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HUNGARIAN UNIVERSITY OF
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**EXPLORING SPATIAL TRANSFORMATION AND EFFECTIVENESS OF
MASTER PLAN IN THE SYRIAN COASTAL REGION**

Ph.D. DISSERTATION

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1. INTRODUCTION

“Urbanization is a complex socio-economic process that transforms the built environment, converting formerly rural areas into urban settlements and shifting the spatial distribution of populations from rural to urban areas” (UN, 2018). This transformation is primarily driven by migration from rural regions to urban centers, leading to the expansion of urban populations and territories. As a result, urbanization brings about changes in land use patterns, economic activities, and cultural dynamics, leading to significant societal and economic transformations (UN, 2018).

Particularly in developing countries, there is a notable increase in urban populations, resulting from both natural population growth and sustained rural-to-urban migration. This demographic transition presents various challenges, such as escalating land prices, housing shortages, inadequate infrastructure, insufficient green spaces, and unplanned urban expansion, which encroaches upon surrounding natural environments. Urban areas, in an effort to accommodate the growing demand for services, often expand at the expense of rural and green spaces.

Since the mid-20th century, the global pace of urbanization has accelerated significantly. Notably, in 2007, the urban population globally exceeded the rural population for the first time, marking a historic demographic milestone. Projections indicate that by 2030, about 60% of the world's population will be living in urban areas, a figure expected to rise to approximately 68% by 2050. This rapid urbanization underscores the urgency of addressing the complex challenges it presents (UN, 2018). Figure (1) shows the world Urban and Rural population within the time.

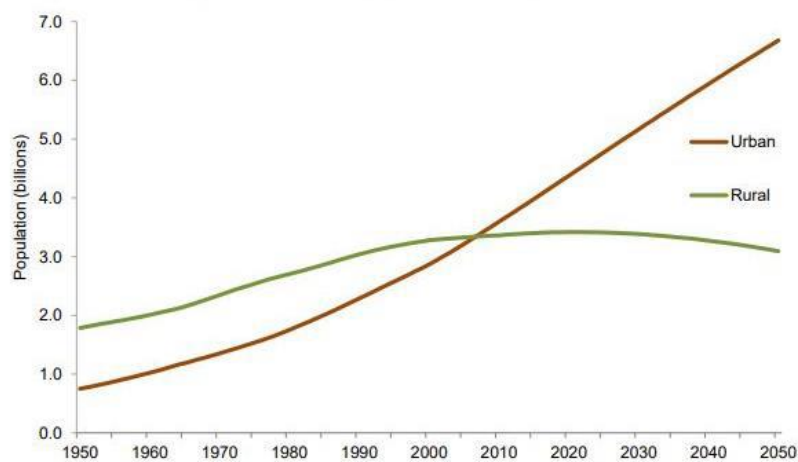


Figure 1: urban and rural population , Source : (UN, 2018).

In Syria, urban landscapes are experiencing dramatic transformations. Agricultural lands are increasingly succumbing to urban expansion as cities undergo rapid and often unmanaged expansion. This expansion, characterized by spontaneous growth in peri-urban areas, poses multiple challenges for both residents and authorities. Driven by factors such as population growth, economic aspirations, and changing land-use patterns, this unregulated expansion occurs without the benefit of proper planning or regulations. Consequently, urban areas extend in a disorganized manner, threatening valuable agricultural land and creating new challenges for local authorities.

The responsibility for infrastructure provision heavily burdens these authorities, who struggle to keep pace with the demands of growing populations. Issues such as sanitation, water supply, and waste management are exacerbated, straining existing systems and potentially compromising public health. Moreover, the unplanned nature of this growth can disrupt social and community structures, leading to disenfranchisement and marginalization among residents.

In light of the uncontrolled urban expansion characterizing Syrian cities, the imperative for structured regulatory oversight and strategic urban planning has become increasingly evident. Master plans emerge as critical tools in navigating the complexities of urban growth, advocating for the implementation of comprehensive planning policies and the enforcement of effective regulations. These plans are pivotal in directing urban development along a sustainable trajectory, ensuring the conservation of valuable natural and agricultural resources, promoting inclusivity, and facilitating the creation of resilient and thriving urban landscapes. The success of these master plans, however, hinges on their ability to remain flexible and responsive to evolving urban dynamics, drawing lessons from both past achievements and shortcomings. Through detailed analysis and the proposition of innovative solutions, this research seeks to arm policymakers with the insights necessary to refine and optimize these strategic planning instruments. The goal is to ensure that they effectively steer urban growth towards outcomes that are both sustainable and equitable, securing a prosperous future for Syrian cities and their inhabitants (UN, 2018)

2. Importance of study

The rapid expansion of urban areas often disrupts the social fabric within cities. This investigation highlights socio-economic disparities resulting from such growth and offers guidance for policies to mitigate issues like displacement, inequitable access to opportunities, and resource scarcity. The

goal is to advocate for inclusive and equitable urban expansion, creating accessible and beneficial communities for all.

Beyond identifying challenges, this research evaluates the efficacy of existing urban master plans strategic documents for managing urban growth. Through critical analysis, it aims to equip policymakers with insights to formulate development strategies that promote economic prosperity, environmental sustainability, and social equity.

Additionally, the research explores successful international examples of urban development to extract valuable lessons and best practices. This knowledge transfer will support the creation of sustainable urban paradigms.

In essence, this research proposes a strategic pathway towards urban expansion that avoids environmental degradation and social inequities. By examining the impacts of urban growth, assessing current planning tools, and learning from global successes, the study advocates for urban environments characterized by livability, resilience, and social equity. This comprehensive approach aims for urban expansion that contributes positively to a sustainable and flourishing future for all inhabitants.

3. Research problems and objectives

Uncontrolled and poorly planned urban expansion poses a significant threat to the Syrian Coastal Region, casting a long shadow over its delicate ecological, social, and economic fabric. This research delves into the complex interplay between unmanaged urban expansion and its multifaceted consequences, paving the way for a more sustainable future for the region.

Key drivers of this research problem include:

- **Disregard for Natural Environment:** The current approach to urban expansion in the Syrian Coastal Region often ignores the surrounding natural landscapes, disrupting the ecological balance and undermining the region's environmental integrity.
- **Inadequate Control Mechanisms:** Existing urban planning and regulatory mechanisms lack the capacity to effectively manage and guide growth. This results in haphazard expansion, inefficient land-use patterns, and the encroachment of urban areas into ecologically sensitive zones.

- Neglect of Sustainable Development Principles: Urban expansion efforts frequently overlook the principles of sustainable development, including the need for balanced growth that harmonizes environmental preservation with socio-economic development. This neglect exacerbates resource depletion and environmental degradation.
- Socio-Economic Disparities: Rapid urban expansion has exacerbated socio-economic disparities, leading to uneven development, inadequate infrastructure, and strained public services in both urban and rural areas.

In light of these challenges, this research aims to:

This research aims to critically analyze the spatial transformations in both rural and urban areas of the Syrian Coastal Region, with a particular focus on the dynamics of urban expansion. By examining Latakia Master Plan as a case study for the Syrian coastal cities, this study will assess the plan's effectiveness in managing urban growth and its impact on the region's ecological, social, and economic landscapes.

Beyond city limits, the research will analyze how urbanization impacts the delicate relationship between urban and rural areas, assessing its influence on lifestyle, land use, and social dynamics. Additionally, the research will compare Latakia's urban planning approaches with successful international examples to identify strengths, weaknesses, and potential areas for improvement. The ultimate objective is to provide evidence-based insights to guide policymakers in refining urban planning strategies, ensuring they are more adaptive, sustainable, and capable of addressing the unique challenges faced by the Syrian Coastal Region. This analysis seeks to inform decision-makers of critical areas where modifications could enhance the master plan's effectiveness, fostering a balanced and resilient development trajectory for the region.

Based on that the research rise 4 main research questions:

1. What are the spatial changes occurring in rural and urban areas due to urban expansion, and how can these changes be observed in the context of Latakia governorate?
2. How does urban expansion influence land use changes in the rural areas of the Syrian Coastal Region?
3. How effective is the current Latakia Master Plan in addressing the challenges of rapid urban growth, and what specific areas of the plan require improvement for better management of urban expansion?

4. What urban development strategies can enhance development and improve the quality of life in the Syrian Coastal Region?

The study will draw upon extensive literature reviews to explore concepts related to urban expansion and transformation, enriching the understanding of the subject matter.

4. Hypotheses

Uncontrolled urban expansion in the Syrian Coastal Region, particularly in Latakia, prioritizes short-term economic gains while neglecting environmental sustainability and social equity. Existing control mechanisms, including the Latakia master plan, are ineffective in managing this expansion, leading to negative consequences for both urban and rural areas. By learning from successful international examples of urban development and implementing clear principles for responsible urban expansion, the Syrian Coastal Region can achieve a more balanced approach that fosters economic growth, environmental preservation, and improved quality of life for all residents.

5. Research methodology and dissertation structure

To achieve the research goals, the methodology is structured into four main chapters, with a fifth chapter dedicated to presenting the new scientific achievements.

The research began with a comprehensive literature review (chapter1) focusing on theories related to urban expansion and its implications. This review encompassed a wide range of studies on urban development, land use planning, and the social dynamics within cities. Key theoretical frameworks were examined to provide a foundational understanding of how urban expansion affects landscapes and communities. The objective was to establish a theoretical framework that informed subsequent analyses of urban expansion impacts and master plan effectiveness. This included reviewing seminal works and recent advancements in urban planning theories, sustainability practices, and the socio-economic impacts of urban growth.

The second chapter of the research involved analyzing four international case studies of master plans: the Alexandria city master plan in Egypt, the Abu Dhabi city master plan in the UAE, the Barcelona city master plan in Spain, and the Montpellier city master plan in France. These case studies were selected to represent a diverse set of urban planning approaches in different cultural and geographic contexts. The analysis focused on the urban development strategies employed in these master plans, examining how these strategies had been implemented, the challenges faced, and the outcomes achieved. By comparing these different approaches, the research aimed to gain

insights into effective strategies for managing urban expansion. Each case study was scrutinized through documents, reports, and interviews with urban planners and officials involved in the planning process.

The third chapter of the research investigated the correlation between urban and rural areas in the Syrian coastal region. This practical study aimed to explore the impact of this correlation on various aspects such as lifestyle changes, housing types, and community dynamics. Figure (2) shows the different relations between rural and urban areas.

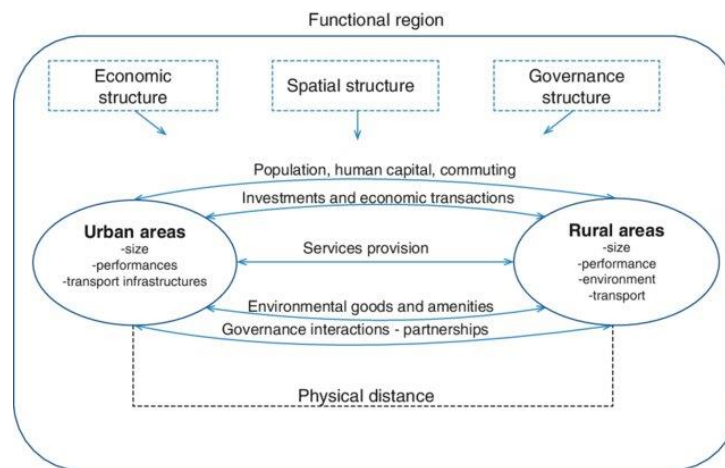


Figure 2: Linkages between rural and urban regions, Source: (OECD, 2013)

Data collection methods included surveys and field observations. Specifically, questionnaires were distributed to people living in modern housing units and people living in traditional housing units. The questionnaires covered aspects such as changes in housing design, community interaction, access to services, and perceptions of urban expansion. Statistical analysis was conducted to identify trends and correlations in the data, providing empirical evidence of the impacts of urban expansion on rural-urban dynamics.

The fourth chapter of the research assessed the effectiveness of the Latakia master plan, with a particular emphasis on the 2008 version. This began with a historical review of city expansions and previous master plans in Latakia, tracing the evolution of urban planning in the city. This historical context provided a backdrop for analyzing the main urban development strategies employed in the 2008 master plan. The research evaluated how effectively these strategies addressed urban expansion challenges and their impact on the landscape and community dynamics in Latakia. This evaluation was conducted through a combination of qualitative methods, such as

content analysis of planning documents, and quantitative methods, such as spatial data analysis and statistical trends.

Additionally, a comparative table was created to compare Latakia master plan with both Arabic and European master planning experiences. This included a detailed comparison between the Latakia master plan and the master plans of Alexandria and Abu Dhabi, as well as comparisons with the Montpellier and Barcelona master plans. These comparisons aimed to identify similarities, differences, and potential lessons learned that could inform future urban planning efforts in Latakia. The analysis included a regional analysis focusing on Latakia and the Arabic cities of Alexandria and Abu Dhabi, and a cross-regional analysis comparing Latakia with the European cities of Montpellier and Barcelona. Figure (3) shows the cross relation between the master plan, urban expansion and the city structure.

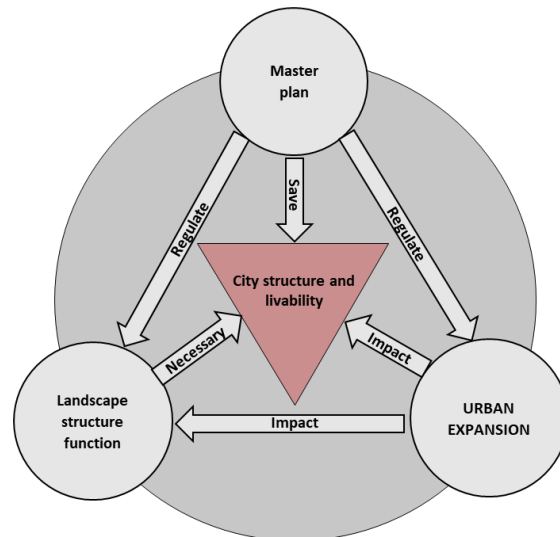


Figure 3: Cross relation between master plan, Urban expansion and city structure, Source: Author

Latakia governorate was chosen as a case study for this research because it exemplifies the planning and urban expansion challenges faced by cities in the Syrian Coastal Region. With its significant population and rapid urban growth, Latakia provides a valuable context for analyzing urban expansion dynamics. As one of the most densely populated areas in the region, it serves as a representative model for understanding and addressing similar issues in other coastal cities, offering insights that can guide sustainable urban planning efforts across the region.

The fifth chapter showcased the new scientific achievements, and the recommendations derived from the research findings.

6. New scientific achievements

6.1. New scientific achievements

Thesis 1: I have found that traditional housing in the rural areas of the Syrian coastal region, which utilizes local materials and maintains strong environmental connections, is significantly more sustainable than contemporary styles.

Through a comprehensive historical review and survey data analysis, my research identified a clear shift towards urban housing styles driven primarily by economic factors such as reduced construction costs, faster building timelines, and modern aesthetic preferences. Despite the environmental suitability of traditional houses, which are naturally adapted to the local climate and make use of passive cooling and natural ventilation, modern housing designs in the rural areas of the Syrian coastal region rely heavily on non-native materials, making these houses less resistant to climate challenges. This shift results in increased energy consumption and contributes to environmental degradation.

Thesis 2: I explored the socio-economic and physical landscape transformations resulting from the adoption of contemporary housing styles in rural area of the Syria coastal region and found that this shift has significantly reduced integration with nature and altered rural activities.

My research indicates a marked decline in agricultural productivity and crop diversity, particularly in areas that have shifted their economic focus toward cultivating high-commercial-value crops such as olives and tobacco. This transformation is associated with a decreased reliance on traditional agricultural income, which historically provided subsistence for rural populations. As rural communities move away from diverse agricultural practices, there is an observable impact on food security, and the sustainability of rural livelihoods.

Thesis 3: Through analyzing urbanization patterns and transportation development in Latakia Governorate, I found that the construction of regional highways and the expansion of transportation networks have significantly influenced rural transformation.

My research demonstrates that these transportation networks have not only physically linked rural areas with urban centers but have also facilitated the socio-economic integration of rural populations into urban economies. Urban centers have emerged as pivotal hubs, attracting rural

residents seeking improved job prospects and higher incomes. Villages in closer proximity to these urban centers are experiencing more pronounced spatial transformations, including shifts from agricultural land to commercial and residential use. While these changes bring economic opportunities, they also lead to the erosion of traditional rural lifestyles and cultural practices.

Thesis 4: I conducted an in-depth analysis of the Latakia Master Plan and found significant deficiencies in its urban development strategies, particularly in achieving sustainable urban growth and mitigating the adverse effects of rapid expansion.

My comparative study, which involved analyzing urban development strategies from cities such as Barcelona, Montpellier, Alexandria, and Abu Dhabi, revealed that Latakia's current urban planning framework does not adequately address the challenges of rapid population growth and urban sprawl. These inadequacies result in structural disorganization, reduced quality of life for residents, and significant environmental degradation.

Thesis 5: I observed a profound spatial transformation in Latakia city due to rapid urban expansion and found that the existing Master Plan inadequately addresses these changes, prioritizing short-term economic benefits over long-term sustainability.

My research reveals that while urban expansion has led to economic growth, it has also caused considerable strain on the city's infrastructure, increased environmental degradation, and diminished the overall quality of life. The current Master Plan lacks a comprehensive, forward-looking approach that considers the long-term impacts of urban growth on environmental sustainability, social equity, and economic stability.

Thesis 6: I found that the Latakia Master Plan neglects crucial aspects of social structure and environmental sustainability in its proposed expansion strategies and new residential areas.

My research reveals that these oversights have led to practical problems, such as housing duplication, significant vacancies in certain urban sectors, and inadequate infrastructure development. These issues exacerbate existing problems, including traffic congestion and increased environmental pollution, due to a lack of comprehensive road infrastructure and effective public transportation systems.

Thesis 7: I identified a critical gap between Latakia's expanding urban areas and its underdeveloped public transportation system, which hinders resident mobility and increases reliance on private vehicles.

My research indicates that the absence of a well-coordinated and extensive public transport network contributes significantly to traffic congestion, increased commuting times, and air pollution, thus undermining the city's sustainability objectives. A decentralized planning approach, which actively involves public and stakeholder engagement, is necessary to develop a comprehensive public transportation system that addresses the needs of Latakia's growing population.

Thesis 8: I found significant deficiencies in Latakia's green network and infrastructure development, which are critical to the city's resilience to climate change and the maintenance of a healthy living environment.

My research shows that the current urban development framework in Latakia lacks sufficient green spaces and fails to invest adequately in sustainable infrastructure. This limitation hinders the city's capacity to manage environmental challenges, such as urban heat islands and stormwater runoff, and to provide a high quality of life for its residents. Adopting international best practices in green infrastructure, such as the creation of urban parks, green corridors, and initiatives like urban agriculture, can significantly enhance biodiversity, improve climate resilience, and promote environmental sustainability.

7. Recommendations

For effective spatial transformation and master plan development in the Syrian Coastal Region, several key recommendations are essential. Sustainable housing practices should integrate local materials, climate-adapted designs, and energy-efficient techniques to reduce negative impacts on rural landscapes. Policies should promote sustainable agriculture and crop diversification to strengthen rural economies and preserve cultural heritage. Balanced regional development must focus on equitable economic opportunities and infrastructure investment in rural areas to avoid excessive urban concentration. Land-use planning should address the socio-economic impacts of transportation infrastructure to maintain cultural heritage and ensure balanced growth. Revising the Latakia Master Plan to include sustainable urban development principles—such as compact design and green infrastructure—will address local challenges effectively. A holistic approach to urban planning, incorporating diverse stakeholder perspectives and emphasizing environmental conservation, social equity, and economic resilience, is crucial. Social and environmental impact assessments should guide decision-making and prioritize investments that enhance community well-being and environmental quality. Additionally, investing in robust public transportation and green infrastructure will reduce congestion and pollution while improving ecological resilience and quality of life.

7.1. Further Research Recommendations

While this research provides valuable insights, further studies are recommended to build on these findings and address gaps in understanding:

- Longitudinal Studies on Housing and Environmental Impact: Further research is needed to conduct longitudinal studies that track the long-term environmental impacts of different housing styles in the region. This will provide deeper insights into the sustainability of various housing practices over time.
- Detailed Socio-economic Impact Analysis: Additional studies should focus on the detailed socio-economic impacts of urbanization and transportation development on rural communities. This includes examining changes in income distribution, employment patterns, and social structures to better understand the full scope of urban-rural interactions.

- Evaluation of Policy Implementation: Research should be conducted to evaluate the effectiveness of policies aimed at promoting sustainable development in Latakia. This includes assessing the implementation and outcomes of policies related to sustainable agriculture, urban planning, and transportation infrastructure.

- Exploration of Innovative Green Infrastructure Solutions: Investigating innovative green infrastructure solutions that can be adapted to the specific climatic and geographic conditions of Latakia is essential. Research can explore the potential of urban agriculture, vertical gardens, and other green initiatives to enhance urban resilience.

- Community-Based Research on Public Perception and Participation: Understanding the perceptions and participation of local communities in sustainable development initiatives is crucial. Further research should focus on community-based approaches to gauge public opinion, promote stakeholder engagement, and foster collaboration in planning and development processes.

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9. Publications connected to the research topic

9.1. Author's Published papers in international journals with Impact Factor:

- Khadour, N.; Fekete, A.; Sárospataki, M. The Role of the Master Plan in City Development, Latakia Master Plan in an International Context. *Land* 2023, 12, 1634. <https://doi.org/10.3390/land12081634>
- Khadour, N.; Basha, N.A.; Sárospataki, M.; Fekete, A. Correlation between Land Use and the Transformation of Rural Housing Model in the Coastal Region of Syria. *Sustainability* 2021, 13, 4357. <https://doi.org/10.3390/su13084357>

9.2. Author's Published papers in international journals:

- Basha, N.A.; Khadour, N. The Importance of Urban Regeneration through Cultural Heritage - The Case of Bab Touma Square in Damascus, Syria , *Teka Komisji Urbanistyki i Architektury XLIV / 2021 Paper: 2021*, doi: 10.24425/tkuia.2021.138718
- Eplényi, A.; Basha, N.A.; Khadour, N. Historic public park design – a case study on complex landscape history education – Südpark Kleinburg Breslau ,*4D Tájépítészeti és Kertművészeti Folyóirat (1787-6613)*: 55-56 (1) pp 156-167 (2020), <https://doi.org/10.36249/55.56.11>

9.3. Author's Conference participations and published papers in proceedings:

- Khadour, N.; Sárospataki, M. Urbanization in the Syrian coastal region, Causes and effects, 2022, [János Lippay – Imre Ormos – Károly Vas (LOV) Scientific Meeting] , ISBN: 9789632699882

9.4. Author's Conference participations and published abstracts:

- Khadour, N.; Relation between crises and land use changes “Syrian crisis as a case study”, 2020, [SZIEntific Meeting for Young Researchers 2020, ISBN: 9789632699370.

9.5. International Landscape design Competition:

- Honorable mention in the International Architecture and landscaping Competition, Fort's New Life held by The Hugo Kollataj University Of Agriculture In Krakow, 26/ 11 /2019.
Team Work: Máté Sárospataki , Nebras Khadour, Banhegy luca Johanna, Evelin Hajdu, Kortvelyesi Dora, Varsanyi Orsolya, Szovenyi Anna.
<https://arch.urk.edu.pl/index/site/6743/7467>