up their building

As shown in Figure 1, the majority of the respondents, representing 60 percent, indicated that the high cost of processing documents hinders them from acquiring building permits before putting up their buildings. This agrees with Connolly & Munro (1999) [9], who identified market failures and the high cost of documentation as the main reasons why people fail to obtain permits before constructing their buildings. The result shows that 38 percent indicated cost, and the bureaucratic process of obtaining a permit motivates them to build their buildings without a permit. In addition, 2 per cent of the total respondents also indicated a lack of knowledge about the existence of a permit as a reason for not obtaining a permit before putting up their structures. It was observed during the study that, had it not been for the permit cost, the majority of them would have opted for acquiring a permit before putting up their structures. It was also revealed during an informal conversation with one of the respondents that they sometimes have to pay a bribe before the permit is given to them, and all of these, in addition to the cost of the permit itself, make the documents very expensive, hence deterring them from acquiring it. The study also revealed that people are not aware of the existence of other land schemes in the area. This finding is in line with Lentsoane in South Africa, where he found that several people were not aware of the existence of a land planning scheme.

Also, the long processes discourage a section of the respondents from going for the building permit. A statement made by the Municipal Physical Planner complements what the respondent said. He stated that,

".....we are unable to approve all applications for building permits within the three (3) months stipulated period under the law, as we are logistically constrained and as a result of inadequate staff, hence it takes several months before the permit will be ready".

The research also revealed that the Municipality had only one physical planner. Furthermore, he was worried that the Municipal Assembly was not committed to supporting local-level land use planning regarding monitoring and evaluation. Again, the researcher quizzed the respondents on where they acquired their plot. The response is presented in Table 4.

Table 4: Source of plot acquisition

Variable	Response	Percentage
From whom did you acquire your plot?		
Lands commission	0	0
Traditional Authority	150	57
Inheritance	85	31
Private individual	43	12
Total	100	100

It can be observed from Table 4.4 that none of the respondents acquired their plot from the Lands Commission. The majority of the respondents, representing 57 percent, indicated that they acquire their plots from the traditional authority in the Drobo municipality. 31 percent also indicated their source of plot ownership from inheritance, whilst 12 percent acquired their plot from private individuals. This finding affirms that the role played by the traditional authorities in leasing lands out to people in our community cannot be just overlooked, and there is no better alternative than to go to them for land.

Causes of the ineffectiveness of urban land use planning schemes and processes in the Drobo Municipality.

The second objective of the study sought to examine the causes of the ineffectiveness of urban land use planning schemes and processes in the Drobo municipality. The responses are presented in Tables 5 and 6, and Figure 2 below.

Table 5: Causes of land use increase

Variables	Number of responses (N)	Percentage (%)
Has your plot been changed into another land use before? Yes No	 124 154	 45 55
What has it been changed for? Building Fuel station Refuse dump Market stores Others	 203 12 25 28 16	 73 4 9 10 4
Benefits from land-use change? Yes No	 138 146	 49 51
Reasons for the increase in land use Urbanisation Population increase Changes in the rural settlement Immigration	 100 109 24 45	 36 39 8.7 16.2
Total	278	100

From Table 5, it can be observed that out of the 278 respondents, 55 percent indicated that their plot has been changed into other land use. On the other hand, 45 percent disagreed with the fact that their plot has been changed into other land use. The majority of the respondents, representing 73 percent, revealed that their various lands have been converted into buildings. 4 percent indicated that it has been changed to fuel stations, 10 per cent also reiterated that it has been changed to market stores, while 4 per cent were not certain what their land has been changed to.

Also, as shown in Table 5, the majority of the respondents, representing 51 percent, opined that they have benefited from the changes in the land use, whilst 146 respondents, representing 41 percent, indicated that they have not seen or experienced any benefits as a result of the changes in the land use. Finally, from Table 4.5, 36 percent of the respondents believed that the reason for the increase in land use in the Municipality is due to urbanisation. 39 percent asserted that population increase has been a leading cause of the alteration of the land use in the Municipality. 8.7 and 16.2 percent of the respondents indicated that the reason for the increase in land-use changes in the rural setting and immigration, respectively.

Table 6: Reasons for the absence of land-use types

Variables	Number of responses (N)	Percentage (%)
Reasons for the absence of land-use types		
Change in land use	75	27
Frequent changes of local plans	80	29
Land litigation	27	10
Unplanned development	112	40
Inability to tap into the infrastructure in residential areas		
High cost of infrastructure	86	31
Improper location	83	30
Improper alignment of buildings	85	30.5
Others	24	8.6
Total	278	100
Do you believe the land has encroached?		
Yes	83	30
No	195	70
Total	278	100

As depicted in Table 6, in terms of the reasons for the absence of land use types in the Municipality, 75 respondents, representing 27 percent of the total respondents, attributed the absence of land-use types to the change in land use. Out of the 278 respondents, 29 percent believed that the frequent changes of local plans contribute to the lack of land-use types. However, the majority of the respondents (112), representing 40 percent, believed that the major cause of the changes in land use types in the Municipality is due to unplanned development. The inference from this is that urban land use planning activities in the Drobo municipality and its surrounding areas, such as Japekrom, operate under informal sector conditions, characterised by free entry and exit, and are unregistered and unregulated by relevant state institutions. It also implies that urban land-use change, with its unregulated activities, has been widespread in this community. If proper measures are not put in place, farmlands, biodiversity, and ecosystems would be greatly destroyed, thereby negatively impacting livelihoods and increasing the extent of poverty in these communities. This finding agrees with the finding of Lautenbach *et al*. (2012) [41], who indicated that community land-use change globally has a negative impact on both wildlife and society as a whole if not appropriately regulated.

Also, the researcher quizzed the respondents on the specific reasons for their inability to tap into the infrastructure in the residential areas. As shown in Table 4.6, the majority of the respondents (86), representing 31 percent, indicated that they have not been able to tap into infrastructure in the residential areas due to the high cost of infrastructure. Moreover, 30 and 30.5 percent of the respondents attributed improper location and improper alignment of buildings as the reasons why they have not been able to tap infrastructure in the residential areas, respectively.

Regarding whether the land has encroached or not, the majority of the respondents (195), representing 70 percent, opined that they are aware of the encroachment of the land whilst 30 percent indicated that the land has not encroached.

The researcher quizzed the respondents on the reasons accounting for the encroachment in the Drobo municipality. The response is presented in Figure 2

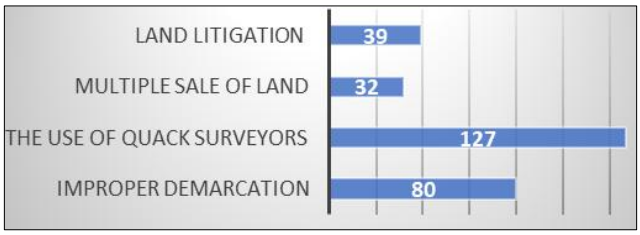

Fig 2: Reasons accounting for encroachment

It can be observed in Figure 3 that most of the respondents (127), representing 46 percent, believed that the reason why the lands have encroached is due to the hiring of quack or unprofessional surveyors to work on the various lands within the Municipality. Also, 80 respondents pointed out improper demarcation as the reason for the encroachment. 32 and 39 of the respondents assigned multiple sales of land and litigation to the cause of the encroachment, respectively.

Findings of the Study

- Three types of land use schemes have been identified from the physical planning department of the Municipal Assembly in Drobo. They include the Spatial, Structural, and Local Development Plan or Framework. However, the local plan is currently in use in the Drobo

municipality. According to the physical planning director, the local scheme is subject to change every five (5) years.

- The research in the Drobo Municipality shows that the high cost of processing documents and bureaucracy were major constraints in applying section 52 (1-4) of the Local Government Act 1993 (Act 462) to the letter. This situation, according to him, is causing a delay in the land use planning process and monitoring of schemes, as there are some cases of litigation over who owns the land and has the right to dispose of it.
- The pattern of layout and land use in Drobo is not well-suited for an effective land-use planning process. This is because a large acre of land in Drobo is under litigation, and individuals who forcibly and unlawfully acquired a parcel of land are often unwilling to surrender their land to the physical planning department for evaluation and proper demarcation and layout.
- It was also revealed that although there is a very high literacy rate among the people within the study area, the unregulated land-use change within the Municipality is attributed to a lack of sensitisation from the physical planning department, the high cost of processing land-related documents, and bureaucracy, among other factors.

Recommendations

Having critically studied and analysed the magnitude of the problems of land-use change and scheme development and economic implications associated with its activities within the Drobo and Japekrom communities and their surroundings, the following lines of activities are recommended as measures to deal with problems resulting from unregulated land use activities.

- The Municipal Assembly should, as a matter of agency resource, provide the Physical Planning Department with the necessary logistics and personnel to effectively monitor all forms of physical development that would conform to the land use plans. This will help them be mobile and accessible to all sites in the Municipality**.**
- Lands in Drobo and Japekrom should be adequately demarcated so that traditional authorities in both towns know their jurisdiction in terms of disposing of land for development and land management to avoid a power struggle as to who owns a particular piece of land. This will reduce land litigation and chieftaincy problems in the Municipality.
- The bureaucracy involved in obtaining building permits should be reduced drastically in the Municipality to eliminate all forms of frustration that prospective developers undergo in applying for development permits.
- Traditional authorities, landowners, landlords, and other land users or developers should always engage the survey department of the physical planning department to demarcate all plots under development to ensure that the plan conforms to what is on the ground.
- All forms of quack surveyors should be disengaged to avoid deviation from the laudable goal set under the land use plan in the Municipality.

Conclusion

Based on the key findings, the following conclusions were drawn: The study revealed three main types of land use schemes in the study area, as identified by the physical planning department of the Municipal Assembly. The layout and pattern of land use in Drobo have not been organised adequately for effective land-use planning due to high levels of land litigation among the land owners in the community. Individuals forcefully and unlawfully acquiring a parcel of land has been the main trigger of land litigation. Such people are mostly not willing to surrender their land to the physical planning department for evaluation and proper demarcation and layout. Poor sensitisation by the physical planning department of the Assembly, high cost of processing land-related documents, bureaucracy, among other factors, account for unregulated land use in the area. The ongoing changes in land use planning pose a threat to both the environment and the health of the residents in the Drobo municipality. The land-use changes have resulted in respiratory diseases due to environmental pollution. We, therefore, conclude that unregulated land-use change activities contribute to unplanned and unregulated development, slow the acquisition and issuance of development or building permits, environmental stress, especially on agriculture, land litigation, conflicts, among others.

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