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## IMPACT OF URBAN CITY SPRAWL ON THE IDENTITY OF SUBURBS AND RURAL AREAS

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# IMPACT OF URBAN CITY SPRAWL ON THE IDENTITY OF SUBURBS AND RURAL AREAS

## Abstract

Urban sprawl is the rapid expansion of the city towards the suburbs and the countryside, and it happens for various reasons. The first one is of residential nature, and is a result of growing population density while others are of political, economic, and social nature. There is no doubt that the city's encroachment towards the countryside and the emergence of new patterns of construction such as buildings and transportation networks have more drawbacks than advantages, in developing countries, especially in the absence of planning. This phenomenon causes the rise of real estate prices that leads to a change in the direction of its use while decreasing the green areas that are considered the lungs of cities and thus leading to environmental damage, pollution, and destruction of the countryside. This expansion also obliterates the identity and characteristics of the countryside, leading to the loss of its aesthetics and heritage. In addition, urban sprawl also threatens its original inhabitants and may force them to be displaced (force migration) due to the loss of their land, their lifestyle, and their work sometimes. The main aim of this research is: control or slow down the urban city sprawl, and preserve the countryside's identity and its specificities. This urban encroachment can be controlled by administrative and legal methods, and in various sustainable ways, through planning based on academic and scientific studies including the issuance of laws to amend the investment ratio in the city and in the countryside. This strategy of this research will expose sustainable methods in order to develop and improve the economic return of rural areas by investing in a productive agricultural sector, or in a tourism sector that makes the countryside a destination for leisure and comfort for the city's residents. On this basis, we can stop or slow down the encroachment of the city and preserve the social, environmental, aesthetic, and characteristics of the countryside.

## Keywords

Urban City Sprawl, Identity, Rural Areas, Green Areas, Land Price, Investment Factor, Forced Migration

## 1. INTRODUCTION

Urbanization is a rampant, uncontrolled social and economic change across the spatial and temporal scales. In general, any territory, located outside urban regions, is considered suburbs or a rural region that is characterized by vast agricultural land, green areas, and strong family, and social bonds. Cities are an administratively defined area that contains general built and non-built areas in which business, construction, and transport are active. We can acknowledge that high population density with an increase in demand for the buildings plus the absence of a master plan, leads to a random urban expansion from the city outside its administrative borders, as shown the chart in figure 1(a). Therefore, obliterating the identity, destroying the heritage, and changing the use of the agricultural lands of suburbs. Over time, urban city scrawl towards the suburbs causes an increase in land prices, and morphological, environmental, economic, and social changes in the suburban and rural areas, as shown the chart in figure 1(b).

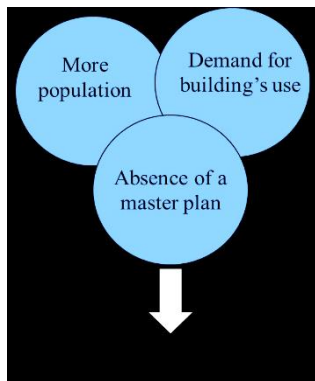


Fig.1 (a): Relation between population and demand for building's use, and absence of master plan

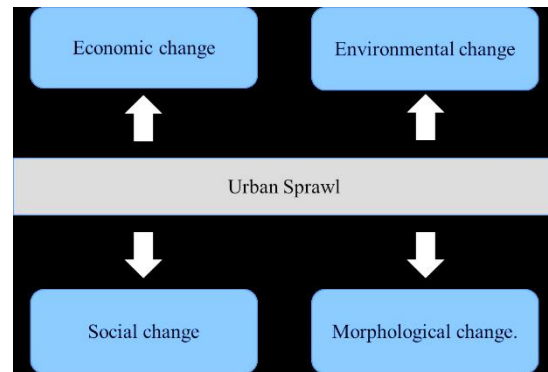


Fig.1 (b): Changes caused by the Urban Sprawl towards suburbs and the countryside

Urbanization, the creation of transport networks, and urban city sprawl are the main factors in the initial transformation of land at the functional level, which leads to an increase in land prices. This plays a major role in changing the local and the community specialty of the suburbs, thus most of these suburbs gain a morphologically similar shape to the mother city and undergo a major change in their economic, demographic, and social structure. However, some suburbs retain their identity and rural morphological shape through the tenor of a greenish color figure 2(a), while their economic, demographic, and social structure undergoes a massive urban transformation (Brody, 2013). The first change is presented by a development and a continuity of construction in the city itself and in its suburbs, as shown in figure 2(b). The second change observed is the emergence of new functions of the land and buildings initially present, the third is the demographic change manifested by the attraction of new inhabitants. As for the fourth change is in social terms, it affected family bonds, and some societal values and customs. The main aim of this research is: control or slow down the urban city sprawl, and preserve the countryside's identity and its specificities, as it provides services and benefits to the city. This paper proposes ways to control urban sprawl by setting a strategic plan, based on scientific and academic studies to prevent the encroachment of cities towards the countryside and the suburbs, as well as, to find administrative, legal, economic ways, and social methods in order to develop the countryside without blurring its identity and characteristics.



Fig.2 (a): Baabda in 1963  
Source: Civil Organization in Lebanon



Fig.2 (b): Baabda in 2020  
Source: Ibid

## 2. LITERATURE REVIEW

The research defines the main keywords as follows:

### 2.1 Definitions

#### 2.1.1 Rural areas

It is difficult to agree on a single global definition for rural areas because each country has its own meaning, but they all define it essentially according to criteria related to the population density and secondly according to special culture, social and economic aspects. Urban planners don't recognize a standard definition for rural areas either. Instead, they mutually agree that they are areas dominated by agriculture and landscapes, whose inhabitants enjoy a strong social relationship. These areas are open and are not affected by urbanization by their minimum boundaries, therefore, they remained habitable, comfortable, luxurious, and characterized by ecological diversity, as shown in figure 3. Finally, the countryside is distinguished by many specificities and attributes that give it a special and different identity from the city. This is visible through the population's attachment to the land and the preservation of customs and traditions from one generation to the next (Leimgruber, 2019). After many literature reviews about the urban city crawl, it appears that these regions are under the pressure of extensive growth of the population which leads to a decrease of free land spaces in its geographic domain, as shown in figure 4. Thus, this zone is expanding in a disordered way, non-organized and unsafe, toward the suburbs and the rural areas. In addition, non-sustainable residential and their service projects are implemented in the expanded territory at the expense of the agricultural lands and green spaces (De Noronha and Nijkamp, 2009).



Fig.3: A rural area

Source: products Eurostat news /A new global methodology to define cities and rural areas



Fig.4: An extensive growth of population in a rural area

Source: Ibid

#### 2.1.2 Urban sprawl

In general, Urban sprawl depends on the growth of the urban population but this relation is not proportional, the consumption of space varies from one city to another: doubling or tripling at times, even increasing exponentially at others, moreover, the cities manifest themselves by a permanent circular conquest toward the countryside, as shown in figure 5. However, we find that in some of them the spatial spread is horizontal. This urban fragmentation of a city towards the suburbs is one of the factors which initially affect their land prices and change the morphological shape of these regions. The researcher John. P. Rafferty in his last article -Article History: Urban sprawl: Additional information (2020) - defined urban expansion such as a rapid and unorganized expansion outside the administrative sphere, often with the aim of increasing housing units to accommodate the high and excessive population density in cities, but it may sometimes be under the influence of globalization or a flourishing economic growth. This expansion, in both cases, leaves its mark and its material, economic and social repercussions in the countryside. This phenomenon towards suburbs and rural areas is accompanied by an increase in the use of excessive energy in different ways, and the heavy use of cars, leading to an increase in environmental and noise pollution, as shown in figure 6. In addition, the establishment of infrastructures changes drastically the

identity of the wildlife environment. Meanwhile, the countryside loses its characteristics through the fragmentation of its natural areas, and the decrease in social cohesion, especially between the new and original residents (Habibi and Asadi, 2011). This definition is closer to the truth, and this applies to a large proportion of our research paper study.



Fig.5: An urban sprawl  
Source: Quotemaster.org



Fig.6: Figure 6: An extensive urban sprawl on a rural area in Los Angeles, USA  
Source: Aerial view Los Angeles, California

### 2.1.3 Sustainability

Sustainability is the ability to understand and secure efficiently the needs of current daily life and learn about them without endangering the needs and the lives of future generations. It is not only centered on environmental needs but also it focuses on economic imperatives and social justice issues.

*“Sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own needs.”*

(London: Oxford University, 1987)

## 2.2 History of Urban City Sprawl

Cities took many phases of growth over the ages, starting with a small agricultural town and then into a huge industrial city, and it didn't stop at that but continued to expand in the modern era, to become a giant city with no infinite sides, and this is what we mean by the urban city sprawl. Urbanization is fast-growing worldwide, the first cities in the world started as small traditional towns, closer to current villages and rural areas. These cities were considered as a place for the regrouping of society for benefiting from a common land rich in water and agricultural spaces while helping each other. In the 18th century, with the industrial revolution, cities began to rapidly grow under effect high-density population because the job chances were mainly located in these developing areas. These cities got very overcrowding, leaving it instantized and poorly planned. In the years 1850, municipalities paid attention to building infrastructures such as roads, train railways, and sewage systems. These newly constructed infrastructures and superstructures established a new idea of organized urban planning. Therefore, in 1908, with the creation of the car, people were able to communicate with further locations and spaces, thus, allowed to more expanded outside its borders. As for in the 20s, new rules were applied for zoning and master urban planning, creating the suburbs, larges houses surrounded by green areas. By the end of the 1950s, cities experienced intense growth and development they were divided into 3 parts: central downtown for the industrialized region, a secondary zone composed of the poor workers, and lastly the far suburbs inhabited by the richer class (Solomon, 2007). In modern days, after the construction of highways and wider train systems, spatial expansion of cities appears to be unavoidable. The urban city sprawl started to expand more towards the rural areas because agglomeration and metropolises are the economic and political centers leading to partial elimination of the rural characteristics and identity. However, we can still observe these three divisions including the investment of the rich in the central of the city. After presenting this data, the paper can analyze two urban examples to understand two different experiences as follows.

### 2.3 Istanbul Urban Sprawl

The main cities in developing countries are exposed to the phenomenon of urban sprawl. Istanbul is one of the top ten largest countries in the world, the fourth in Europe, and the first in Turkey in terms of area. It is also considered at the forefront of cities in terms of urban expansion, as shown in figure 7. Istanbul has developed, grown, and expanded in all historical periods since its establishment in the year 660 BC. However, in the modern era, the city witnessed an acceleration in expansion, starting from the end of World War II, due to the increase of population density. At this stage, misery belts, made up of poor neighborhoods and informal settlements that lacked the least services, infrastructure, and superstructure, began to emerge. Istanbul expanded at a rapid pace from the year 1975 when it became an economic, commercial, and tourist pole worldwide, reaching an area of 5,343 km<sup>2</sup> and a population of 15.52 million, shown in figure 8. This expansion is the consequence of a high increase in job opportunities especially industrial, commercial, and touristic jobs, due to the rise in internal migration. As a result, the demand for residential buildings increased, pushing the city to expand inland towards the countryside and the suburbs to the east and to the west, at the expense of agricultural lands and forest areas on a large scale and it exploited the field of construction. Therefore, pollution and crowding increased, violating nature and the wildlife environment (Gonder, 2009).



Fig.7: Istanbul Urban Sprawl  
Source: ResearchGate



Fig.8: Air-Eye-View for Istanbul Urban Sprawl  
Source: Alamy

### 2.4 Urban São Paulo Sprawl

Urban population growth and urbanization are inseparable. Since 1950, the Caribbean Basin has undergone a process of extensive urbanization, with its citizens reaching about 75% of the total population of the basin. Brazil is one of the developing countries in this region, whose major cities have experienced this type of urbanization. Although the city of São Paulo isn't located directly on the shores of the Caribbean Basin, it is located on a plateau at an altitude of 750 meters from sea level, and 80 kilometers from the port of Santos, it is one of the largest and most urbanized cities in Brazil, ranking the tenth Worldwide in terms of rapid growth and major urbanization towards suburbs in the last two decades. In fact, there is no doubt that the city expansion occurred in the direction of the west and south more than the north and east, so the city extended until it reached from east to west 100 km and 50 km from north to south, and it covered an area of 11.698 Km<sup>2</sup> with a population of about 12.18 million, shown in figure 9. In spite of the advantages of this expansion, the (MASP) region is characterized by urban development, economic growth, services, and high-quality infrastructure. Nevertheless, the urban sprawl towards the suburbs and the countryside has left behind serious negative consequences, the most important of which is the loss of many green spaces and forests that led to climate change in terms of temperatures and precipitation percentages, and a great loss of the wild environment and biodiversity. Also, the emergence of slums adjacent to towers and skyscrapers, shown in figure 10, led to a severe social conflict between the rich and the poor and social segregation (Lima & Magaña, 2018).

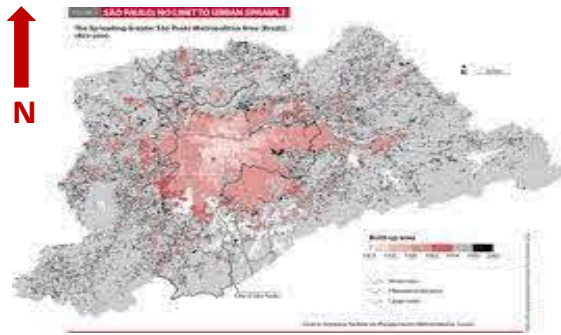


Fig.9: The spreading greater São Paulo area  
Source: A planet for life /territories and cities



Fig.10: Slums adjacent (MASP)  
Source: landuseglobalchange. pbworks

These two examples of urban expansion have been chosen in countries of different progress and area, but they are far in comparison to the small economy and area of Lebanon. In order to prove that this phenomenon in these two cases negatively affects the environment in Istanbul and São Paulo. How, if this expansion hits Lebanon, it will destroy its basic structure and function in the region, since its land is small.

### 3. METHODOLOGY

This research has relied on each of the inductive, field, analytical, and deductive approaches, in order to achieve the desired goal, using the sciences specialized in urban planning. Thus, the use of four different types of methodology provides greater credibility for this paper. First of all, the inductive method is used by gathering information and data from facts and observations on the subject “Lebanon, Beirut urban sprawl”, recognition of its different changes along with history. Secondly, the field method in which the author visited specific sites in “Beirut city and its suburbs”, taking live photographs, and undertaking interviews with a sample of people living in the great Beirut. Besides the interviews, a written questionnaire was distributed to this sample to get acquainted with their views on the reasons for the transformation of these suburbs into annexation to the mother city and the loss of their characteristics, in addition to their existing problems, and what is the possible ways to advance them, and how to preserve the identity of areas that were not fully urbanized, especially the case of Baabda. The third method is the analytical technique; the paper analyzes the results of interviews and the questionnaire. Lastly, the deductive method, the paper deduces a strategy of certain solutions to revive to preserve Baabda one of special suburbs of Beirut, and the second ring of the Beirut expansion from the impact of this urban encroachment. The four research methodologies are presented through the research as follows:

#### 3.1 Introducing the Case Study of ‘Beirut Urban Sprawl’

Lebanon is located at the center of the Mediterranean golf course between Turkey and Egypt. It occupies a privileged position at the crossroads of Asia, Africa, and Europe and has more than 5,000 years of rich history, which explains its development. Lebanon has an area of 10452 km<sup>2</sup>, and According to the United Nations census, its population is around 6,2 million inhabitants including a million and a half Syrian refugees and five hundred thousand Palestinians. The vast majority of the country's population, at a rate of 78.5% live in urban areas on its territory, knowing that 75% of Lebanon's territory is not adequate for construction due to the steepness of its mountains and the depth of its valleys, as shown in figure 11 (UN-Habitat, 2011). From this point of view, construction in Lebanon takes place in three ways. The first depends on circular expansion around the main cities such as Beirut, Byblos, Damour, Baabda, Sidon, Tire, Tripoli and Zahle and others, constituting about 75% of the total constructions. As for the second scene of construction, it constitutes about 22% of it, it is construction on both sides of the main roads linking cities and governates, in addition to intensively building along secondary roads in villages. As for the rest, it is scattered buildings, and this type has many advantages through opening new roads in pristine areas, but causing great damage to the environment and biodiversity (Faour, 2015).

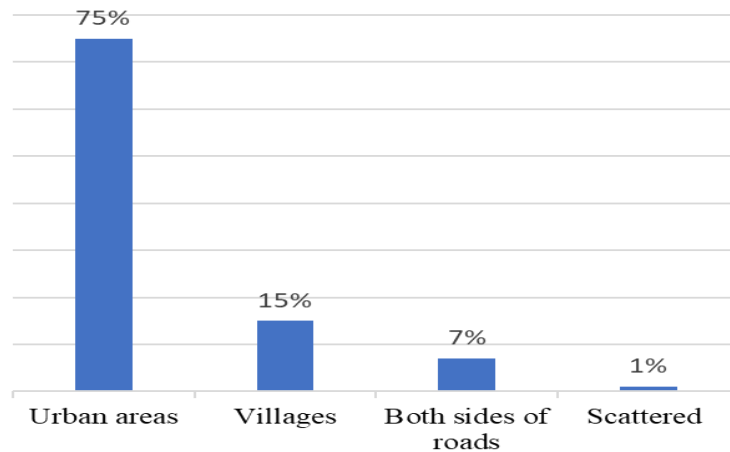


Fig.11: A chart is showing the distribution of construction  
Source: UN-Habitat

Lebanon is undergoing an unsystematic process of urbanization extending over the entire region. With no global masterplan and centralization of governance and administration, the Static estimates indicate that in 1960 the population of Lebanon was about two million people distributed over all Lebanese lands, and that the urban areas were estimated at about 260 km<sup>2</sup> in 1998, the population in Lebanon doubled, but the urban areas more than doubled to 600 km<sup>2</sup>, and were inhabited by more than 75 percent of the population. Lebanon is expected to increase dramatically in urban areas with a higher proportion of the population in the year 2030, and it has been observed that it increases dramatically around the main and coastal cities in particular, which affects the natural and economic balance in the country, and this is a serious challenge for the country, as shown in figure 12. We can conclude that urban expansion in Lebanon is an inevitable result of two basic factors. The first factor is the demand for residential facilities and commercial facilities due to the increase in the population in urban areas resulting from the availability of jobs and work, and the second factor is the availability of resources, services, and quality of life in urban areas, indicated in figure 13 (Minniemiéh, 2005). As a result, Lebanese cities expand beyond their administrative borders to reach the suburbs and the countryside, which leads to the loss of the identity of these areas becoming an integral part of most cities. This urban sprawl has affected most of the major cities in Lebanon including Beirut.

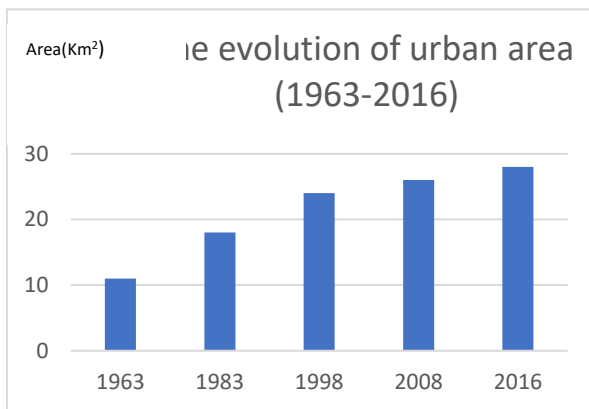


Fig.12: The increase of the built area between 1963 and 2016  
Source: Lebanese Science Journal

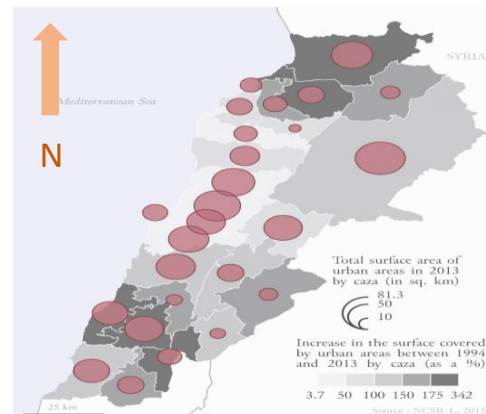


Fig.13: The urban expansion in Lebanon  
Source: Atlas Lebanon / urbanization thrust



Urbanization has engulfed most Lebanese cities, especially coastal cities, including, Beirut, the capital of Lebanon since 1920 Built on a rocky outcrop and leaning against the foothills of Mount Lebanon, it extends over an area of 85 km<sup>2</sup>. IT is located on the eastern shore of the Mediterranean and is surrounded by suburbs, Ouzai, Ghobairi, Haret Hreik Chiyyah, Burj El Barajneh, Hadath, Hazmiyeh, Baabda, Furn El Chebbak, Sin el Fil and Burj Hammoud, from all directions (CDR., 2005). The urban growth phenomenon applies to this city, during and after the civil war that lasted from 1975 to 1990, when its population density increased, and suburbs emerged around it outside its administrative area, some or most of them similar to a great extent and the other retaining some of their original characteristics. Most of these suburbs have acquired an irreversible morphology similar to the mother city and are subject to a major change in their economic, demographic and social structure. Nevertheless, expect some suburbs such as Baabda have retained their rural identity and morphology while achieving a major economic and, demographic transformation (Hanijian, 2018). Beirut is the first administrative and economic pole. In the last three decades, this city has witnessed a random urban expansion that lacks a minimum level of planning policies, expanding its original geographical area of 19.6 km<sup>2</sup> in three directions to reach a maximum area of 462 Km<sup>2</sup> under the name of Greater Beirut. This area represents Beirut and its semi-circular extensions towards suburbs and rural regions. The expanded zone has been divided into two rings: the first one, of about 67 km<sup>2</sup>, from Dbayeh in the north to Khaldeh in the south, and Baabda and Aramoun from the east, shown in figure 14. Meanwhile, the second ring starts from Jounieh to Ajaltoun in the north, Damour to Jiyeh in the south, and Aalay to Baysour in the east, which has an area of more than 300 Km<sup>2</sup> (Mediterranean Cities, 2017). These areas still retain their identity and their characteristics. Nevertheless, some suburbs such as Baabda have retained their rural identity and morphology while achieving a major economic and demographic transformation, as shown in figure 15.

This research paper aims to preserve Baabda and the second ring of the expansion from the impact of this urban encroachment, through administrative and legal methods, various sustainable ways and, planning based on academic and scientific studies.



Fig.14: Beirut Sprawl  
Source: Google Earth

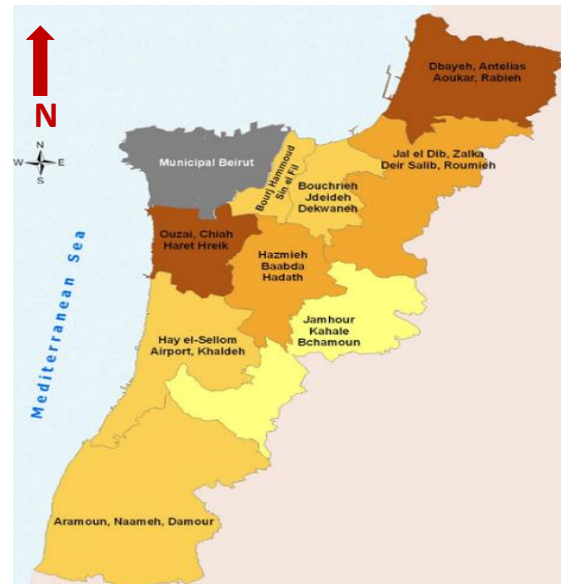


Fig.15: Map of Great Beirut

### 3.2 Identifying Problems of Urban Sprawl on Beirut's Suburbs

The terms village or town have lost their meaning and value in the past decades. Cities replaced green forests all over Lebanon. Urban expansion around cities is an inevitable result of rapid economic growth that provides new and additional job opportunities, which leads to an increase in the population through internal migration towards cities and thus an increase in the demand for residential buildings. The repercussions of urban expansion are not limited to internal migration to cities, which in most cases causes the emergence of slums that lack the lowest levels

of social, health, environmental, and safety services, and weakness in infrastructure and superstructure, but also to the migration of indigenous people in neighboring areas as a result of selling their lands due to temptations to increase their prices. Furthermore, changing the destination of its use from agricultural to residential, commercial, or industrial leads to loss of green areas and damage to the environment and increases pollution. Indeed, Lebanon is subject to unsystematic and excessive urbanization process extending over its territory. This anarchic growth, in the absence of an in-depth master plan, is at the expense of the existing green spaces. The deterioration of the Lebanese panorama is caused by the loss of about 10 km<sup>2</sup> of mountainous nature and the reduction of airflow in the city. Thus, these changes affect climate change and temperatures while decreasing the green area allocated to each individual which became 0.8 m<sup>2</sup> instead of 9 m<sup>2</sup> per person according to the world health organization (Mohsen, 2020). This decline is nothing but the result of deficient urban legislation, along with the normal tendency of developers to optimize exploitable areas. However, the buildable area does not exceed 12% of Lebanon's territory, and most of it is located around the main cities. In fact, the expansion was excessive around the metropolitan areas taking a circular shape in most cases, in addition to the linear expansion along the new roads. In both cases the suburbs lost their identity and affiliation and turned into blocks of concrete devoid of the slightest green spaces. For example, Beirut is one of the cities affected by reconstruction in its administrative sphere, so only five percent of its green areas remain, represented by three gardens. The most important reasons for losing these spaces are the legislation, and building laws such as the law of adhesion, which were issued in the sixties and seventies for political reasons, and personal interests ignoring urban planning. This affected the unpopulated areas remaining at that time, resulting in the transformation seen today. In conclusion, the problem of urban expansion in Lebanon, especially the main cities, lies in a narrow geographical area that can be constructed in the country. Therefore, it is difficult to compare this expansion with other countries with large areas because the loss of these countries to green spaces, the wild environment, and biodiversity is considered small in proportion to what might happen in Lebanon, therefore, the study of Lebanese cities, and in particular the city of Beirut and the surrounding suburbs and countryside in order, to secure just and rational solutions, that maintains the style of the city on the one hand, and the rest of the environment in the suburbs and rural areas on the other Hand.

### 3.3 Selection of a Specific Area in Beirut Suburbs “Baabda”

The origin of the word Baabda is the Aramaic language and designates the house of the worshiper or the house of the hermit. Baabda is located in the east of Beirut. It is 7 km far from the capital, rises to an altitude of 290 meters from sea level, and covers an area of 1052 hectares. It spreads over two hills separated by plots of land, but these administrative territories extend from Nahr- Beirut to the north and the suburbs of Beirut to the west and it confronts several municipalities in the east and south. In 1717 the first indigenous inhabitants arrived in the town of Baabda, where they resided and relied on agriculture and trade to secure their needs until Prince Haider Al-Shihabi decided in the eighteenth century to build his first headquarters there, and specifically in the year 1887, his headquarters was transformed into an administrative headquarters for the Mount Lebanon Mutasarifah and was known as the Saraya. In the modern era, after Lebanon gained its independence in 1943, Baabda became the first administrative center in the Mount Lebanon Governorate a political, administrative, military pole, while maintaining rural spaces, historical, and heritage cache. The real estate sector in Baabda witnessed a remarkable development in the last century, research that the built real estate has increased many times and it is expected to increase at the same pace in the coming years if the investment ratios remain the same, as shown in figure 16, despite the economic recession and the deteriorating financial situation that the country is currently experiencing, the residential sector is still witnessing great growth, and the demand in this sector still exists, especially from the affluent class and the expatriate community.

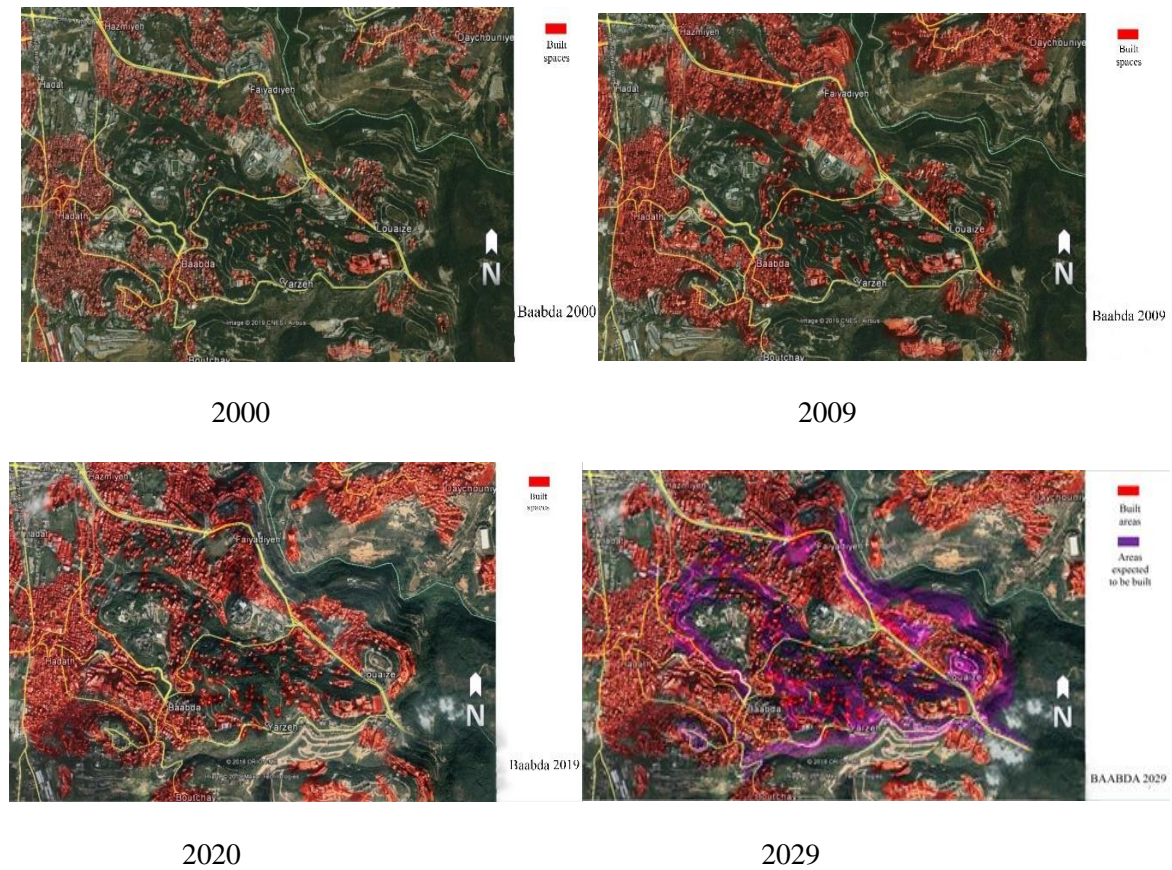


Fig.16: group of maps showing the development of Baabda from 2000 to 2020, and expectation for 2029. The orange-colored areas denote built-up properties, and the purple-colored areas denote the properties expected to be built in accordance with the current building law, with the exception of government and administrative buildings.

Source: Author

Baabda is considered one of the eastern suburbs of Beirut, which differs from its counterparts because it has not become part of this city, at least in terms of morphology, although it has benefited from the economic growth of the capital. this city is represented in the form of an urban nucleus in the center, surrounded by particular districts, such as Brasilia, Yarze, Jounhour, which have an exceptional rural phenotype. This distinction is due to many factors, for intense, it has become a residential due to its administrative importance, this is why this region has become a green spot interspersed with sustainable buildings overlooking a polluted concrete city, as shown in group of figure 17. The presence of the wealthy in this region was not the only reason for its survival in this form, but the presence of the headquarters of the Presidency of the Republic, which occupies a large area in addition to ministries, educational and health sectors, embassies and barracks spread over common areas of its geographical area and respect for standards and the spacing of buildings led to the preservation of these natural, green and mountains. In fact, this city has become a stumbling block in the urban expansion project in Beirut, to remain so we have to present a strategy, and some scenarios that support its survival, respects its privacy, and preserves its heritage by issuing legislation, laws, and administrative procedures in order to control or reduce the urban sprawl towards it, stopping the expansion to reach further rural areas, transforming Lebanon into several metropolises adjacent to each other.



Fig.17: of Baabda 2020; 1 screenshot of Baabda from google earth [2019] and Map. The map delineates the real estate boundaries in Baabda, while the rest of the pictures indicate the density of construction in the suburbs of Beirut, with the exception of Baabda.

Source: Photos were captured by the author. Maps were taken from Google Earth

### 3.4 Different Perspectives of Public on the ‘Urban Sprawl on Baabda’

In order to give a height credibility of the research, the author preferred to communicate directly with residents in the suburbs of Beirut by conducting interviews or distributing questionnaires to find out their opinions about the urban Lebanon sprawl in especially in Beirut and its causes and problems.

#### 3.4.1 Holding Interviews

The paper conducted interviews with 20 people of different ages and professions between 10 and 20 December 2020, during the interviews, and many interesting things were presented during the four questions asked:

- a. What is the form of the urban expansion that Beirut is taking?
- b. What are the problems associated with the urban expansion of Beirut?
- c. what are the main factors that transformed the suburbs of Beirut into concrete blocks?
- d. What are the obstacles toward the east urban Beirut sprawl?

The most of the answers were similar; samples of they are presented through the following quotations:

Hadi Nassar, 20 - A resident in Baabda

*“Lebanese towns are expanding especially in the city of Beirut where the expansion is taking a semi-circular outline around the city. This expansion is mainly due to the economic and political importance of Beirut which attracts the population towards its suburbs. In fact, the increase of the population density creates a more concentrated region distinguished by concrete blocks. This is why the suburbs of Beirut, previously rural areas with forests and agricultural lands, are being transformed into highly dense residential zones. However, some areas in the suburbs, such as Baabda, maintained some of the rural characteristics of the region because rich families wanted to stay in close contact with the administrative poles and the important landmarks located in this zone.”*

Hamad Hajj-Sleiman Haidar, 49 old - A new Lebanese citizen and real estate developer.

*“One of the most important causes of urban expansion in cities and their suburbs is the unbalanced development that pushes the population to flee from villages to cities, which causes inflation in real estate prices despite the low investment ratio in these regions. In addition, the topography of Baabda and the large properties are also an obstacle preventing the increase of construction and investment. Prices vary according to population vigilance, which pushes some municipalities to follow certain policies to prevent crowding, such as reducing investment rates and rising real estate prices, and setting untenable conditions in front of investors. Baabda is one of these conservative municipalities that modified the investment percentage of each land to maintain a semi-rural shape.”*

Mr. Antoine Jounaynaty 47 old - A real estate developer.

*“Beirut has been making an important urban expansion toward its Suburbs. The reasons for this are the overpopulation of the Capital, due to the centralization of high education institutions, good health care, and job opportunities. As more and more people move to Beirut, it becomes inevitable to expand the concrete blocks toward the surrounding suburbs, like Hazmieh and Baabda. But, the presence of military barracks and stations around these areas decrease the construction and investment while increasing the real estate prices due to the security obtained by the location. These causes represent the main obstacle in front of the urban expansion. The Main problem of this expansion is that the government agency responsible for Urban Planning doesn't have a set plan or proper implementation for the new projects or for the general services around it.”*

Gen. Wajdi Shamseddine 58 old.

*“There is currently an overpopulation situation in Beirut, largely caused by the centralization of public services and administrations in the capital as well as employment and higher education opportunities. If one looks at Beirut from a distance, the pollution is clear and is another reason that pushes people away from the capital city. This crowding has caused an absence of remaining space to build in and so people often choose to live in suburban areas, including Baabda. They thus choose a place nearby since Beirut itself has become too crowded and too expensive but still centralizes all essential services: Baabda is a logical choice as it still offers some the greenery (mainly as it is situated under Alley), is not too far away and has more space to build in.”*

### 3.4.2 Questionnaire

After preparing a group of close questions, questionnaires were distributed to 120 persons of different ages, professions, and social classes.

- a. Does the urban sprawl overtake the suburbs towards the rural areas?
- b. Is the demand for housing behind the increase in the price of real estate?
- c. Why are the agricultural lands and forests being transformed into purely residential areas?
- d. Did the rural exodus play an important role in the functional transformation of the rural lands?
- e. Are there other actors involved in the economic development of the rural regions?
- f. Is this phenomenon applicable to all the suburbs of Beirut, if no specified?
- g. Does Baabda represent a particular suburb and why?
- h. What are the causes of the appearance of non-transformed areas such as Baabda?
- i. Does the presence of important locations help in the creation of distinguished suburbs?
- j. What are the variables affect to stop urban Beirut sprawl?

#### 4. FINDINGS

Through using an analytical methodology, results of answers can be presented in form of charts.

##### 4.1 Analysis of Interviews Results

Based on interviews conducted with two real estate developers in Baabda, the following was found: the urban sprawl of Beirut towards the east collides with obstacles that prevent it from advancing quickly, and it is embodied in the presence of the city of Baabda, which has different variables such as rich sector, military sector, topography, investment ratio, and real-estate price, that inhibit the transformation of the land use direction towards the residential sector, and commercial projects. The negative impact ratios of the variables on the expansion according to the real estate developers are shown in figure 18.

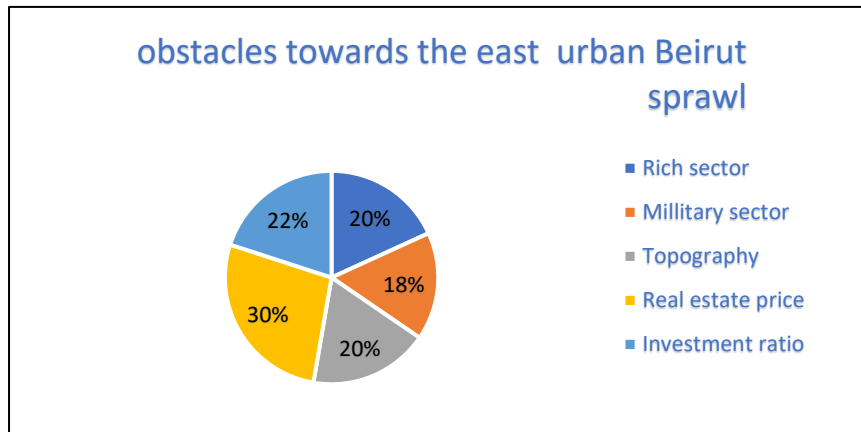


Fig.18: Chart showing percentage of variables affecting urban Beirut sprawl according to the interview  
Source: Author

##### 4.2 Analysis of Questionnaire Results

The results of the questions asked to 120 educated residents of different age groups, intellectual levels, and professions were mostly similar, but in different proportions. These answers were also not far from the opinions of the real estate developers. Rather, they added other variables that affect the control of Beirut's urban sprawl. The following chart expresses the percentage of the effect of variables on Beirut sprawl towards Baabda according to the average obtained results, as shown in figure 19.

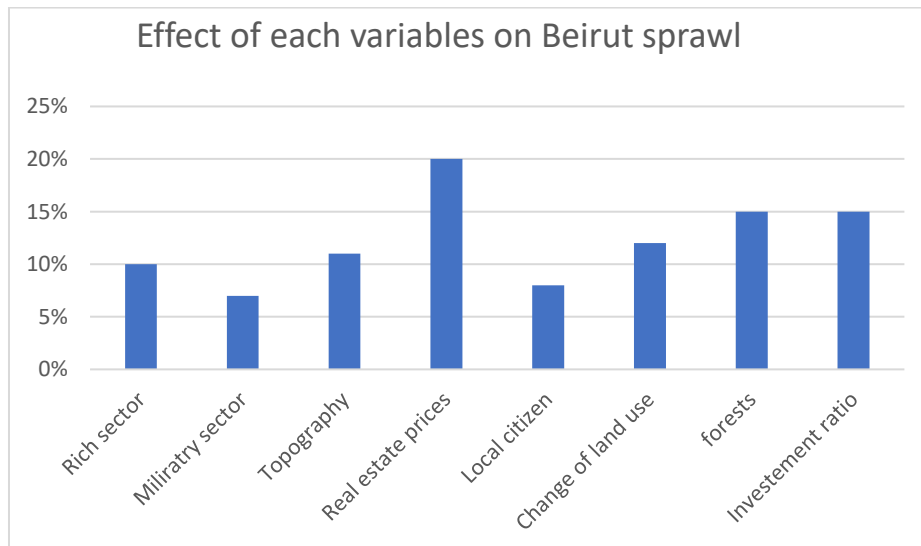


Fig.19: Diagram showing the percentages of variables affecting Beirut sprawl according to the questionnaire -  
Source: Author

## 5. DISCUSSION

Following the field methodology by conducting interviews and asking questions to a number of residents and actors in the suburbs of Beirut, including the city of Baabda, it became clear to us that a number of variables, it was presented in the previous paragraphs, slow down the urban expansion of Beirut. Meanwhile, we adopted other methodologies such as Inductive, deductive, and analytical which showed us additional variables that also achieve the decrease of urban sprawl. These variables are the presence of a large area occupied by the headquarters of the Presidency of the Republic, important ministries, educational, and health sectors, embassies, and barracks spread all over its area. Baabda is also very active in the administrative and economic sectors. In addition, Baabda has a very strong family and social bond that preserves the ancient heritage buildings. It has a sustainable aspect in which its environmental and social characteristics appear, in addition to the spread of new sustainable buildings over relatively large areas respect laws and regulations and the spacing of buildings which led to the preservation of natural, green, and mountainous zones, as shown in Fig. 19, that help prevent rapid urban expansion. However, the presence of different types of high-quality markets and the importance given to the main transport network that connects Beirut with other parts of Mount Lebanon, help to raise the rate of urban sprawl, so it is necessary to take rapid measures that reduce investment rates in the areas adjacent to these markets and the transport network, as shown in figure 20. We have also emphasized the importance of creating cultural activities in the eastern suburbs and sustainable economic projects and providing green and blue spaces that may paint a better picture for these areas. And it will be an additional value to revive the infrastructure process and solve the pollutants Therefore, in this paper, we propose the following recommendations:

### At the governmental level:

- a. Issue law that preserves heritage landmarks and the old souk.
- b. Improve and developing poor areas.
- c. Create job opportunities in traditional professions.
- d. Issue laws that protect forests, Preserve the wildlife's ecological diversity.
- e. Maintain transport network.
- f. Organizing a project of re-distribution of water use as needed, the use of rainwater collection and wastewater after being treated.

### At the urban organization level:

- a. Establish a new general sustainable master plan for the country.
- b. propose laws to amend the investment factor in Beirut, its suburbs, and the countryside.
- c. Involve sustainable architecture projects.

### At the municipality level:

- a. Modify land use and zoning.
- b. Establish procedures for handcraft occupation.
- c. Introduce incentives for agriculture.
- d. Improve the tourism sector, and establishment of public space.
- e. Create shop organic farming products.
- f. Appropriate use of alternative renewable energy-efficient.
- g. Preventing forced migration by providing hoofs and establishing social housing.
- h. Establishing a sustainable economic project provides financial returns for the municipality.



Fig.20: Sustainable building in Baabda  
Source: E-Architect



Fig.21: Map is showing Hazmiyeh – Baabda  
Highway – Source: Google Earth

## 6. CONCLUSION

The urban expansion in Lebanon, especially around the main coastal cities such as Beirut, will not stop towards the suburbs, but the presence of variables divided into many factors and actors mentioned in the research paper contributes to the slowing of Beirut's sprawl towards the city of Baabda.

- There is no doubt that this research aims to control the urban expansion of Beirut towards the east, and the city of Baabda is the key to this phenomenon. Thus, we have to know the effect of Baabda's variables on each other and choose the most influential ones slowing this expansion, so it can be developed an integrated in a plan aimed at using legal means working on the survival of these variables, and work to start implementing the recommendations mentioned in the discussion.
- This urban encroachment also can be controlled by administrative methods, and in various sustainable ways, through urban planning design based on academic and scientific studies including the issuance of instructions to amend the investment factor in the city and in the countryside. On this basis, we can stop or slow down the encroachment of the city and preserve the social, environmental, aesthetic, and characteristics of the countryside.
- After a quick look at the real estate prices in Beirut and its suburbs, we can conclude that Baabda is the highest among the suburbs, and approximately equal to the prices of important areas in Beirut with high investment ratio, despite the fact that the rate of investment in Baabda is much lower.
- This similarity in land prices needs an in-depth study to know its causes, and the influence of the variables in the city of Baabda. These factors need hard work to be preserved in the short term, with the cooperation between the state, the urban organization, and the municipality. As for sustainability, there is no doubt that Baabda has some social, economic, and environmentally sustainable features.
- Regarding social sustainability, it must be developed by tightening the continuation of relations between the local citizens, preserving heritage landmarks and the old *souk*, improving and developing poor areas, and creating job opportunities in traditional professions.
- As for the environmental aspect, the city has some sustainability features, including the limit of pollution and the presence of a big surface of green areas, but a plan needs to be devised to preserve what remains of forests by issuing laws that protect them.
- Also, the buildings in Baabda, despite their high quality, need to adopt sustainable features that reduce energy and resource use and replace polluting energy with renewable energy. In addition, rainwater and waste must be treated with technical means.
- Nevertheless, the economic growth in Baabda is due to the heavy presence of official administrations and commercial markets, and it has also benefited from the economic growth of the capital.
- Finally, Baabda city needs to involve sustainable architecture in implementing new projects and making use of its advantages in all environmental, social, and economic fields.
- In the future, Baabda must be an independent or semi-independent city of Beirut while preserving its own identity, and it must reach the point of urban sprawl that prevents it from reaching other neighboring rural areas that may also change. Therefore, we must take into account the recommendations and proposals included in the body of the research and implement sustainable methods in order to develop the economic return of these rural areas by investing in a productive agricultural sector to market organic agricultural products and improve the tourism sector to make it a destination for leisure and comfort.

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