

Unplanned Land Use in Lebanon: Challenges and Strategies for Sustainable Territorial Planning

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ABSTRACT

Land use planning represents a fundamental instrument for guiding sustainable territorial development and ensuring the efficient management of land resources. In Lebanon, however, spatial development has been characterized by extensive areas of unplanned land use, fragmented governance structures, and weak regulatory enforcement. This study examines the current status of land use planning in Lebanon and analyzes the institutional, economic, and socio-environmental factors contributing to the persistence of unplanned land development.

The research adopts a qualitative analytical methodology based on literature review, policy analysis, and spatial assessment of planning frameworks, with particular attention to the National Physical Master Plan of the Lebanese Territory (SDATL). The study evaluates the distribution of planned and unplanned territories, examines the structural drivers influencing land use decisions, and analyzes the economic, social, and environmental implications of uncontrolled spatial development.

The findings indicate that a large proportion of Lebanese territory remains outside detailed planning frameworks, resulting in urban sprawl, inefficient infrastructure provision, environmental degradation, and increasing regional disparities. Institutional fragmentation, political influence, real estate speculation, demographic pressures, and limitations within land administration systems are identified as key drivers of unplanned land development.

The study concludes that improving land use governance in Lebanon requires strengthening planning institutions, expanding the coverage of urban master plans, enhancing regulatory enforcement mechanisms, and integrating sustainability principles into territorial planning policies. The implementation of coordinated spatial planning strategies and participatory governance mechanisms can contribute to more balanced regional development and improved management of land resources.

Keywords: Land Use Planning - Unplanned Land Development - Spatial Planning - Urban Sprawl - territorial Governance - Sustainable Land Management – Lebanon

INTRODUCTION

The establishment of effective land use planning is an imperative responsibility that every nation must give utmost importance to in order to foster the development of sustainable and thriving human settlements. It is widely accepted that the spatial organization of urban activities greatly influences the overall quality of life, as well as the health and well-being of individuals (EEA, 2009; WHO, 2009; RTPI, 2009; NICE, 2008).

In Lebanon, a nation known for its diverse landscapes, rapid urbanization, and unique socio-political dynamics, land use planning is a significant concern. However, despite its importance, a considerable portion of Lebanon's land remains unplanned, posing strategic risks to the nation's social, economic, and environmental well-being. This article seeks to explore the current state of land use planning in Lebanon, with a particular focus on the widespread occurrence of unplanned land use and its associated consequences.

Over the past few years, Lebanon has witnessed a rapid process of urbanization and population growth. This remarkable change has been fueled by various factors, including the migration of people from rural to urban areas, internal displacement within the country, and the influx of refugees from neighboring nations. As a result, the expansion of urban and peri-urban regions has placed immense pressure on land resources, leading to heightened competition for space.

However, in the midst of this ever-changing landscape, the matter of land use planning has frequently been overlooked in Lebanon's policy agenda. Throughout history, the country's urban development has been characterized by fragmented and improvised approaches, lacking coordination among stakeholders and adequate regulatory frameworks to guide land use decisions.

Consequently, vast expanses of land in Lebanon remain unplanned, susceptible to informal settlements, unregulated construction, and speculative real estate activities. This unplanned growth not only presents challenges in terms of infrastructure provision, environmental degradation, and social cohesion, but also undermines the overall efficiency and sustainability of urban expansion.

Given this context, the necessity for effective land use planning in Lebanon has become increasingly evident. Addressing the issue of unplanned land use is not only crucial for managing urbanization and safeguarding natural resources, but also for fostering inclusive and sustainable development that caters to the needs of both current and future generations.

Despite the growing importance of spatial planning in Lebanon, existing studies have primarily focused on urban growth patterns, governance structures, or environmental impacts independently. Limited research has examined the interrelationship between institutional governance, spatial planning policies, and the expansion of unplanned land use at the national scale. This study aims to address this gap by providing an integrated analysis of land use dynamics in Lebanon, linking policy frameworks, spatial development patterns, and the resulting economic, social, and environmental implications.

Purpose and objectives of the study

The objective of this study is to shed light on the strategic significance of addressing the issue of unplanned land use in Lebanon. This will be achieved through a comprehensive review of existing literature, an analysis of empirical data, and an evaluation of policy frameworks. In this document, the term "unplanned land use" pertains to regions lacking thorough zoning, development regulations, or official land use designations. These areas may experience informal settlements, unregulated urban expansion, or ad-hoc development initiatives, resulting in various socio-economic and environmental challenges.

The goals of this research are twofold. Firstly, to present an overview of the status of land use planning in Lebanon, emphasizing the prevalence of unplanned land use and its spatial distribution. Secondly, to examine the strategic consequences of this occurrence, particularly regarding its effects on the nation's economy, society, and environment.

Significance of land use planning in Lebanon

In Lebanon, urban land use planning plays a crucial role in creating a conducive environment for city dwellers (CDR; 2002). By incorporating various land uses like recreational spaces, road networks, and efficient transportation systems, effective planning can cater to social needs and foster a healthy economic atmosphere in urban areas (Fusilli;2014).

Nevertheless, Lebanon encounters notable obstacles in land use planning, impacting key sectors such as transportation, the economy, and the environment. Insufficient planning and uncontrolled land use have resulted in problems like traffic congestion, economic inefficiencies, and environmental deterioration (CDR; 2002). It is imperative to tackle these challenges through comprehensive and strategic land use planning to ensure sustainable urban development in Lebanon. Here are some points that explains how big is the issue of unplanned land use:

Ecological Environment: Lebanon suffers from deforestation, water pollution, and habitat destruction due to unplanned urban expansion, leading to significant environmental degradation.

Social Environment: Overcrowding and inadequate services in urban areas exacerbate social inequalities and reduce the quality of life for many residents.

Political Environment: Political instability and corruption disrupt effective governance and land use planning, resulting in inconsistent urban development.

Physical Environment: Poor infrastructure and unregulated construction lead to unsafe buildings, inadequate transportation, and insufficient utilities, affecting urban functionality.

Economic Environment: The economic crisis, marked by high debt and unemployment, is worsened by inefficient land use, increasing costs for infrastructure and public services.

Artificial Environment: Haphazard development and lack of urban design create informal settlements and inadequate public spaces, diminishing urban quality.

Overview of land use planning concepts

The influence of economic and political forces, along with priorities, is crucial in determining the scope and boundaries of planning activities (Owens; 1994). Land use planning relies on the involvement of stakeholders, the characteristics of land units, and the exploration of various land use options. Technical aspects like land availability, tenure system, land quality, productivity, technology, demographics, and living standards are all interconnected (Agrell *et al*; 2004). The land use planning process plays a crucial role in evaluating initial land use options that should be considered for land assessment, a process essential for determining national development priorities and selecting specific projects for implementation at the local or sub-national levels (George; 2005). In the pursuit of social, ecological, and economic sustainability in spatial development, the significance of land use planning cannot be overstated. To effectively tackle this challenge, diverse methods of land use planning have been devised. The approach to land use planning (LUP) has experienced significant changes throughout its history. Initially, it followed a top-down, expert-driven model, focusing on land suitability during the 1960s and 1970s. However, since the 1980s, there has been a notable shift towards a more inclusive approach. This new approach involves collaboration between planning experts, decision-makers, and ordinary citizens, aiming for a more integrated and holistic planning process (Bourgoin *et al.*; 2012).

The integration of an approach into national institutions, coupled with its growing connection to financial planning, has become more prevalent. Additionally, the traditional concept has expanded to consider sustainability factors such as social acceptance, economic viability, physical suitability, and environmental sustainability, as well as social impacts like access to land resources, nutritional status, health status, and education. Consequently, related concepts like integrated LUP, spatial LUP, participatory LUP, participatory rural planning, territorial ecological planning, and ecosystem-based LUP (Table 1) have emerged since the 1980s (Metternicht ; 2017). The changing views on the connection between people and land have evolved over time. Initially, in the 1700s, land was considered a symbol of 'wealth', which later transformed into a broader concept of 'commodity'. This perception then shifted to that of a 'scarce resource', and eventually, from the 1980s onwards, it was commonly seen as a 'scarce community resource', encompassing both wealth and commodity. This paper delves into spatial planning as a subset of Land Use Planning (LUP) (Ibid).

Table 1: Main Concepts and Approaches in Land Use Planning

Name	Definition/Purpose
Land Use Planning	The methodical evaluation of land and water potential, various land use options, and economic and social factors, to determine and implement the most suitable land use strategies. The aim is to choose and implement land uses that will effectively address the needs of the population while ensuring the preservation of resources for future generations. FAO (1993).

Spatial land use planning	Regional and spatial land use planning (LUP) provides a geographical framework for the economic, social, cultural, and ecological policies of a society. It serves as a scientific field, an administrative tool, and a policy that aims to achieve balanced regional development and the effective organization of physical space through an interdisciplinary and holistic approach.
Integrated land use planning	The assessment and allocation of resources involve considering the diverse needs and demands of various users, including agricultural sectors like pastoral, crop, and forests, as well as industry and other relevant stakeholders
Participatory land use planning (PLUP)	In many communities where communal lands suffer from significant degradation and conflicts over land use rights, the planning of communal or common property land plays a vital role. To address these challenges, negotiations among stakeholders and the implementation of communally binding rules for Sustainable Land Management (SLM) are essential. These rules should be based on planning units, which can be either social units like villages or geographical units such as watersheds.
Village land use planning	The participatory catchment approach involves the collaboration of groups and communities within a well-defined land area that has been traditionally recognized. This approach aims to support these communities in acquiring the necessary skills and establishing local institutions to effectively implement sustainable management plans. It primarily focuses on natural resource management at the village or community level through various means, including technical projects for soil conservation and other related initiatives. Additionally, it takes into account the socio-economic factors that influence the organizational structures through which people arrange their livelihood strategies. Furthermore, it considers the legal system and its administration, which play a crucial role in enforcing the practical implementation of use rights (MLIT; 2016).
Rural territorial land planning	The organization, planning, and management of land use and occupation involve a complex process that combines political, administrative, and technical aspects. This process considers the unique characteristics of the territory, including its biophysical, cultural, socio-economic, socio-political, and institutional dimensions. It is crucial for this process to be participatory and interactive, with explicit goals that promote responsible and equitable land use. By seizing opportunities, minimizing risks, and preserving resources over the short, medium, and long term, this process aims to achieve a rational distribution of costs and benefits among those utilizing the land (Paruelo JM, <i>et al</i> ; 2014)
Regional land use planning	The objective of territorial development is to streamline the formulation of a general spatial concept and prioritize land use. This involves determining conditions for protecting the environment and monuments, establishing residential, productive, and infrastructural areas, regulating population employment, and reserving territories for the expansion of private and legal entities. Comprehensive land use planning plays a pivotal role in this process. Integral planning is employed to define policies for spatial development, prioritize territory use, ensure protection, and establish fundamental management principles (Kavaliauskas ; 2008)
Ecological land use planning	A policy instrument designed to oversee land use and productive activities in order to safeguard the environment, advance the conservation and sustainable utilization of natural resources, and account for land use potential and degradation trends. This tool is widely recognized as the most effective means to synchronize human activities with environmental sustainability in the short, medium, and long term (Mexicanos ; 2012)

Source: FAO (1993); MLIT (2016); Paruelo et al. (2014); Kavaliauskas (2008); Mexicanos (2012).

Land use planning strategies should possess flexibility and adaptability to effectively address diverse situations. Unlike rigid "blueprint approaches" that outline specific steps and tools, LUP should be formulated as a dynamic process tailored to the unique requirements, capabilities, regulations, and organizational frameworks of the area.

LUP consists of two primary phases: formulation and implementation, each involving various activities. Formulating a land use plan involves conducting a comprehensive evaluation of current land uses, limitations, and development opportunities. This evaluation necessitates gathering and analyzing a significant amount of information, including biophysical data, infrastructure details, population statistics, land ownership records, land tenure information, and legal considerations. Commonly used tools in this phase include ecological and economic zoning (EEZ) by the Food and Agriculture Organization (FAO), land evaluation techniques, and land suitability analysis. Additionally, this stage presents an opportunity to assess the value of ecosystem services for potential inclusion in land use plans (Paula *et al.*; 2012). After the completion of the assessment, it is imperative to conduct a scoping study on public opinion and social impacts. This study should be conducted through participatory planning processes (Glave; 2012).

With the aid of this data, various land use scenarios can be formulated and the optimal choice can be made, considering the criteria for sustainable land use. This task can be quite demanding since the most favorable scenario may not necessarily yield the highest profits (Metternicht *et al.*; 2003). The impact of activities like pastoralism on social dynamics can be substantial. Utilizing integrated environmental-economic systems to forecast land use scenarios can assist in addressing various objectives simultaneously, facilitating the development of efficient land use plans that align with society's preferences for ecosystem services. A recent study in Australia applied this approach to identify effective land use arrangements that can meet the future demand for reducing greenhouse gas emissions from the land sector, while managing trade-offs between agriculture, water, and biodiversity (Bryan *et al.* ; 2015).

Following the development of the land use zoning plan, or spatial plan, it is essential to determine the instruments required to execute targeted programs and initiatives aimed at achieving the desired results. These instruments may encompass payment for ecosystem services, market-based mechanisms, policy combinations, and land zoning. This process must be conducted within a clearly defined framework that incorporates mechanisms for planning and monitoring implementation, identifying and rectifying mistakes, and enhancing the ongoing process (Glave; 2012).

Table 2: Steps of the land use Planning Process

Phase 1 : Formulation	Diagnostic	Phase 2 : Implementation	Instruments
	Preparation		<ul style="list-style-type: none"> • Programmes, projects, and action(land zoning, Pes.etc)
	<ul style="list-style-type: none"> • Identification and characteristics of stakeholders • Identification of current and potential land use conflicts • Biophysical , socio-economic, cultural context, • Infrastructure • Legal framework • Land tenure and land ownership 		<p>Approval and Adoption</p> <ul style="list-style-type: none"> • Project Elaboration <p>Execution</p> <ul style="list-style-type: none"> • Project Execution <p>Follow Up and Quality control</p> <ul style="list-style-type: none"> • Monitoring
	Analysis: ecological economic zoning		

	Synthesis		
	Evaluation		
	<ul style="list-style-type: none"> • Conduction scoping: objective, land use, evaluation , identification of ecosystem services 		
	Prospective		
	<ul style="list-style-type: none"> • Formulate alternative land uses(scenarios) • Analyze effect of alternatives • Select a preferred alternative 		

Source : FAO (1993); FAO (1999); Metternicht (2017); Bourgoin et al. (2012).

Principles of best practice in Land Use Planning for SLM (Sustainable land Management):

Sustainable land management encompasses various dimensions, including the optimization of economic and social advantages, as well as the preservation or improvement of the ecological support functions provided by land resources. To effectively address these aspects, it is imperative to employ land use planning processes:

1. The presence of a well-defined objective and problem to be addressed is crucial in order to establish a purpose. This is exemplified in the context of the Land Use Planning (LUP) process, which operates based on the demands and requirements of the stakeholders involved FAO (1999).
2. In order to effectively address the challenges associated with resource allocation and land utilization, it is imperative to identify the stakeholders involved and recognize their differing objectives. By acknowledging the competition for resources and land uses, decision-makers can gain a comprehensive understanding of the various interests at play. This knowledge serves as a foundation for fostering collaboration, resolving conflicts, and ultimately achieving outcomes that are equitable and sustainable for all stakeholders involved Bourgoin *et al.* (2012).
3. The emphasis is on integration and participation, fostering coordination among different sectors and involving multiple stakeholders, while also ensuring equitable representation and meaningful engagement of stakeholders in negotiations.
4. Analyzing the socio-political and legal backgrounds, incorporating the different land tenure structures.
5. Formulate cohesive strategies and guidelines throughout all echelons of decision-making, and establish strong ties between competent institutions at the local, sub-national, and national tiers.
6. Planning procedures can be designed to accommodate varying scales of operation. These procedures encompass a range of activities, including land evaluation, participatory process techniques, analysis of stakeholder objectives, and monitoring and evaluation. By adapting these procedures to different scales, planners can ensure that the planning process is comprehensive and responsive to the specific needs and goals of different stakeholders.
7. Encourage vertical integration by offering outputs, such as land use and management options, that are acceptable at both national and local levels.
8. Create a knowledge base that is accessible to all users and functions with utmost efficiency.

9. When it comes to planning and management, it is crucial to acknowledge the multi-functionality of the land and the significance of the 'landscape' as the primary unit.

Literature Review on Land Governance and Urban Expansion

Urban land use planning has been widely studied as a key instrument for managing spatial development and ensuring the sustainable use of land resources. In many countries, land use planning frameworks aim to balance economic development, environmental protection, and social equity through coordinated spatial policies and regulatory mechanisms. However, several studies have shown that the effectiveness of these frameworks often depends on institutional capacity, governance structures, and enforcement mechanisms (Owens, 1994; FAO, 1993).

Rapid urbanization has created significant challenges for land governance in both developed and developing countries. Uncontrolled urban expansion—commonly referred to as urban sprawl—can lead to inefficient infrastructure provision, loss of agricultural land, environmental degradation, and increased social inequalities (Bryan et al., 2015). In regions where planning regulations are weak or poorly enforced, urban development often occurs through fragmented and speculative processes rather than coordinated spatial planning strategies.

Institutional fragmentation and weak governance structures are frequently identified as major obstacles to effective land use planning. Studies have shown that when responsibilities for spatial planning are divided among multiple agencies without clear coordination mechanisms, planning policies often remain difficult to implement (Metternicht, 2017). Similarly, inadequate land tenure systems and unclear property rights may hinder the application of zoning regulations and urban development controls (FAO, 1999).

In the context of developing countries, land use planning challenges are often intensified by demographic pressures, rapid urban migration, and limited administrative capacity. Participatory planning approaches have therefore been increasingly promoted as a means to improve land governance and incorporate local stakeholder perspectives into spatial planning decisions (Bourgoin et al., 2012). These approaches aim to create more inclusive and adaptable planning systems capable of addressing complex socio-economic and environmental challenges. This broader body of literature provides an important framework for understanding the land use planning challenges faced by Lebanon. The Lebanese case reflects many of the governance and institutional constraints identified in international studies, particularly regarding fragmented planning institutions, weak enforcement mechanisms, and rapid urban expansion.

METHODOLOGY

This research adopts a qualitative analytical approach aimed at examining the current status of land use planning in Lebanon and identifying the underlying causes and consequences of unplanned land development. The methodology combines literature review, policy analysis, and spatial data assessment in order to provide a comprehensive understanding of land use dynamics in the country. The study focuses on evaluating existing planning frameworks, identifying institutional and structural challenges, and analyzing the spatial distribution of planned and unplanned territories.

Research Design and Approach

The research follows an **analytical descriptive research design** that investigates land use planning conditions in Lebanon through the examination of planning policies, spatial development patterns, and institutional frameworks. This approach allows the study to assess the gap between national planning strategies and their implementation on the ground.

The study is structured around three main analytical dimensions:

- **Institutional dimension**, which examines the planning authorities responsible for territorial management, including the Ministry of Public Works and Transport, the Directorate General of Urban Planning (DGUP), and the Council for Development and Reconstruction (CDR).

- **Spatial dimension**, which analyzes the geographical distribution of planned and unplanned areas across Lebanese territories based on available planning documents and spatial planning strategies.
- **Socio-economic and environmental dimension**, which evaluates the impacts of unregulated land use on infrastructure provision, environmental sustainability, and regional development.

Through this framework, the research aims to understand the structural weaknesses that contribute to the persistence of unplanned land development in Lebanon.

Data Collection Methods

The research relies primarily on **secondary data sources** collected from official planning documents, institutional reports, and academic studies related to land use planning and spatial development in Lebanon.

The main data sources used in this study include:

- The **National Physical Master Plan of the Lebanese Territory (SDATL)** issued by the Council for Development and Reconstruction (CDR, 2009), which serves as the primary national spatial planning framework.
- Official planning documents and reports issued by the **Directorate General of Urban Planning (DGUP)** and the **Ministry of Public Works and Transport**.
- Reports and studies produced by **international organizations**, including UN-Habitat and the World Bank, addressing urban development and land governance in Lebanon.
- Academic literature and previous research studies related to land use planning, urban growth, and territorial governance.

In addition to documentary sources, spatial data and planning maps illustrating the distribution of planned and unplanned areas across Lebanon were examined in order to better understand the territorial patterns of land use development.

Analysis Techniques

The study employs a combination of qualitative and spatial analytical techniques to evaluate land use planning conditions in Lebanon.

First, **policy analysis** was conducted to examine the effectiveness of existing planning frameworks, particularly the SDATL, and to assess the institutional mechanisms responsible for their implementation.

Second, **comparative analysis** was used to compare the objectives of national spatial planning policies with the actual spatial development patterns observed across Lebanese territories. This comparison helps identify the discrepancies between planning intentions and real urban expansion.

Third, **spatial interpretation of planning maps and territorial data** was used to analyze the distribution of planned and unplanned land areas. This spatial assessment provides insights into the geographical concentration of unregulated development and the areas most affected by uncontrolled urban expansion.

Finally, the findings from these analyses were synthesized in order to identify the structural factors that hinder effective land use planning and to formulate strategic recommendations aimed at improving land management practices in Lebanon.

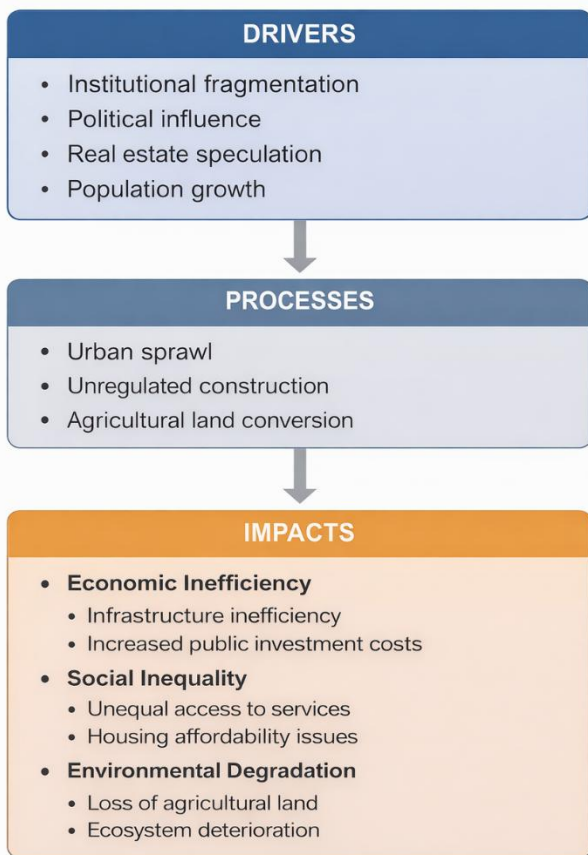


Figure 1 – Conceptual Framework of Unplanned Land Use Dynamics in Lebanon

Source: Author

To better conceptualize the dynamics examined in this study, a simplified analytical framework is proposed. The framework illustrates the relationship between the structural drivers of land use change, the processes through which unplanned development occurs, and the resulting economic, social, and environmental impacts. Institutional weaknesses, political dynamics, economic pressures, and demographic growth act as primary drivers influencing land use decisions.

These drivers contribute to processes such as urban sprawl, speculative real estate development, and the conversion of agricultural land into built-up areas. The resulting outcomes include infrastructure inefficiencies, environmental degradation, and increasing regional inequalities.

The analysis also incorporates statistical indicators related to urbanization levels, infrastructure distribution, and land use patterns derived from national and international reports in order to complement the qualitative policy assessment.

Limitations of the Study

This study relies primarily on secondary data sources and institutional reports, which may limit the availability of highly detailed spatial datasets. In addition, the absence of a comprehensive national land-use database in Lebanon restricts the ability to perform high-resolution quantitative spatial analysis. Despite these limitations, the use of multiple institutional sources and comparative policy analysis provides a reliable framework for understanding the structural drivers and impacts of unplanned land development.

Current Land Use Status in Lebanon

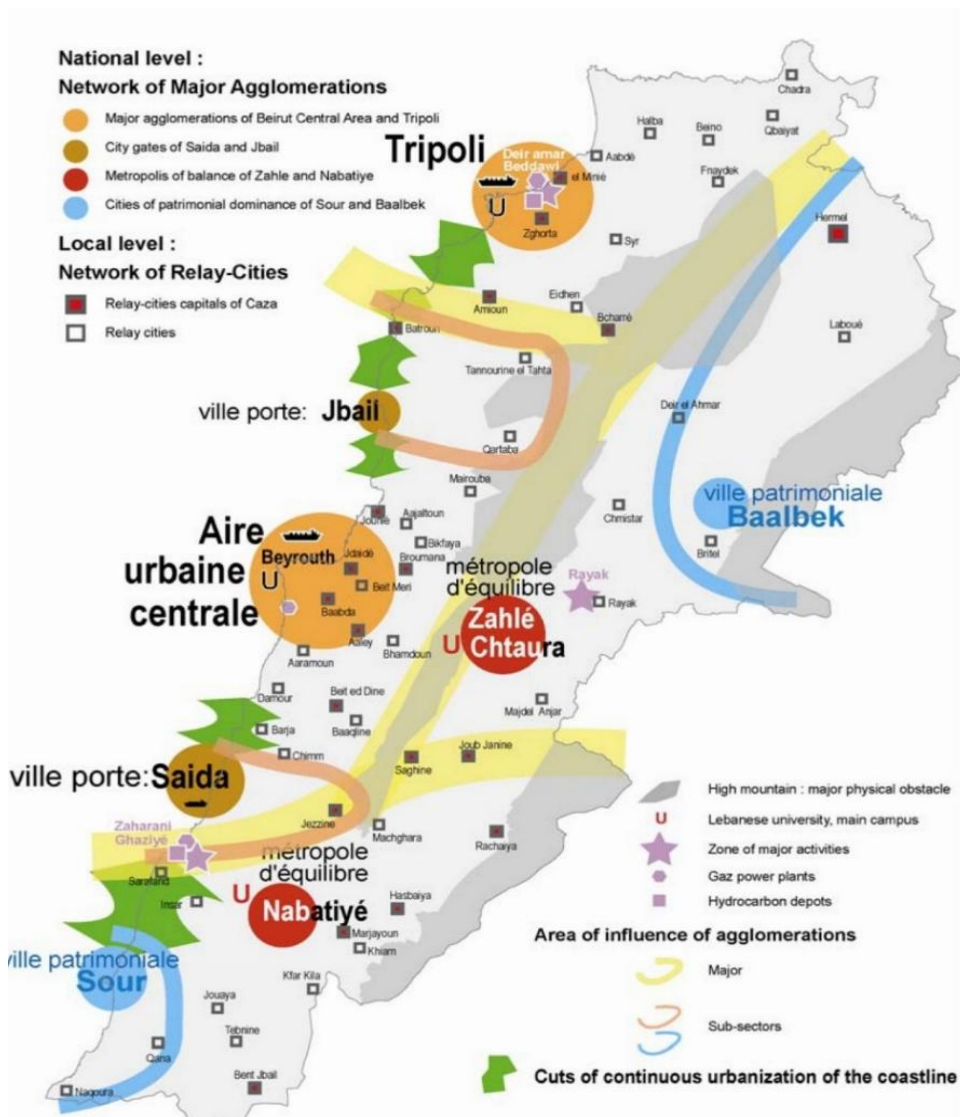
The discussions regarding a **national strategy for land use planning in Lebanon** began in the mid-1950s with the establishment of the **Ministry of Planning**, which was responsible for coordinating national development

policies. However, this ministry was abolished in 1977 during the civil war period, and the **Council for Development and Reconstruction (CDR)** was created to oversee reconstruction efforts and to prepare comprehensive development plans for the country (CDR, 2009; Fawaz, 2017).

The development of a comprehensive territorial planning framework was significantly delayed, and it was not until several decades later that Lebanon adopted a national spatial planning strategy known as the **Schéma Directeur d'Aménagement du Territoire Libanais (SDATL)**, or the **National Physical Master Plan of the Lebanese Territory** (CDR, 2009).

According to the CDR, one of the main objectives of the SDATL was to promote **balanced regional development**, improve the distribution of public services and infrastructure, and rationalize the use of national resources (CDR, 2009). The plan aimed to provide a strategic framework for spatial organization across the Lebanese territory while addressing long-standing regional disparities and environmental challenges.

However, several studies have pointed out that the institutional framework guiding spatial development in Lebanon has historically focused primarily on technical and physical aspects of development while often neglecting social and human-scale considerations. Political fragmentation and competing institutional interests have frequently influenced planning decisions, limiting the effectiveness of comprehensive territorial planning approaches (Fawaz, 2017; Harb & Deeb, 2018).



Source: <https://www.cdr.gov.lb/CDR/media/CDR/StudiesandReports/SDATL/Eng/NPMLPT-Chapt4.PDF>

In 2009, the Lebanese government officially adopted the **National Physical Master Plan (SDATL)** through **Decree No. 2366**, establishing the first national framework intended to guide land use planning and territorial

development across the country (CDR, 2009). The plan identifies several key components, including fixed geographical conditions, future development challenges, strategic policy directions, and principles guiding land use allocation.

The SDATL also addresses multiple sectors influencing spatial development, including transportation systems, tourism development, industrial activities, agricultural land management, education infrastructure, environmental protection, energy systems, water and sanitation services, waste management, public health infrastructure, and administrative governance mechanisms (CDR, 2009).

Furthermore, the SDATL was designed to function both as a **reference framework for land use planning** and as a **spatial coordination tool for public investments and development projects** across different sectors (CDR, 2009; UN-Habitat, 2021). Despite the progress made during Lebanon’s reconstruction phase following the civil war, several structural challenges continue to affect territorial development.

Among the major challenges identified are the **geographical fragmentation of the country**, which complicates transportation connectivity between regions; the strong concentration of economic activity in **Greater Beirut**; the deterioration of environmental conditions, particularly in coastal areas; the decline of agricultural and tourism sectors; and the increasing difficulty in controlling urban sprawl (CDR, 2009; UN-Habitat, 2021; World Bank, 2020). Additional concerns include insufficient consideration of natural and industrial risks and the lack of adequate public services in many urban areas.

Distribution of planned vs. unplanned land

The spatial distribution of planned and unplanned land in Lebanon represents one of the most critical challenges facing territorial management and sustainable urban development. Despite the existence of a national planning framework, a substantial portion of Lebanese territory remains outside the scope of detailed land use plans.

Table 3: Distribution of planned vs. unplanned land

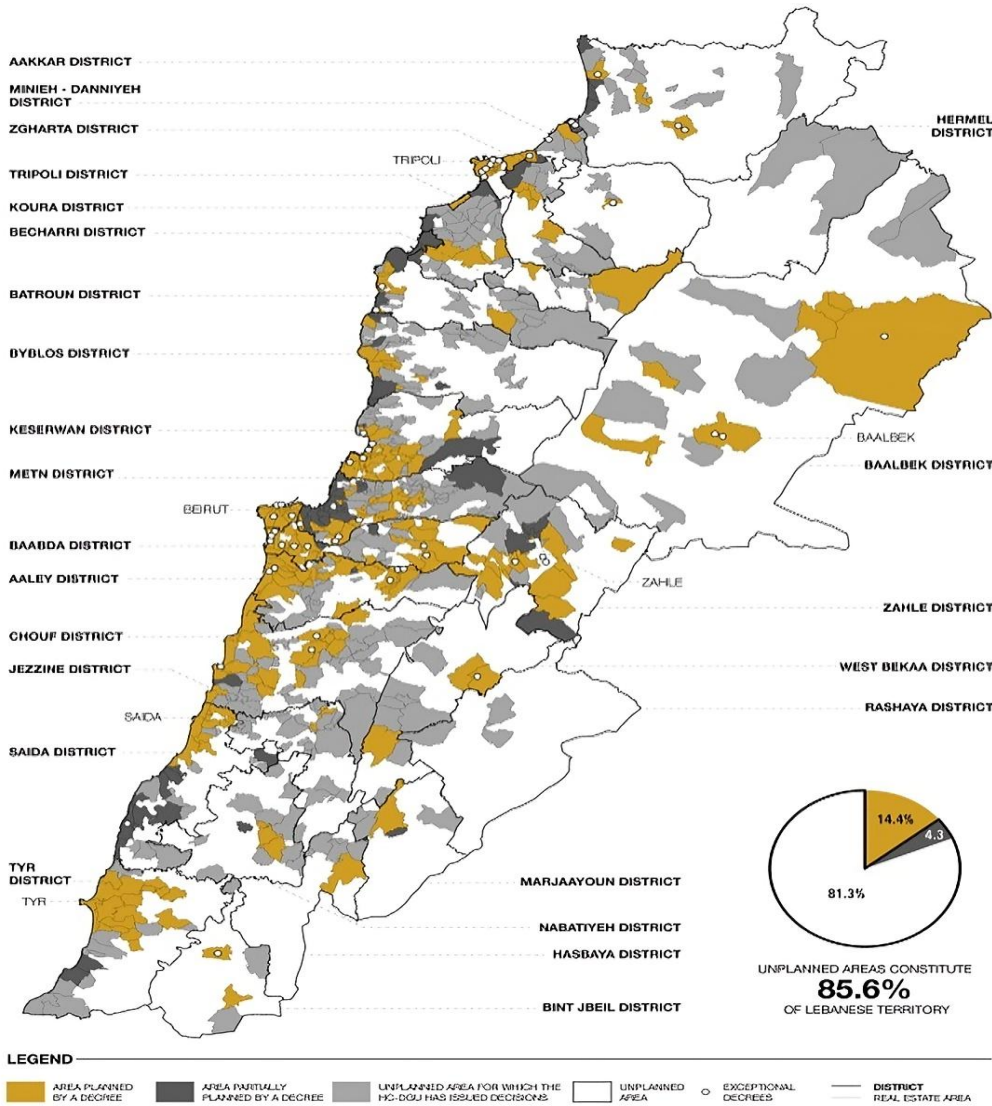
Land Category	Estimated Share of National Territory
Agricultural land	13–15%
Forest and natural vegetation	~13%
Urban and built-up areas	20–25% (including formal and informal development)
Land covered by detailed planning schemes	~15%
Land outside detailed planning frameworks	~85%

Source : CDR (2009); FAO (2016); UN-Habitat (2021).

According to data derived from the **National Physical Master Plan of the Lebanese Territory (SDATL)** and related planning assessments, approximately **85% of Lebanon’s territory is not covered by detailed urban planning schemes**, leaving only a limited portion of the country regulated through official zoning plans or urban master plans (CDR, 2009; Public Works Studio, 2021). This situation illustrates the significant gap between national strategic planning objectives and their practical implementation at regional and municipal levels.

The SDATL, adopted by **Decree No. 2366 in 2009**, was intended to provide a comprehensive spatial planning framework guiding land use decisions across the country. The plan aimed to promote balanced regional development, protect natural resources, regulate urban expansion, and coordinate infrastructure investments. However, despite its strategic importance, the implementation of the SDATL has remained limited due to institutional fragmentation, weak enforcement mechanisms, and political constraints (CDR, 2009).

MAP OF LEBANESE AREAS PER THE EXTENT OF THEIR PLANNING



Source: <https://publicworksstudio.com/urbanism-and-law/>

The spatial pattern of planned versus unplanned land also reflects Lebanon’s uneven territorial development. Urban planning schemes are primarily concentrated in major urban centers such as **Beirut, Tripoli, Saida, and Zahle**, while large areas of rural and peri-urban regions remain unregulated or only partially controlled by outdated planning documents. As a result, urban expansion frequently occurs in the absence of clear zoning regulations, leading to mixed land uses, informal development, and inefficient land allocation (Fawaz, 2017).

Unplanned land development is particularly visible in the rapidly expanding suburban belts surrounding Beirut and other major cities. These areas have experienced intense urbanization over the past decades, driven by demographic growth, real estate speculation, and economic pressures. In many cases, development occurs through fragmented private initiatives rather than coordinated planning processes, contributing to the proliferation of informal settlements and poorly serviced urban areas (Harb & Deeb, 2018).

Furthermore, the lack of comprehensive planning coverage exacerbates environmental pressures on Lebanon’s fragile ecosystems. Coastal zones, agricultural lands, and mountainous regions are increasingly affected by uncontrolled construction and land conversion. Without clear spatial regulations, these areas face growing risks related to environmental degradation, loss of biodiversity, and increased vulnerability to natural hazards such as landslides and flooding (UN-Habitat, 2021).

The distribution of planned and unplanned land therefore reflects broader structural weaknesses within Lebanon’s planning system. Limited institutional capacity, fragmented governance structures, and insufficient

coordination between national and local authorities have contributed to the persistence of unregulated development across much of the country.

Addressing this imbalance requires strengthening the implementation mechanisms of the SDATL, expanding the coverage of local urban plans, and enhancing coordination between planning authorities and municipalities. Without such reforms, the continued expansion of unplanned land use may further undermine the sustainability, resilience, and spatial efficiency of Lebanon's urban and rural territories.

Factors Influencing Land Use Decisions in Lebanon

Land use decisions in Lebanon are shaped by a complex interaction of institutional, economic, social, and environmental factors. These elements collectively influence the spatial distribution of activities, the pattern of urban expansion, and the effectiveness of land use planning mechanisms. Understanding these determinants is essential in order to identify the underlying causes behind the widespread occurrence of unplanned land use across the country (CDR, 2009; UN-Habitat, 2021).

Institutional and Governance Factors

One of the most significant influences on land use decisions in Lebanon is the institutional framework governing spatial planning. Although the **National Physical Master Plan of the Lebanese Territory (SDATL)** provides strategic guidance for territorial development, its implementation has been limited. Institutional fragmentation between ministries, municipalities, and planning authorities has weakened the capacity for coordinated decision-making (CDR, 2009; Fawaz, 2017).

The absence of a strong central planning authority capable of enforcing planning regulations has resulted in inconsistent application of land use policies. In many cases, municipalities lack both the technical expertise and financial resources required to implement comprehensive urban planning strategies. Consequently, development decisions often occur at the local level without adequate alignment with national planning frameworks (UN-Habitat, 2021; World Bank, 2020).

Political and Administrative Influences

Political dynamics play a crucial role in shaping land use patterns in Lebanon. Clientelism, political interference, and competing local interests frequently influence planning decisions. Development permits and zoning modifications may be granted based on political considerations rather than long-term planning objectives (Harb & Deeb, 2018; Fawaz, 2017).

Additionally, the decentralization of certain administrative responsibilities has created disparities between municipalities. While some municipalities possess relatively strong planning capacities, others operate with limited institutional support, leading to uneven development patterns across the country (UN-Habitat, 2021).

Economic Pressures and Real Estate Speculation

Economic factors represent another major driver of land use change in Lebanon. The real estate sector has historically been one of the primary engines of economic activity, especially in urban areas such as Beirut and its surrounding suburbs. This dynamic has encouraged speculative land development and the conversion of agricultural or natural land into urbanized areas (World Bank, 2018; Fawaz & Peillen, 2003). Landowners often prioritize short-term financial gains over sustainable land management practices. As a result, large areas of productive agricultural land and ecologically sensitive zones have been gradually transformed into residential or commercial developments without adequate planning or infrastructure provision (CDR, 2009; UN-Habitat, 2021).

Demographic Growth and Urbanization

Rapid urbanization and population growth have significantly influenced land use dynamics in Lebanon. Over the past decades, the country has experienced substantial demographic pressure resulting from rural-to-urban

migration, internal displacement, and the influx of refugees from neighboring countries (**UN-Habitat, 2021; World Bank, 2020**).

These demographic shifts have accelerated urban expansion, particularly in peri-urban areas surrounding major cities. In the absence of effective spatial planning mechanisms, this growth has frequently taken the form of informal or unregulated development, placing additional strain on infrastructure, transportation networks, and environmental resources (**Fawaz, 2017**).

Legal and Land Tenure Constraints

The complexity of Lebanon's land tenure system also contributes to land use planning challenges. Fragmented property ownership, outdated cadastral records, and slow administrative procedures complicate the implementation of planning regulations (**FAO, 2016; UN-Habitat, 2021**).

In many cases, unclear property boundaries or legal disputes over land ownership delay or obstruct the development of formal planning initiatives. Furthermore, regulatory frameworks governing zoning and building permits are sometimes inconsistently enforced, allowing unauthorized construction to occur (**World Bank, 2020**).

Environmental and Geographical Constraints

Lebanon's physical geography also plays a decisive role in shaping land use patterns. The country's mountainous terrain, narrow coastal strip, and limited flat land areas create natural constraints on spatial development (**CDR, 2009**). These geographical conditions concentrate urban expansion in a limited number of areas, particularly along the coastal corridor. This concentration intensifies development pressures and contributes to the uncontrolled urban sprawl observed in many regions (**UN-Habitat, 2021**).

Moreover, environmental concerns such as deforestation, coastal degradation, and vulnerability to natural hazards further complicate land management strategies (**UNEP, 2019**).

Socio-Cultural Factors

Social perceptions and cultural attitudes toward land ownership also influence land use decisions. Land in Lebanon is often perceived not only as an economic asset but also as a symbol of family heritage and social status. This cultural dimension sometimes discourages land consolidation or strategic planning initiatives that could optimize land utilization (**Fawaz, 2017**).

Additionally, resistance from local communities toward zoning regulations or development restrictions may limit the ability of planning authorities to implement comprehensive land use strategies (**Harb & Deeb, 2018**).

Regional Case Studies of Land Use Challenges in Lebanon

Land-use challenges in Lebanon vary significantly across regions due to differences in geographical conditions, economic structures, population pressures, and governance capacities. While the national planning framework attempts to regulate territorial development, the manifestation of unplanned land use differs from one region to another. Examining regional examples helps illustrate how institutional weaknesses, demographic pressures, and environmental constraints interact to produce distinct spatial outcomes.

The **Bekaa Valley**, traditionally considered Lebanon's primary agricultural region, illustrates the pressures generated by rapid demographic growth and unregulated development. Over the past two decades, urban expansion and informal settlements have increasingly occupied agricultural land, reducing the area available for productive farming. Studies indicate that approximately **20% of agricultural land in the Bekaa Valley has been lost due to urbanization and land speculation** (FAO, 2016). In addition, the establishment of informal refugee settlements has intensified pressure on land and water resources. Environmental degradation is further exacerbated by the pollution of the Litani River and the over-extraction of groundwater for irrigation and

domestic use, which threaten the long-term sustainability of agricultural production in the region (UN-Habitat, 2021; World Bank, 2020).

In **South Lebanon**, land-use challenges are closely connected to post-conflict reconstruction dynamics and coastal development pressures. Following the 2006 war, reconstruction activities occurred rapidly, often bypassing formal urban planning procedures and resulting in the proliferation of unregulated construction. At the same time, coastal areas near cities such as Tyre and Naqoura have experienced growing pressure from tourism development, illegal sand extraction, and uncontrolled resort construction. These activities have contributed to coastal erosion, habitat degradation, and declining marine ecosystems (UNEP, 2019). The concentration of development along the coastal corridor reflects broader national patterns of urbanization and highlights the difficulties associated with enforcing environmental and spatial planning regulations (CDR, 2009).

The **Akkar region**, located in northern Lebanon, represents another dimension of land-use mismanagement characterized by economic marginalization and environmental degradation.

Akkar is widely recognized as one of the poorest regions of the country, where limited infrastructure, weak institutional oversight, and insufficient planning capacity have contributed to unsustainable land practices. Deforestation, illegal quarrying, and uncontrolled construction on unstable slopes have significantly altered the region’s landscape and increased vulnerability to environmental hazards such as landslides and soil erosion. Studies indicate that forest cover in several parts of northern Lebanon has declined substantially due to illegal logging, quarrying activities, and land clearing for agriculture (FAO, 2016; UNEP, 2019).

These regional examples demonstrate that Lebanon’s land-use challenges are not uniform but rather shaped by specific local conditions and socio-economic dynamics. While the Bekaa Valley faces agricultural land conversion and water resource pressures, South Lebanon is affected by post-conflict reconstruction and coastal urbanization, and Akkar suffers from environmental degradation linked to poverty and weak governance. Addressing these diverse challenges requires region-specific planning strategies that combine environmental protection, sustainable economic development, and improved institutional coordination within the national spatial planning framework.

Table 4: Main Land Use Challenges & Key Drivers

Region	Main Land Use Challenges	Key Drivers
Bekaa Valley	Loss of agricultural land, refugee settlements, water scarcity	Urban expansion, demographic pressure
South Lebanon	Unregulated reconstruction, coastal degradation	Post-conflict rebuilding, tourism development
Akkar	Deforestation, illegal quarries, poverty	Weak governance, environmental exploitation

Source: author

Impacts of Unplanned Land Use

Lebanon’s built-up area has expanded significantly during the last decades. Remote sensing studies indicate that urbanized land has increased by more than 150% since the 1980s, particularly in coastal regions and peri-urban areas surrounding Beirut and Tripoli (UN-Habitat, 2021; World Bank, 2020). This rapid spatial transformation has occurred largely in the absence of comprehensive planning regulations.

Unplanned land use has produced measurable economic, social, and environmental consequences across Lebanon. The absence of comprehensive spatial planning has resulted in rapid urban expansion, inefficient infrastructure investment, and increasing pressure on natural resources. According to the **National Physical**

Master Plan of the Lebanese Territory (SDATL), nearly 85% of Lebanon’s territory is not governed by detailed urban planning schemes, leaving a large portion of land exposed to unregulated development (CDR, 2009). This situation has contributed to accelerated urban sprawl, particularly along the coastal corridor where approximately **60–70% of the Lebanese population resides** (UN-Habitat, 2021).

Figure 2
Urban Expansion Pressures in Lebanon



Source : Author

Economic Implications

The economic consequences of unplanned land use can be observed through increased infrastructure costs and inefficient spatial development. Dispersed urban growth requires the extension of infrastructure networks across fragmented territories. According to World Bank assessments, infrastructure costs in sprawled urban areas can increase by **20–30% compared with compact urban development patterns**, due to longer service networks and reduced efficiency in infrastructure delivery (World Bank, 2020).

Agricultural land loss is another measurable economic impact. Lebanon’s agricultural land represents approximately **13–15% of the national territory**, yet a significant portion of this land is located in peri-urban areas exposed to development pressure (FAO, 2016). Studies have shown that urban expansion has led to the gradual conversion of fertile agricultural land into residential and commercial developments, particularly in coastal regions and around major urban centers such as Beirut and Tripoli (Fawaz & Peillen, 2003).

Real estate speculation has also intensified in the absence of effective planning regulations. Between **2005 and 2018**, Lebanon experienced a sharp increase in construction activity and land transactions, particularly in the Greater Beirut region. During this period, real estate investments accounted for a large share of private capital flows, contributing to inflated land prices and encouraging speculative development rather than balanced spatial growth (World Bank, 2018).

Economic disparities between regions have also been reinforced by unplanned development patterns. Greater Beirut continues to concentrate a large share of economic activity, accounting for approximately **40–50% of national economic output**, while many peripheral regions suffer from limited infrastructure investment and restricted access to employment opportunities (CDR, 2009).

Social Implications

The social impacts of unplanned land use are reflected in the spatial distribution of services and population density patterns. Lebanon’s urban population represents approximately **88–90% of the total population**, making it one of the most urbanized countries in the Middle East (UN-Habitat, 2021). However, this urban growth has not been accompanied by proportional expansion in infrastructure and public services.

In many urban areas, rapid population growth has contributed to traffic congestion, housing shortages, and insufficient public facilities. For example, traffic congestion in the Greater Beirut area results in substantial economic losses due to increased travel times and fuel consumption. Estimates suggest that congestion-related costs in major Lebanese cities amount to several hundred million dollars annually in lost productivity and transportation inefficiencies (World Bank, 2020).

Housing accessibility has also been affected by speculative development and rising land prices. The increase in real estate prices during the construction boom of the early 2000s reduced housing affordability for many households, particularly middle- and lower-income groups. As a result, some populations have been pushed toward informal or poorly serviced residential areas located outside formal planning zones (Harb & Deeb, 2018).

Unplanned development also increases exposure to environmental and structural risks. Informal construction in mountainous areas or flood-prone valleys exposes residents to hazards such as landslides and flash flooding. Lebanon's mountainous topography, combined with unregulated construction practices, has increased the vulnerability of certain communities to natural hazards (UNEP, 2019).

Environmental Implications

Environmental degradation represents one of the most measurable long-term consequences of unplanned land use. Urban expansion has contributed to the loss of forest cover, soil degradation, and the destruction of natural ecosystems. Forested areas represent approximately **13% of Lebanon's total land area**, yet these ecosystems have experienced continuous pressure from urban expansion and infrastructure development (FAO, 2016).

Coastal urbanization has significantly altered Lebanon's coastal environment. The Lebanese coastline extends for approximately **220 km**, yet a large portion of this area has been heavily urbanized. Studies indicate that significant segments of the coastal zone have been transformed into built-up areas due to tourism development, commercial activities, and residential construction (UNEP, 2019).

Water resources are also under increasing pressure due to unplanned development. Lebanon's annual renewable water resources are estimated at approximately **2.7 billion cubic meters**, but inefficient water management and pollution have reduced the availability of usable water supplies in many regions (World Bank, 2020). In addition, insufficient wastewater treatment infrastructure results in the discharge of untreated wastewater into rivers and coastal waters, contributing to water pollution and ecosystem degradation.

Air pollution has also increased as a result of poorly planned urban mobility systems. The absence of integrated public transportation networks has resulted in heavy reliance on private vehicles. Road transport is responsible for a large share of urban air pollution in Lebanon, particularly in major cities where traffic congestion contributes significantly to greenhouse gas emissions and declining air quality (UN-Habitat, 2021).

Policy Analysis

Land use governance in Lebanon is shaped by a complex institutional framework that involves several national and local authorities. Despite the existence of planning legislation and strategic territorial plans, the effectiveness of land use policies has remained limited due to institutional fragmentation, weak enforcement mechanisms, and the absence of a coordinated spatial planning system. The following section reviews the principal land use policies and planning instruments in Lebanon and evaluates their effectiveness in regulating spatial development.

Review of Existing Land Use Policies in Lebanon

The legal and institutional framework for land use planning in Lebanon is primarily governed by a set of national laws, planning decrees, and institutional mechanisms. The central authority responsible for spatial planning is the **Directorate General of Urban Planning (DGUP)** operating under the **Ministry of Public Works and Transport**, while the **Council for Development and Reconstruction (CDR)** plays a significant role in preparing national development strategies and coordinating large-scale infrastructure projects (CDR, 2009).

One of the most significant planning instruments in Lebanon is the **National Physical Master Plan of the Lebanese Territory (SDATL)**, adopted by **Decree No. 2366 in 2009**. The SDATL represents the first comprehensive spatial planning framework intended to guide territorial development across the country. The plan establishes strategic objectives aimed at achieving balanced regional development, protecting natural resources, regulating urban expansion, and improving infrastructure distribution across Lebanese territories (CDR, 2009).

The SDATL identifies several key spatial priorities, including strengthening regional economic centers, preserving agricultural land and natural landscapes, improving transportation networks, and promoting sustainable development in rural areas. The plan also emphasizes the need to reduce the concentration of economic activity in Greater Beirut by encouraging development in secondary cities such as Tripoli, Zahle, Saida, and Tyre (CDR, 2009).

In addition to the SDATL, land use regulation in Lebanon relies on **urban master plans (Plans Directeurs)** prepared for individual municipalities or urban areas. These plans define zoning regulations, building densities, land use categories, and development conditions. The preparation of these plans is typically supervised by the DGUP and approved by governmental decree.

Environmental legislation also contributes to land use regulation. The **Environmental Protection Law No. 444 of 2002** establishes the legal framework for environmental protection and environmental impact assessments (EIA) for major development projects. Environmental planning initiatives are also supported by the **Ministry of Environment**, which collaborates with other governmental institutions to promote sustainable resource management (UNEP, 2019).

Municipalities play an important role in the implementation of land use policies. Under Lebanese administrative law, municipalities are responsible for issuing building permits, supervising local development activities, and implementing zoning regulations within their jurisdictions. However, municipal planning capacity varies significantly across the country, and many municipalities lack the technical expertise and financial resources necessary to manage complex planning challenges (UN-Habitat, 2021).

Despite the existence of these policies and planning instruments, the spatial development of Lebanon continues to be characterized by fragmented urban growth and extensive areas lacking detailed planning regulation.

Evaluation of Policy Effectiveness

Although Lebanon possesses several legal and institutional frameworks for land use planning, the effectiveness of these policies in guiding territorial development remains limited. One of the principal challenges is the gap between strategic planning objectives and their implementation at the local level.

The SDATL provides a comprehensive vision for territorial development; however, its implementation mechanisms are relatively weak. The plan functions primarily as a strategic guidance document rather than a legally binding framework. As a result, many municipalities and local authorities do not systematically incorporate SDATL recommendations into their local planning decisions (CDR, 2009).

Institutional fragmentation further reduces policy effectiveness. Spatial planning responsibilities are divided among several institutions, including the DGUP, CDR, Ministry of Environment, and local municipalities. This institutional dispersion often leads to overlapping responsibilities and limited coordination between planning authorities. Without a centralized system for spatial governance, planning policies may be applied inconsistently across different regions of the country (Fawaz, 2017).

Enforcement mechanisms also remain weak. Unauthorized construction and violations of zoning regulations are relatively common in many regions of Lebanon. In the absence of effective monitoring systems and strict regulatory enforcement, developers and landowners may circumvent planning regulations in order to accelerate development projects (World Bank, 2020).

Municipal capacity constraints further complicate the implementation of land use policies. Many municipalities lack qualified urban planners, geographic information systems (GIS) infrastructure, and financial resources necessary for the preparation and monitoring of detailed urban plans. As a result, local authorities often rely on ad hoc decisions rather than structured planning processes when addressing development pressures (UN-Habitat, 2021).

Political influence also plays a role in shaping planning outcomes. Land use decisions may be affected by political considerations, clientelism, or competing local interests, which can undermine the consistency of regulatory frameworks. In such cases, planning regulations may be modified or bypassed to accommodate specific development projects, further weakening the credibility of the planning system (Harb & Deeb, 2018).

Environmental policy integration also remains limited within the broader land use planning framework. Although environmental legislation exists, environmental considerations are not always systematically incorporated into spatial planning decisions. As a result, environmentally sensitive areas such as coastal zones, forests, and agricultural landscapes remain vulnerable to uncontrolled development pressures (UNEP, 2019).

These structural limitations have contributed to the persistence of widespread unplanned land development in Lebanon. Despite the presence of planning legislation and national strategic frameworks, the absence of strong institutional coordination, enforcement mechanisms, and planning capacity has prevented land use policies from effectively regulating spatial development across the country.

RECOMMENDATIONS

Addressing the widespread occurrence of unplanned land use in Lebanon requires a comprehensive reform of land governance systems, planning institutions, and regulatory frameworks. The complexity of Lebanon's spatial development challenges demands an integrated approach that combines institutional strengthening, spatial planning tools, environmental protection mechanisms, and participatory governance. The following recommendations outline strategic directions aimed at promoting sustainable land use planning and improving the effectiveness of territorial management policies.

Strategies for Sustainable Land Use Planning

One of the primary priorities for improving land management in Lebanon is strengthening the implementation of national spatial planning frameworks, particularly the **National Physical Master Plan of the Lebanese Territory (SDATL)**. Although the SDATL provides a strategic vision for territorial development, its effectiveness remains limited due to insufficient integration with local planning processes. Strengthening the legal and institutional status of the SDATL could improve its capacity to guide development decisions at national, regional, and municipal levels (CDR, 2009).

Expanding the coverage of **local urban master plans** is another critical step toward improving land use management. Currently, a large portion of Lebanese territory remains outside detailed planning regulations. Preparing updated master plans for municipalities and peri-urban areas would allow for clearer zoning regulations, controlled urban growth, and improved infrastructure planning. These plans should incorporate geographic information systems (GIS) and spatial analysis tools to support data-driven planning decisions (UN-Habitat, 2021).

Promoting **compact urban development** and reducing uncontrolled urban sprawl should also be a central planning objective. Encouraging higher-density development within existing urban areas can reduce infrastructure costs, preserve agricultural land, and limit environmental degradation. International studies have shown that compact urban development patterns improve infrastructure efficiency and reduce energy consumption associated with transportation systems (World Bank, 2020).

Another key strategy involves the **protection of environmentally sensitive areas and agricultural land**. Establishing clear land-use zoning regulations that restrict construction in coastal zones, forests, agricultural lands, and environmentally fragile areas can contribute to long-term ecological sustainability. Strategic

environmental assessments (SEA) should be systematically integrated into land use planning processes to evaluate the environmental implications of development projects before implementation (UNEP, 2019).

Strengthening **regional planning frameworks** can also contribute to more balanced territorial development. The concentration of economic activity in Greater Beirut has generated significant regional disparities across the country. Promoting development in secondary cities and regional economic centers such as Tripoli, Zahle, Saida, and Tyre could help reduce spatial inequalities and relieve development pressures on the capital region (CDR, 2009).

Policy Suggestions for Addressing Unplanned Land Use

Improving the institutional capacity of planning authorities represents a fundamental requirement for effective land governance. The **Directorate General of Urban Planning (DGUP)** and local municipalities should be provided with greater technical resources, professional expertise, and financial support in order to strengthen their ability to prepare and implement spatial planning strategies. Capacity-building programs for municipal staff in fields such as urban planning, geographic information systems, and environmental management could significantly improve planning performance (UN-Habitat, 2021).

Enhancing **coordination between national and local institutions** is another critical policy objective. Currently, land use governance in Lebanon involves multiple institutions with overlapping responsibilities, including the DGUP, the Council for Development and Reconstruction, the Ministry of Environment, and local municipalities. Establishing clearer institutional coordination mechanisms could reduce administrative fragmentation and improve the consistency of planning decisions across different territorial scales (Fawaz, 2017).

Strengthening **regulatory enforcement mechanisms** is also essential. Unauthorized construction and violations of zoning regulations remain widespread in several regions of Lebanon. Improving monitoring systems, implementing stricter penalties for regulatory violations, and enhancing transparency in permit approval procedures could significantly reduce illegal development activities (World Bank, 2020).

Land administration reforms may also contribute to more effective spatial planning. Improving the accuracy and accessibility of cadastral records and land ownership databases would facilitate better planning decisions and reduce legal disputes related to land tenure. Digitalization of land registration systems and integration with geographic information systems could improve transparency and support more efficient land management (FAO, 2016).

Encouraging **public participation in planning processes** represents another important policy direction. Participatory planning approaches allow local communities, civil society organizations, and private stakeholders to contribute to land use decision-making. Such participatory mechanisms can improve the legitimacy of planning policies, reduce conflicts over land use, and ensure that development strategies reflect the needs and priorities of local populations (Bourgoin et al., 2012).

Finally, integrating **sustainability principles into land use governance** should become a central component of future planning policies in Lebanon. Land use strategies should consider long-term environmental protection, efficient resource use, climate change adaptation, and social equity. The adoption of integrated territorial planning approaches can contribute to the creation of resilient urban systems capable of supporting sustainable economic and social development.

CONCLUSION

Land use planning represents a fundamental instrument for guiding sustainable territorial development and ensuring the efficient use of land resources. The analysis presented in this study highlights the significant challenges facing land use governance in Lebanon, where a large proportion of the national territory remains outside structured planning frameworks. Despite the existence of national strategies such as the **National Physical Master Plan of the Lebanese Territory (SDATL)**, spatial development across the country continues

to be characterized by fragmented urban expansion, weak regulatory enforcement, and limited institutional coordination.

The findings of this research indicate that unplanned land use in Lebanon is the result of multiple interconnected factors, including institutional fragmentation, political and administrative constraints, economic pressures associated with real estate development, demographic growth, and environmental limitations related to the country's geography. These factors collectively contribute to the persistence of uncontrolled urban expansion, particularly in coastal and peri-urban areas where development pressures are most intense.

The impacts of unplanned land use extend across several dimensions of national development. Economically, dispersed urban growth patterns increase infrastructure costs, reduce the efficiency of public investment, and contribute to the loss of productive agricultural land. Socially, unregulated development patterns exacerbate inequalities in access to services, contribute to congestion and mobility challenges, and expose communities to increased environmental risks. Environmentally, uncontrolled urban expansion accelerates deforestation, coastal degradation, and water resource pollution, undermining the long-term sustainability of Lebanon's natural ecosystems.

These findings underline the need for significant reforms in land use governance and spatial planning systems. Strengthening the institutional framework responsible for land management, improving coordination between national and local planning authorities, and expanding the coverage of local urban plans are essential steps toward improving spatial governance. In addition, integrating environmental considerations and sustainability principles into land use planning policies can contribute to more resilient and balanced territorial development.

From a policy perspective, improving the implementation of existing planning frameworks such as the SDATL is particularly important. The effectiveness of spatial planning policies depends not only on the existence of strategic plans but also on the availability of enforcement mechanisms, institutional capacity, and adequate technical resources. Strengthening municipal planning capacities, improving land administration systems, and promoting participatory planning processes could significantly enhance the effectiveness of land governance in Lebanon.

The results of this research also highlight the importance of adopting integrated planning approaches that link economic development, environmental protection, and social equity. Sustainable land use planning requires the coordination of multiple policy sectors, including transportation planning, environmental management, housing policy, and regional economic development. Such integrated approaches can help reduce spatial disparities between regions while protecting natural resources and improving the quality of urban environments.

Future research can further expand the understanding of land use dynamics in Lebanon by incorporating more detailed spatial analysis and quantitative modeling techniques. Geographic information systems (GIS) and remote sensing tools could provide more precise measurements of urban expansion patterns and land use change over time. Additional research could also examine the relationship between land use planning and climate change adaptation, particularly in coastal and mountainous regions that are vulnerable to environmental risks.

Moreover, comparative studies between Lebanon and other countries facing similar planning challenges could offer valuable insights into effective governance models and policy instruments. Investigating successful land use planning strategies implemented in other regions may help identify practical solutions that could be adapted to the Lebanese context.

In conclusion, addressing the challenges of unplanned land use in Lebanon requires a long-term commitment to strengthening spatial planning institutions, improving regulatory enforcement, and promoting sustainable development principles. Through coordinated policy reforms and strategic planning initiatives, Lebanon can move toward a more balanced and resilient territorial development model capable of supporting economic growth, environmental protection, and social well-being.

Without significant reforms in land governance, planning enforcement, and institutional coordination, the continued expansion of unplanned land use may further intensify spatial inequalities, environmental degradation, and infrastructure inefficiencies across Lebanon.

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