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Constraints in urban land use planning and their implications for socio-economic development in the Drobo Municipality, Ghana

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Abstract
This study investigates the challenges of urban land use planning and their effects on socio-economic development within the Drobo Municipality of the Ahafo Region, Ghana. The primary objective was to examine the socio-economic implications of deficiencies in the implementation of urban land use plans in the towns of Drobo and Japekrom. A multi-stage purposive sampling technique was employed to select 278 households for the study, with data collected through a combination of purposive and simple random sampling methods. The data were analysed using descriptive statistics. Findings reveal that of the several existing land use schemes, only one is being actively enforced, rendering the overall layout and land use management in Drobo and Japekrom ineffective. Significant barriers to effective planning include widespread land litigation and the refusal of individuals who have unlawfully acquired land to cooperate with the Physical Planning Department for proper demarcation and layout. The study identified both positive and negative socio-economic consequences stemming from these unregulated land use changes. It concludes that the current state of land use planning adversely affects the community's socio-economic well-being. Therefore, it is recommended that the Municipal Assembly provide the Physical Planning Department with adequate resources to ensure that all physical developments conform to approved land use plans, thereby fostering sustainable and orderly urban growth.

Keywords: Socio-economic development, urban land management, land use planning, urbanisation, Drobo municipality, Ghana

Introduction
Urbanisation has been a defining process of societal transformation since the early twentieth century, reshaping landscapes globally. Cities are dynamic mosaics of economic, social, and political activities, where the spatial organisation is influenced by underlying forces such as accessibility, territoriality, and segregation. With over half the world's population now residing in urban areas, nearly every nation is experiencing rapid urbanisation (Cohen, 2006) [25]. This trend has prompted widespread experimentation with flexible planning policies, particularly in Europe and North America, where there is a shift from rigid master plans toward public-private partnerships.

In Ghana, urban centres have evolved into critical hubs for education, commerce, and culture. This rapid urban growth, fueled by a combination of natural population increase and rural-to-urban migration, necessitates effective planning to manage competing demands for land and ensure sustainable resource use. A persistent perception of an urban development bias has historically driven migration, as rural populations seek better opportunities in cities (Brown, 1986) [20]. This migration influx contributes to overcrowding and exerts immense pressure on urban land use schemes, a challenge evident in municipalities across Ghana, including Drobo.

The Drobo Municipality, until recent chieftaincy disputes in 2018, experienced a period of relative peace that spurred a sharp increase in property development for residential and commercial purposes. This growth attracted migrants, including those from neighbouring Côte d'Ivoire, intensifying the conversion of available land into built environments. However, this development has been largely unregulated, threatening the integrity of the municipality's physical planning schemes.

Evidence of this issue includes the proliferation of "Stop Work" and "Produce Permit" notices issued by the Drobo Municipal Planning Authority on new constructions. This unregulated expansion has led to dysfunctional land use conversions, such as the transformation of designated dumping sites into residential areas, the encroachment of commercial structures onto public roadways, and the construction of buildings in proximity to sensitive institutions like schools and police stations. Furthermore, agricultural lands, such as cocoa farms, are increasingly being converted for residential use. This phenomenon highlights a critical disconnect between urban growth and effective land management. As Long and Qu (2018) assert, the relationship between urban land use and socio-economic development demands coordinated policies to mitigate such challenges. Consequently, there is an urgent need for robust, enforceable land use policies to address the high demand for land and guide the sustainable development of the rapidly growing Drobo Municipality.

Literature Review

Urban land use planning in Ghana has consistently come under scrutiny due to its inability to effectively regulate spatial development in major urban centres. Scholars such as Adarkwa (2012) [2] have attributed this failure to weak institutional coordination, overlapping mandates, and inadequate implementation of planning laws. Despite the existence of numerous land use regulatory bodies, including the Town and Country Planning Department (TCPD), Environmental Protection Agency (EPA), and Metropolitan, Municipal and District Assemblies (MMDAs), their efforts are often hindered by jurisdictional overlaps and fragmented responsibilities.

For instance, while the TCPD is mandated to prepare land use plans, local authorities are responsible for their implementation, an arrangement that frequently leads to inconsistencies in enforcement (Boamah *et al*., 2012) [18]. Moreover, planning legislation such as the Local Government Act of 1993 (Act 462), particularly Section 52(1-4), is often compromised by political interference and corruption, which undermines its effective application. The consequences of these systemic failures are evident in recurrent urban disasters, particularly in Accra and Kumasi, where floods and fires have led to significant loss of life and property. The June 3, 2015, flood and fire disaster in Accra, which claimed over 150 lives and caused damages estimated at over $780 million, remains the most catastrophic.

Several interrelated factors have been identified as the root causes of ineffective land use planning in Ghanaian cities. These include rapid urbanisation, uncontrolled spatial expansion, outdated zoning regulations, increasing environmental degradation, and deepening urban poverty. These challenges have overwhelmed the already inadequate infrastructure in urban centres, heightening vulnerability to environmental hazards such as flooding.

Furthermore, Ghana's planning systems have struggled to transition from colonial-era frameworks to more contemporary and integrated urban governance models. For decades, urban planning was guided by the Town and Country Planning Ordinance of 1945 (Cap 84) until the Land Use and Spatial Planning Act was enacted in 2016 (Cobbinah & Nunbogu, 2017) [21]. Before this, spatial planning relied on a patchwork of legislation, including the Local Government Act (Act 462, 1993), the Environmental Protection Agency Act (Act 490, 1994), and the National Building Regulations (LI 1630, 1996). However, the lack of coherence among these regulations often led to conflicting mandates. For instance, LI 1630 (1996) permits applicants to proceed with development if no response is received on a building permit application within three months, a loophole that has been exploited to develop in flood-prone and unauthorised areas.

The TCPD acknowledges the adverse effects of such regulatory ambiguities but cites logistical and human resource constraints as limiting factors. This aligns with Cobbinah & Aboagye's (2017) [21] assertion that Ghana's planning institutions suffer from acute shortages in staffing, particularly of trained spatial and physical planners. Yeboah and Obeng-Odoom (2010) similarly note that most planning professionals are nearing retirement, exacerbating institutional capacity deficits.

A dual system of statutory and customary ownership further complicates Ghana's land administration. Approximately 78% of land remains under the control of traditional authorities, including chiefs and family heads, who often allocate land in ways that contradict formal planning schemes (Cobbinah & Aboagye, 2017) [21]. This system undermines efforts to implement geographic information systems (GIS) for land administration due to poor records, undefined boundaries, and frequent land disputes. Sittie (2006) and Larbi *et al*. (1998) highlight that poor cadastral records and multiple sales of the same parcels of land by different actors, including successive chiefs, are common, complicating land tenure security and spatial planning.

Urban growth dynamics have also played a critical role in the evolving land use patterns in Ghanaian cities. Adarkwa & Post (2001) [3] observe that rapid urban expansion has resulted in incompatible land uses and spatial disorganisation. This has led to developments in unapproved locations and strained public services, reflecting the broader crisis in urban planning and land use governance.

Problem Statement

Ghana's urban population is growing rapidly, necessitating the allocation of sufficient land for residential, commercial, and infrastructural development. As Afrane (2006) [4] argues, urban land use planning forms a critical component of national development planning, ensuring the optimal and functional spatial distribution of economic and social activities. Effective land use planning should therefore ensure that urban space is structured to serve the needs of current and future populations.

In the context of Drobo Municipality, these challenges are particularly acute. Urban expansion driven by population growth, natural increase, and rural-urban migration has altered traditional land use patterns and overwhelmed existing planning frameworks. The high cost of land, combined with speculative practices, has led to the resale and misuse of land originally designated for developmental purposes. Moreover, landowners often bypass professional planners and surveyors in land development, resulting in misaligned buildings, poor road and drainage systems, and inadequate access to infrastructure.

Drobo's strategic location as a border town adjacent to Côte d'Ivoire, its role as a regional commercial hub, and the presence of a satellite campus of the Berekum Nursing and Midwifery College have collectively attracted a large influx of students, job seekers, and entrepreneurs. This

demographic surge has increased the demand for land and housing, often beyond the planning and regulatory capacities of local authorities.

Although several studies (e.g., Afrane, 2006; Adarkwa, 2012; Arimah & Adeagbo, 2000) [4, 2, 13] have investigated urban land use planning in Ghana, specific research focusing on Drobo remains limited. This study, therefore, aims to contribute to the growing body of literature on land use planning and development control by offering a comprehensive assessment of the planning practices, constraints, and socio-economic implications of land use schemes in the Drobo Municipality.

Objective of the Study

The study sought to determine the constraints to an effective urban land use planning system in the Drobo Municipality.

Research Question

The research answers the question: What are the constraints to an effective urban land use planning system in the Drobo Municipality?

Significance of the Study

This study contributes significantly to the discourse on urban land use planning by providing empirical insights and practical recommendations that can inform both local and national policy formulation in Ghana, particularly within the Drobo Municipality. The research offers a critical assessment of how changes in land use patterns, population dynamics, and urban growth intersect with governance mechanisms, thereby shaping socio-economic development.

Findings from the study are expected to assist stakeholders, including policymakers, urban planners, traditional authorities, and land management institutions, in designing evidence-based strategies to enhance spatial planning and land governance. By identifying institutional gaps and inefficiencies in urban planning frameworks, the study provides a roadmap for improving zoning, land allocation, and urban infrastructure development. It also aims to mitigate the adverse effects of rapid urbanisation, such as slum proliferation, poor sanitation, misaligned infrastructure, and incompatible land uses.

Additionally, the study contributes to the academic literature on land use and urban management by serving as a documentary source for future research. It enhances understanding of how localised experiences, such as those in Drobo, align with or diverge from broader national planning trends. The findings are not only relevant for addressing immediate urban management challenges but also offer long-term strategies to build resilient and sustainable cities in Ghana in the face of globalisation and demographic transitions.

The study's outcomes also hold practical significance. They are anticipated to strengthen institutional performance by creating a knowledge base for urban planning authorities, improving inter-agency coordination, and supporting the development of integrated land information systems. Ultimately, this research supports the achievement of urban planning goals centred on aesthetics, safety, sustainability, and land use compatibility.

Limitations of the Study

The study encountered several limitations, primarily related to data availability and institutional inefficiencies. One major challenge was the difficulty in obtaining coherent historical data to track land use changes over time. Land management institutions were unable to provide comprehensive records or figures due to their ongoing struggle to manage the pressures of rapid urbanisation and limited technical capacity.

Additionally, the absence of a well-coordinated interface among key land sector stakeholders hindered the availability of relevant information. The lack of collaborative efforts among land-related institutions limited the study's ability to access data that could have provided more nuanced insights into the evolution of land use patterns.

Despite these constraints, the study relied on a combination of observations, stakeholder consultations, and qualitative input from landlords, business owners, and planning officers to construct a reliable narrative of the urban planning challenges facing Drobo. Notably, the contributions of relevant institutional actors were included, ensuring that the analysis captures critical perspectives and remains grounded in local realities.

Methodology

Research Design

A research design serves as the framework that guides data collection, measurement, and analysis (Kothari, 2004). This study employed a cross-sectional survey design using a mixed methods approach within both interpretivist and positivist philosophical paradigms. The interpretivist paradigm, grounded in constructivism, assumes that reality is socially constructed and best understood through qualitative methods (Cuthbertson, 2020) [30]. In contrast, the positivist paradigm emphasises objectivity, quantification, and scientific rigour in knowledge production (Creswell, 2014) [27].

Adopting both paradigms allowed for a comprehensive understanding of the research problem. The mixed methods design enabled the triangulation of data from qualitative interviews and quantitative surveys, thereby improving the depth and validity of the findings. This approach was particularly suitable for examining the complex and multifaceted nature of urban land use planning and its socio-economic implications.

Sampling Procedure and Techniques

The study employed a combination of purposive and simple random sampling techniques. Key informants, including officers from the District Assembly's Physical Planning Unit, were selected purposively based on their expertise in land use planning. This approach ensured that individuals with relevant knowledge contributed to the study.

A total of 278 respondents were selected from the study area, comprising 180 land and property owners (100 from Drobo and 80 from Japekrom), 25 farmers, 38 officials from land-related institutions, and 35 business owners. The distribution of questionnaires was stratified to ensure adequate representation and balanced analysis. Specifically, 64% of surveys were administered in Drobo, and 36% in Japekrom.

Sample Size Determination

The sample size was determined using Slovin's formula (Slovin, 2009):

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

Where:

n = required sample size
N = population size (6080)
e = margin of error (6% or 0.06)
n = \frac{6080}{1 + 6080(0.06)^2} = \frac{6080}{1 + 21.89} = \frac{6080}{22.89} \approx 278
Therefore, a total of 278 household heads were selected and surveyed for the study.

Sources of Data
The study utilised both primary and secondary data sources. Primary data were collected through structured questionnaires, face-to-face interviews, and focus group discussions. Secondary data were obtained from books, academic articles, government reports, newspapers, and online databases to support the literature review and contextualise the findings.

Data Collection Instruments and Procedures
Two key instruments were employed:

1. **Structured Questionnaire:** Administered to landowners, business owners, and farmers. Most items were pre-coded, with additional open-ended questions to elicit detailed responses. The questionnaires were self-administered to improve response accuracy and completion rates.
2. **Interview and Focus Group Guides:** Used to collect qualitative data from planning officials, institutional representatives, and other stakeholders with in-depth knowledge of land use planning in Drobo. The interviews explored themes such as institutional capacity, regulatory frameworks, and socio-economic impacts of land use changes.

Data Analysis and Presentation
Quantitative data were entered and analysed using SPSS Version 25 and Microsoft Excel 2016. These tools facilitated descriptive analysis, frequency distributions, and cross-tabulations, and allowed for the visualisation of findings through tables and a chart.
Qualitative data collected via mobile audio recordings were transcribed and analysed thematically. The thematic analysis involved identifying recurring patterns, which were then categorised under major themes aligned with the study objectives. To enhance reliability, a summary of the thematic results was shared with selected participants for validation. Feedback confirmed that the interpretations were accurate and reflective of participant views.

Results and Discussion
Understanding the demographic characteristics of respondents is essential in contextualising findings within land use planning and development discourse. This section presents results on the sex, age, educational attainment, and occupation of the participants, which provide insights into the socio-economic backdrop of urban land use dynamics in the Drobo Municipality.

Table 1: Demographic characteristics of respondents

Variables	Sub-categories	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

Gender representation in urban land use is a critical aspect of inclusive planning. In this study, the sample was predominantly male, with 178 out of 278 respondents (64%) identifying as male, while 100 (36%) were female. This finding suggests male dominance in land and housing ownership within the municipality, aligning with previous studies such as Mishra & Sam (2016), who reported similar trends in Nigeria, where men are more involved in land-related decision-making. The gender disparity implies potential marginalisation of women in land governance, which may hinder equitable access and participation in urban development initiatives.
The age structure of respondents plays a role in shaping perspectives and engagement in land use planning. The data indicate that the majority of respondents (37%) were aged between 46-60 years, with a mean age of 48 years. Additionally, 31% were above 60 years, while 23% were aged 36-45, and only 9.7% were within the 18-35 age bracket. The preponderance of older respondents implies that land and property ownership in Drobo is primarily concentrated among older adults, who are likely to have a historical perspective on urban transformation and land use patterns.
Education influences an individual's understanding of planning policies and willingness to engage in structured urban development. As shown in Table 1, 14% of respondents had no formal education, 37.4% had completed basic education, 31.3% had attained secondary education,

and 17.3% had tertiary qualifications. The relatively high literacy rate suggests that most landlords are capable of understanding the benefits of formal land use planning, although this does not always translate into compliance.

The occupational distribution reflects the local economy's structure. The majority of respondents (44.6%) were engaged in farming, followed by teaching (24.5%), trading (19.8%), civil service (8.6%), and other occupations (4.3%). The dominance of farming, despite urban expansion, highlights the transitional nature of Drobo's economy, from agrarian to semi-urban, and signals a tension between agricultural land preservation and real estate development.

Constraints to Effective Urban Land Use Planning in Drobo Municipality: The objective of the study was to assess the constraints to effective urban land use planning and schemes in the municipality. The results are presented in Table 2, Figure 1, and Table 3 below.

Table 2: Constraints to Effective Urban Land Use Planning and Schemes in Drobo Municipality

Variables	Sub-categories	Number of responses (N)	Percentage (%)
The negative effect of land use planning	Reduce crop yield	72	26
	Soil erosion	11	4
	Hazard development	144	50
	Slum development	51	20
Types of infrastructure lacking due to changes in land use	Drainage	104	37
	Refuse collection sites	75	30
	Roads	47	14.3
	Lanes	52	18.7
Negative effects of the absence of the above	Air pollution	80	29
	Mosquito bite	60	22
	Stench	42	15
	Flooding	96	34
Total		278	100*

The findings from Table 2 provide a critical overview of the constraints affecting effective urban land use planning in the Drobo Municipality. These challenges, as perceived by respondents, reflect not only gaps in planning and regulation but also highlight broader socio-environmental implications of uncoordinated urban development.

One of the most prominent outcomes identified by respondents was the development of environmental hazards, reported by 50% of the sample population. This reflects the unregulated expansion of residential, commercial, and other land uses into areas that are ecologically sensitive or structurally unsuitable for development. The lack of land use controls and the encroachment on natural drainage paths, floodplains, and agricultural lands have led to a fragile built environment vulnerable to climate-related disasters and structural failures. As noted by Yeboah & Obeng-Odoom (2010), weak urban governance and a lack of enforcement of land use regulations often culminate in hazard-prone urban settlements in Ghanaian municipalities. The proliferation of informal settlements or slums, cited by 20% of respondents, further emphasises the consequences of inadequate spatial planning. These settlements typically emerge in peri-urban zones where land acquisition is cheaper and less regulated, often resulting in overcrowded, unplanned communities without access to basic services. This finding aligns with UN-Habitat's (2020) assertion that unplanned urban expansion in sub-Saharan Africa is a major driver of slum growth, exacerbating inequality and environmental degradation. In addition, 26% of respondents identified reduced crop yields as a key constraint linked to urban land use practices. The conversion of agricultural lands for residential and commercial purposes diminishes food security. It reduces income-generating opportunities, especially for rural and peri-urban dwellers who rely on farming for their livelihoods. This confirms the observations of Owusu & Oteng-Ababio (2015), who found that peri-urban agriculture in Ghana is increasingly threatened by urban sprawl, leading to land conflicts and declining agricultural productivity. Though less frequently mentioned, soil erosion (4%) remains a critical concern. It signals long-term environmental degradation due to the removal of vegetative cover and poor land conservation practices. In the absence of proper zoning and landscaping regulations, construction activities frequently expose soil to erosion, which can undermine infrastructure, reduce land fertility, and contribute to sedimentation in water bodies (Asiedu & Arku, 2009) [14]. The transformation of land use in Drobo has been accompanied by significant infrastructural deficiencies, particularly in sanitation and mobility systems. As the study reveals, 37% of respondents reported a lack of adequate drainage systems, making communities vulnerable to flooding, especially during heavy rains. The absence of drainage not only affects property but also contributes to waterlogging and the proliferation of waterborne diseases. Without appropriate stormwater management integrated into urban planning, the municipality risks experiencing recurrent flooding and structural damage. Moreover, 30% of respondents identified the lack of refuse collection sites as a major constraint. Poor waste disposal mechanisms are symptomatic of inadequate spatial allocation for essential urban services. When waste is not properly collected and disposed of, it leads to environmental contamination, foul odour, and an increase in disease vectors. This issue, commonly seen in other urban centres in Ghana, reflects broader institutional weaknesses in municipal governance and resource allocation (Cobbinah & Aboagye, 2017) [21]. In addition to sanitation-related infrastructure, the data show that 14.3% of respondents lack access to proper roads, and 18.7% cited the absence of lanes. These transportation constraints not only hinder mobility but also limit access to emergency services, public goods, and markets. Agyemang & Silva (2011) [5] argue that transportation infrastructure must be seen as a prerequisite for effective land use planning, as it facilitates economic activity and improves the livability of urban spaces. In Drobo, however, the expansion of settlements without corresponding road infrastructure represents a clear mismatch between urban growth and infrastructural development.

The absence of critical environmental infrastructure has led to serious public health risks in Drobo. Notably, 34% of respondents reported experiencing flooding, a direct consequence of poor drainage systems and unregulated construction on flood-prone land. This condition not only damages property but also creates breeding grounds for disease vectors, particularly mosquitoes. Air pollution, reported by 29% of respondents, is another consequence of unmanaged land use and poor waste disposal practices. In urban Ghana, open burning of refuse and emissions from unregulated commercial activities are leading contributors to declining air quality (Amankwaa, 2014). In the context of Drobo, where refuse collection infrastructure is lacking, residents may resort to unsustainable disposal methods, worsening environmental conditions and increasing the risk of respiratory illnesses. Furthermore, mosquito infestations, as noted by 22% of respondents, point to the health hazards associated with stagnant water from blocked drains and poor waste management. These findings are supported by Cobbinah & Aboagye (2017) [21], who argue that poor land use decisions are intrinsically linked to public health crises in urban Ghana, where infrastructure deficits frequently result in outbreaks of diseases such as malaria and cholera. These public health concerns demonstrate the critical need for integrating environmental health considerations into land use planning processes. The development of urban areas must be guided by strategic planning that incorporates public sanitation, drainage systems, and green infrastructure to mitigate the adverse health effects of rapid urbanisation (UN-Habitat, 2020). Again, respondents' perception of the negative impact of urban land use on physical planning, livelihood, and environment is shown in Figure 1 below.

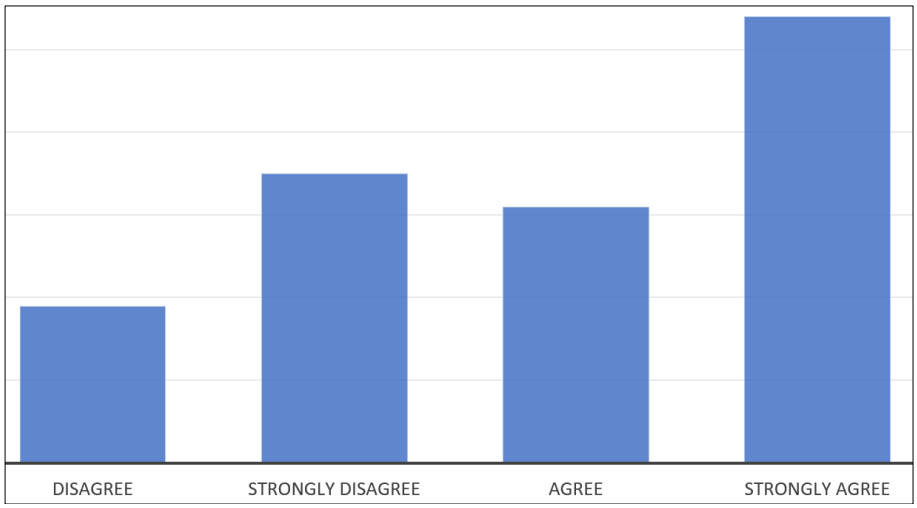

Fig 1: Presents respondents' perceptions of the impact of urban land use on livelihoods and the environment

One respondent, a farmer from Drobo, noted

"The growth of the community of Japekrom is like an evil person who attacks, frustrates, and drains you till you cannot do anything. It comes to destroy everything, no water to drink since rivers have been taken over by small-scale "galamsayers" (illegal small-scale miners), no land again for farming as lands are converted into housing accommodation and for commercial purposes, leaving us with no land for farming"

Another interviewee added

"……it is very disheartening to say that land for crop cultivation and animal rearing has been converted into residential accommodation and other commercial activities. This action has reduced labour productivity and increased unemployment among the youth"

Figure 1 of the study presents a significant divergence in residents' perceptions of how urban land use changes have affected livelihoods and environmental sustainability within the Drobo Municipality. The quantitative results show that 108 respondents strongly agreed and 62 agreed that urban land use has negatively impacted both livelihoods and the environment. In contrast, 70 respondents disagreed, and 38 strongly disagreed with this statement. These data illustrate a clear polarity in public opinion, with approximately 61.2% (170 out of 278) acknowledging negative impacts, while 38.8% (108 out of 278) either denied or were unaware of such effects. This divide in perception suggests localised variability in the manifestation of land use consequences across the municipality. Such discrepancies can be attributed to the spatially uneven nature of urban development. Residents living in peri-urban or rapidly developing areas may be more directly affected by environmental degradation, displacement, or loss of agricultural land, while those in less developed or more stable neighbourhoods may experience fewer disruptions. This observation aligns with the findings of Cobbinah & Niminga-Beka (2017) [21], who emphasised that urban growth in Ghana often results in uneven socio-economic outcomes and environmental risks, depending on proximity to development corridors and land use hotspots.

The majority perception of negative impacts reflects growing public awareness of the socio-ecological costs associated with rapid and unplanned urban expansion. Several key themes emerge from the qualitative responses provided by interviewees, which reinforce the statistical findings and add contextual richness to the discussion. One farmer from Drobo likened the urban expansion of Japekrom to "an evil person who attacks, frustrates, and drains you," citing the loss of water sources, illegal mining (galamsey) activities, and conversion of farmland into residential and commercial uses. This reflects the broader phenomenon of environmental degradation and land-use conflicts that have become increasingly common in urbanising areas across Ghana. According to Amoako & Inkoom (2018) [11], uncontrolled urbanisation often leads to the encroachment of urban land uses into agricultural and forested areas, exacerbating competition for land, reducing

food production, and compromising rural livelihoods. A second respondent noted that the conversion of agricultural land into urban infrastructure has reduced labour productivity and increased unemployment among youth, highlighting the economic ramifications of poor land use planning. The loss of agricultural land disrupts subsistence farming and erodes informal employment opportunities, which are critical for local economic resilience. These observations are supported by Owusu & Oteng-Ababio (2015), who found that urban sprawl in Ghana undermines rural employment and contributes to socio-economic marginalisation in peri-urban communities. Furthermore, these local accounts echo the findings of UN-Habitat (2020), which reported that informal and poorly planned urban growth in Sub-Saharan Africa often leads to a combination of environmental stress (e.g., water contamination, deforestation, air spollution) and socio-economic vulnerabilities, including displacement, unemployment, and reduced access to essential services.

While a significant proportion of respondents perceive negative effects, it is important to critically consider the 38.8% of respondents who did not share this view. This group may represent individuals who benefit economically from land use changes (e.g., through land sales, real estate development, or increased commercial activity) or who reside in areas less directly affected by the environmental consequences of urbanisation. According to Acheampong and Ibrahim (2016) [1], urban growth can create new economic opportunities for certain groups, particularly landowners and entrepreneurs, thereby shaping more favourable perceptions of development. The divergence in opinion also points to the need for participatory planning processes that incorporate community voices and knowledge systems. Involving local stakeholders in decision-making ensures that the diverse experiences of urban land use impacts are considered, fostering more equitable and sustainable planning outcomes (Agyemang, Silva, & Poku-Boansi, 2014) [6]. The researchers also solicited land management options from the respondents, and these results are presented in Table 3 below.

Table 3: Access to emergency services

Variables	Sub-categories	Number of responses (N)	Percentage (%)
Do you have access to emergency services, such as a fire service tender?	Yes	130	46.8
	No	148	53.2
Reasons for the absence of emergency services	No access road	132	47.5
	Unavailability of the service	144	51.8
	Others	2	0.7
Land use management options	Sustainable land use management policy	127	45.7
	Land register and certificate	122	43.9
	Land redistribution	2	0.7
	Compensation money	5	1.8
Total		278	100

The study reveals that 53.2% of respondents reported no access to emergency services, particularly fire tenders, a significant deficiency in rapidly urbanising areas. This limitation underscores a critical vulnerability in the municipality's preparedness and risk response framework, endangering both lives and property. The Ghana National Fire and Rescue Service maintains around 140 stations nationwide, yet the reported gap indicates that local placement and service reach remain inadequate for areas like Drobo.

Moreover, 47.5% attributed this lack of access to inadequate road infrastructure, effectively hampering the operational viability of emergency response units. Even where emergency services exist, poor road networks can nullify their effectiveness. Such situations are prevalent in informal settlements and peri-urban areas, where narrow, unpaved roads obstruct vehicle movement, including emergency vehicles like fire engines or ambulances. The absence of functional roads thus renders emergency preparedness more nominal than practical. These findings align with broader observations from Agyemang & Silva (2011) [5], who highlighted that transportation infrastructure is fundamental to enabling effective service delivery in urban Ghana.

When asked about solutions to rampant land use challenges, 45.7% of respondents favoured implementing a sustainable land use management policy, while 43.9% supported the establishment of a comprehensive land registration and certification system. These preferences reveal local awareness that the root causes of spatial disarray lie in weak institutional frameworks and governance mechanisms. This emphasis on formal mechanisms resonates with national reform efforts. The Land Use and Spatial Planning Act of 2016 (Act 925) introduced new spatial planning authorities and multi-tiered planning frameworks (national, regional, district), aiming to curb haphazard development. Further, the Land Administration Project (LAP-2) advanced these reforms through the establishment of customary land secretariats (CLS), the digitisation of land data, and one-stop service desks to ease land transactions. However, gaps remain in operationalising these frameworks. While legislative and institutional systems have expanded, land registration processes continue to suffer delays, bureaucratic friction, and limited human capacity. Thus, residents' call for land registration improvements is well aligned with the need to strengthen administrative efficiency and legal clarity.

Findings of the Study

1. The study revealed that unregulated land use changes in the Drobo Municipality are contributing to environmental degradation and increasing health risks. Notable effects include air pollution, which heightens the risk of respiratory illnesses, and the proliferation of mosquito-borne diseases such as malaria. Additionally, cases of waterborne illnesses such as cholera and diarrhoea have become increasingly common, attributable to poor sanitation and inadequate drainage systems.
2. A dominant factor contributing to these challenges is the unplanned nature of urban expansion in the

municipality. Rapid land conversion, particularly from agricultural to residential and commercial use, is occurring with minimal oversight. This situation threatens local ecosystems, reduces biodiversity, and undermines the sustainability of livelihoods that depend on agriculture and natural resources. If current trends continue, the municipality risks increased poverty levels due to declining rural productivity and environmental degradation.

These findings are consistent with prior research conducted in other parts of Ghana, where the failure to integrate environmental considerations into urban land use planning has led to a myriad of socio-economic challenges.

Recommendations

In light of the study's findings, the following policy recommendations are proposed:

1. The Drobo Municipal Assembly should prioritise the construction of drainage systems and gutters to mitigate flooding and stagnant water accumulation. This would help reduce the incidence of mosquito breeding and other public health hazards associated with poor water management.
2. The Municipal Assembly, in collaboration with the Physical Planning Department, Traditional Authorities, and other stakeholders, should develop and implement a comprehensive and enforceable land use policy. Such a policy should ensure appropriate zoning, regulate informal developments, and enforce building codes to align urban growth with sustainability goals.
3. The successful implementation of land use schemes, including the National Spatial Development Framework, Structural Plans, and Local Plans, requires community awareness and participation. These frameworks must be simplified and made accessible to the public, particularly land users and property developers, to foster compliance and shared ownership of planning processes.
4. There is a need to improve institutional coordination between agencies responsible for land use and development control. Enhancing the capacity of land administration bodies to manage data, issue titles, and enforce regulations would contribute significantly to reducing disputes and promoting efficient urban development.

Conclusion

This study concludes that the unplanned and unregulated land use practices within the Drobo Municipality have led to adverse consequences for both the natural environment and human well-being. The lack of formal planning systems, coupled with weak enforcement mechanisms, has accelerated the conversion of agricultural land, contributed to environmental degradation, and weakened socio-economic resilience. The findings further demonstrate that inadequate access to emergency services, such as fire tenders, is directly linked to poor infrastructural planning. Moreover, public perception strongly favours the implementation of a sustainable land use policy and the establishment of a land registration system as viable solutions to existing challenges. If current trends persist, the municipality risks exacerbating land-related conflicts, reducing agricultural productivity, and undermining the quality of life for its residents. As such, immediate and coordinated policy interventions are essential to reverse the negative effects of land use change and to promote inclusive, resilient, and sustainable urban development.

References

1. Acheampong RA, Ibrahim A. One nation, two planning systems? Spatial planning and multi-level policy integration in Ghana: mechanisms, challenges and the way forward. Urban Forum. 2016;27(1):1-18.
2. Adarkwa KK. The changing face of Ghanaian towns. African Review of Economics and Finance. 2012;4(1):1-29.
3. Adarkwa KK, Post J. The fate of the tree: planning and managing the development of Kumasi, Ghana.
4. Afrane YA, Zhou G, Lawson BW, Githeko AK, Yan G. Effects of microclimatic changes caused by deforestation on the survivorship and reproductive fitness of *Anopheles gambiae* in western Kenya highlands. American Journal of Tropical Medicine and Hygiene. 2006;74(5):772-778.
5. Agyemang FS, Silva EA. The socio-spatial dimensions of land use planning in Ghana: implications for land market and land policy. Land Use Policy. 2011;28(1):201-210.
6. Agyemang FS, Silva EA, Poku-Boansi M. The challenges of land use planning in Ghana: a case study of Ejisu-Juaben Municipality. GeoJournal. 2014;79(6):743-760.
7. Alliance C. Liveable Cities: The Benefits of Urban Environmental Planning-A Cities Alliance Study on Good Practices and Useful Tools. 2007.
8. Allman M, Dawkins S, Glover DR, Griner J, Tran D, Henderson TR, *et al*. Ongoing TCP research related to satellites. RFC. 2000;2760:1-46.
9. Amankwaa G. Urban air pollution in Sub-Saharan Africa: a Ghanaian perspective. International Journal of Environmental Sciences. 2014;4(3):140-151.
10. Amin A, Cirolia LR. Politics/matter: governing Cape Town's informal settlements. Urban Studies. 2018;55(2):274-295.
11. Amoako C, Inkoom DKB. The production of flood vulnerability in Accra, Ghana: re-thinking flooding and informal urbanisation. Urban Studies. 2018;55(13):2903-2922.
12. Anderson TL, Leal D. Free market environmentalism: revised edition. St. Martin's Press; 2001.
13. Arimah BC, Adeagbo D. Compliance with urban development and planning regulations in Ibadan, Nigeria. Habitat International. 2000;24(3):279-294.
14. Asiedu AB, Arku G. The rise of gated housing estates in Ghana: empirical insights from three communities in metropolitan Accra. Journal of Housing and the Built Environment. 2009;24(3):227-247.
15. Asumadu-Sarkodie S, Owusu PA, Jayaweera M. Flood risk management in Ghana: a case study in Accra. 2015.
16. Bates S. Bridging the governance gap: emerging strategies to integrate water and land use planning. Natural Resources Journal. 2012;61:61-97.
17. Barnett TP, Adam JC, Lettenmaier DP. Potential impacts of a warming climate on water availability in snow-dominated regions. Nature. 2005;438(7066):303-309.

18. Boamah NA, Gyimah C, Nelson JKB. Challenges to the enforcement of development controls in the Wa municipality. Habitat International. 2012;36(1):136-142.
19. Briassoulis H. Factors influencing land-use and land-cover change. Land Cover, Land Use and the Global Change, Encyclopaedia of Life Support Systems (EOLSS). 2009;1:126-146.
20. Brown R, Condor S, Mathews A, Wade G, Williams J. Explaining intergroup differentiation in an industrial organisation. Journal of Occupational Psychology. 1986;59(4):273-286.
21. Cobbinah PB, Niminga-Beka R. Urbanisation in Ghana: insights and implications for urban governance. Urban Forum. 2017;28(4):387-407.
22. Cobbinah PB, Nunbogu AM. Contextualising the sustainable development goals to urban planning in African cities. African Geographical Review. 2017;36(1):45-60.
23. Cervero R. Growing smart by linking transportation and land use: perspectives from California. Built Environment. 2003;29:66-78.
24. Cobbinah PB, Aboagye HN. A Ghanaian twist to urban sprawl. Land Use Policy. 2017;61:231-241.
25. Cohen B. Urbanisation in developing countries: current trends, future projections, and key challenges for sustainability. Technology in Society. 2006;28(1-2):63-80.
26. Connolly S, Munro A. The economics of the public sector. Prentice Hall; 1999.
27. Creswell JW. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 4th ed. Thousand Oaks, California: SAGE Publications; 2014.
28. Creswell JW, Creswell JD. Research Design, qualitative, quantitative and mixed methods approaches. Sage Publications; 2009.
29. Cullingworth B, Nadin V. The nature of planning. Town and Country Planning in the UK. Oxon: Routledge; 2006.
30. Cuthbertson LM, Robb YA, Blair S. Theory and application of research principles and philosophical underpinning for a study utilising interpretative phenomenological analysis. Radiography. 2020;26(2):e94-e102.