

The role of population density in changing the city shape in "Oran"

دور الكثافة السكانية في تغيير شكل المدينة في وهران

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Received: 29./10/2022

Accepted: 16/01/2024

Published: 30/01/2024

Abstract:

The urban expansion in a region leads to the increase of population. This expansion may have one or several directions depending on the landscape and the living conditions. It has many reasons such as overcrowding, colonial reasons, or the search for better living conditions with suitable landscape and climate. This is witnessed in Oran where the expansion was towards the East for the above reasons. However, this has some drawbacks as it negatively affects the green and agricultural spaces. Moreover, the public facilities are far from the new expansions. Therefore, it is necessary to reshape the geographical map of the city taking into consideration the social origin of the inhabitants who take their traditions and economic activities with them affecting the shape of the city.

Keywords: expansion; density; population; urbanization; Oran.

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1. INTRODUCTION

The recent population increase has resulted in a shift in the morphology of Algerian cities, with side and internal alterations, prompting in-depth studies of their new shape. These studies are not concerned with the geometric shape of the buildings because that is the domain of the architect, but when these buildings affect the life of the individual, they lead to change, and all this is due to the concentration of the population in the cities at the expense of the countryside, creating a real crisis in which the population exceeds the specified urban area, making it necessary to provide housing and all the public facilities for a decent life.

In response to the issue, the city's governing bodies hastened to use every available space within the city to build new residential neighborhoods. This concentration helped the spread of new urban patterns combined with the old to provide the largest number of housing in the least space allocated for housing. In this line, we find the vertical pattern that negatively affected the nature of family life and contributed to the transition to the nuclear family due to the space allocated for housing. This pattern has another negative effect, which is its overlap with other urban patterns such as individual construction and random construction.

The Algerian city has become a fruitful field for studying this subject, providing the researcher with all the facts through a conspicuous expansion of this phenomenon, particularly in recent years, which proved the inability of the public sector to offer suitable accommodation for the needs of the family. In this context, the city of Oran is considered the capital of the West, with an area of 2121 km², a population density estimated at 74,958 people/km², and a population estimated at 1.468 million people in 2019. This led to a change in the shape of Oran and to the establishment of new buildings and districts such as the district of Belkaid, the vicinity of Al-Menzah, Kanastal, Yasmine 2 etc. Upon that premise, this communication explores the impact of population increase on the cartographic shape of Oran, including stages of expansion and signs of morphological imbalance.

2. Aim of the study

The paper gives a demographic study of the region's population in terms of natural growth, migration, and reconstruction policy. It investigates the city's morphology, building patterns, and types of urban expansion in the region from an urban perspective. From a scientific perspective, the topic is novel and important and may provide solutions to various demographic phenomena.

As a result, the current study is important because of the true crisis in the housing situation at the national level in general and at the local level in particular. This can be seen with the naked eye and has been confirmed by numerous studies in this field. Consequently, Algeria started reorganizing its urban field through the policy of establishing new cities in order to confront the phenomenon of urbanization, its effects, and the urban problems.

3. Methodology of the study

Temporal limitations: the study covers the period from 2010 to 2020 due to a lack of old information or its inaccuracy. Besides, these years witnessed a radical change in the city's structure due to migration, immigration, and the expansion of the city's services.

Spatial limitations: The study revolves around the city of Oran in the Northwest of Algeria. The city is bordered in the north by the Mediterranean, in the west by the Wilaya of Temouchent, in the south by Mascara and Sidi Bel Abbes, and in the east by the Wilaya of Mostaganem. The study shall focus and make observations on the streets and districts that witnessed a population increase and a remarkable development and expansion in architecture such as Belkaid and al-Aqid (Bir al-Gir).

4. Definition of the study concepts:

4.1 The city:

The city is regarded as one of the most sophisticated kinds of human gathering because it develops lifestyles that are consistent with its urban, economic, and ideological structures, as well as those that suit its unique social character. In this line, life in the city turned very complicated; therefore, the populace must adapt to its conditions and circumstances (Hatem Al Naqati , 2006). Aristotle defines the city as a collection of rocky memories whose components and meanings are known. Besides, Ibn Khaldun defined the

city as a place with giant buildings and large structures. This place requires collaboration to emerge (Hadfi Somaya, 2000). Based on what has been said, it is possible to define the city based on several characteristics and specifications that determine its style, function, and cultural characteristics, which are as follows:

4.2 The city as a local community:

The functional and morphological frameworks of daily life are related to the concept of community (Jansen Clifford, 1969). The semantic context can be used to define the concept of the city. A number of researchers have defined the local community by looking at the evidence and data. MacIver defined the local community as a social unit that helps gather its members based on common interests so that a sense of belonging and general values prevail among them and help participate in the special circumstances of common life. Robert Park adds that the local community denotes geographical spatial connotations and that all cities, villages, and the entire world are local communities, despite the differences in organization, culture, interests, and many other things.

4.3 The city as a social phenomenon:

The sociological definition of the city facilitates the selection of social factors that define urban components in distinct local communities and social organizations located within an ideological framework. Mr. Mustafa al-Khashab defined the city sociologically as just an idea, but its elements of residence, transportation, and internal buildings are assets of a different nature which makes it one of the specific things that have functional integration in all its various elements and a whole unit. Moreover, Mr Abdel-Aty El-Sayed defined it as a social system with a continuous dynamic state where the relationship between the components and elements, and between the systems is constantly changing (Hussein Abdel-Hamid, 2002, p.5)

4.4 Morphology:

Morphology is a science concerned with the pattern of external appearance (shape, structure, color, pattern, size), as well as the shape and structure of the internal parts. The morphology of the city refers to the interaction of the shape with the functions to establish

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the city including the buildings, streets, lands, and uses that are on top of them or rest on a part of them. Some may emphasize the shape of the city or its horizontal extensions without taking into account the vertical or vertical dimension. Nonetheless, the city should be viewed as an accumulated whole or as a mass of the living organism, so simplification or flattening does not give the reality of the city's three-dimensional stereotype. If we look at the city as a living organism, we must tackle the stages of its inception, birth, sleep, and development, which are called the morphologic stages. Some cities, such as Damascus, for example, were subjected to weakness and old age, but they regained their youth in a renewal cycle.

The most important elements of the city's morphology are:

- ➔ The plan of the city or its street systems that give the shape of the city and its general framework.
- ➔ Architectural units and buildings
- ➔ The internal structure of the city and the change of functions within it
- ➔ The morphological stages that the city is going through.

4.5 Demographic growth:

It is defined as the increase of the population over a certain period of time. Furthermore, it is the change in the population number due to three factors: births, deaths, and immigration. The births that take place every day increase the population, the deaths that take place every day decrease the number of residents, while immigration may decrease or increase the number.

5. Urban expansion in Oran:

5.1 Pre-colonialism:

Oran was a destination for Andalusian and Moroccan traders before colonialism because it was an ancient city with a thriving trade at the time, i.e. in the tenth century AD; Oran was limited to the territory overlooking the Mediterranean then. The Spaniards occupied it in 1509 and extended it to the south a little for its diverse vegetation at that time. Later, Spaniards were expelled by the Ottomans making Oran a Muslim region. The

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Ottomans increased buildings and mosques in 1792 where the population reached more than 10 thousand people until Oran was colonized by the French in 1838.

Since its founding in Wad Ras al-Ain which was known as Wad al-Raha, the city of Oran continued to grow, attract attention, and embrace significant historical events early in its existence. The city developed and its importance increased as a port, and buildings swept along the valley to the coast, increasing the interdependence with marine life. While it was a port to serve the capital, Telemcen, it became independent from the rule of the Ziyenids in 1470. This period was accompanied by the migration of Jews and Arabs from Andalusia since the fall of Granada in 1492. The Spaniards invaded it in 1505, and then in 1509 the city was transformed into a Spanish fort where castles were built; their remains still exist so far.

5.2 - During colonialism:

Oran was reconstructed once again, and the huts and houses were demolished. New neighborhoods were built, and the Algerians were driven out, making Oran entirely European in 1841. The first neighborhood for foreigners was built in 1845 to be inhabited later by the Algerians; it was called the new city.

Following this, the cholera spread, reducing the population of the city. Besides, Jews of Tetouan arrived; they did not live long in Oran until building a new neighborhood called Saint Tetouan. In 1876, the population of Algeria reached 45,640. Algeria witnessed the opening of some factories, such as the Zahana factory, and the official establishment of new neighborhoods, such as Acmiel, Saint Tetouane, Boulangi, Saint-Eugene, and Gambetta. The population of Oran reached 80,987 in 1896, with a large expansion in the region and the emergence of cars on the railways extending Oran towards Hammam Bouhajer near Temouchent. After World War II, the inhabitants in North Oran made an exodus and a cemetery was established next to Petit Lac.

Table 1. The population percentage of Algerians during the French occupation

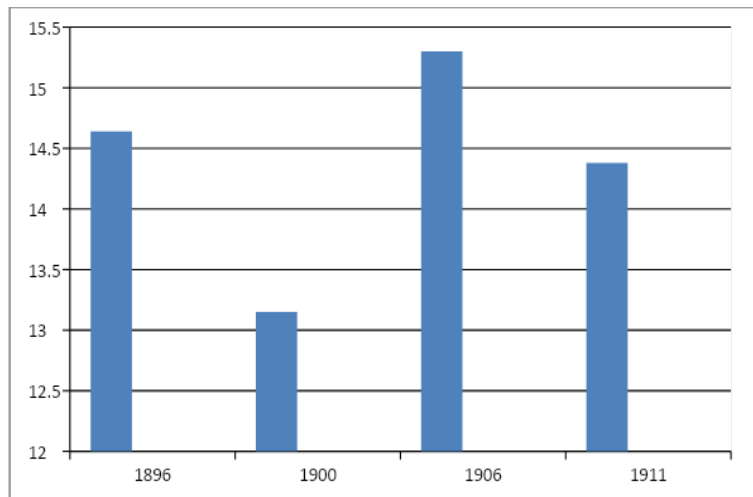
Years	Population rate %
1876	17,05
1881	21,42

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1886	17,42
1891	16,68
1896	14,64
1900	13,15
1906	15,30
1911	14,38
1921	12,70
1926	17,17
1931	19,61
1936	21,68
1948	29,06
1954	46,19
1960	48,48

Source: Hadfi Somaya ,2000, page 171.

***Fig.1.** The population percentage of Algerians during the French occupation



Source: Hadfi Somaya ,2000, page 171.

The table and figure above represent the rate of the population in Algeria during the French

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colonization. The rate had been drastically decreasing and fluctuating since the colonization until 1926, when it started to rise once more. The decrease was brought about by the war and mass killing, in addition to the diseases that afflicted Algeria at the time. In the same vein, the population reached 352721 in 1948, and Oran became the largest European city in Algeria. The seafront was completed in 1949. During the war of liberation, a municipal slaughter house was initiated in the industrial area of Saint-Ibert. In 1957, an area was named after the political activist Hammou Boutellis, who was kidnapped and disappeared. Then, the Sports Palace was built, and the population of Oran reached 400 people in 1961.

5-3 Post- independence:

Rapid urbanization continued within the Wilaya, leading to overcrowding in the city. Besides, urban expansion moved to the east of the Wilaya and the industrial district of Arzew. The new administrative division also caused a reduction in the territory of the Wilaya of Oran. Thus, new cities were built in Oran and many residents were deported from their native cities such as Hamri, Saint-Tetouane, and Tafrawi, to new cities such as Belkaid and al-Aqid in the Daira of Bir El Gir. The urban expansion was at the expense of green areas as in Kanastel and other areas that were not populated. This aimed at reducing the overcrowding that occurred in the city of Oran.

6. Urban expansion reasons in the city of Oran:

6-1 landscape:

The place where the expansion shall be depends significantly on the landscapes. For instance, the Eastern part of Oran is the first target for expansion because of the mountain Marjago in the West which makes it inaccessible to human habitation. Besides, the soil in the West is unstable, particularly close to the tiny lake.

6-2 Climate:

The climate is also considered a factor in the expansion, especially in the coastal cities where the humidity levels are high and make life hard for people. However, some people find comfort in being close to the sea.

6-3 Administrative services and equipments:

One option to avoid congestion is to expand, but doing so might occasionally cause issues, such as the need to maintain administrative infrastructure and public services in the mother city. As a result, the state was required to handle these details.

6-4 New Cities

Currently, both developed and developing nations use planning for the creation of new cities as a tactic to address many of their housing issues. As new cities have a characteristic structural form, it is important to keep in mind that creating a new or newly developed city is a process in which all the economic, social, and psychological components are combined.

As a result of changing the plan in order to establish societies in which better standards of living are achieved; they are modern societies that provide methods of social care, health care, education...etc. The expression "new city" is used to refer to many societies that differ from each other in terms of objectives, function, and size, which affect the political, economic, and social conditions of the state.

Thus, we find that the new cities are an indivisible whole; they are not a group of housing, shops, buildings, or industrial projects. In addition, social and economic development plans are not the outcome of economic and social projects. Therefore, the new city is considered a tool through which we can influence the way of life of the people of the city. Based on what has been said, we will discuss the concept of creating new cities as an option to address the issues that most nations face, particularly the issue of urban housing.

7. New city planning and development strategies:

7-1 sociological factor:

There is no such thing as a universal urban strategy that can be used in all nations; instead, there are differences and disparities between them that require unique urban strategies to be designed in order to function effectively and efficiently. This difference results from the fact that each country's strategy serves as a tool for achieving its own national objectives. Experience shows that the absence of a planning process leads to the continuous increase and accumulation of problems the society suffers because of the decline of the production elements in society and the provision of services..

By the same token, realizing this fact also proves the necessity of planning, which is a method of organization which aims at using resources in the best way for achieving economic and social development. Moreover, development can be defined as the quantitative and qualitative extension of the national economy and the change in the relations and methods of production. The characteristics and rate of dynamics of economic and social growth are often measured by synthetic indicators of growth in the national income per capita. On the other hand, social development is measured by a number of indicators that depict the high standard of living in the broadest sense of this term. Therefore, development is a process directed to bring about changes in most social, economic, and health sectors to acquire decisions and values to face problems and overcome difficulties.

7.2 New city planning strategies

A new map of cities has been created by planners and decision-makers in many countries to prevent the errors and issues that are present in large cities. This map represents a giant leap in thought. It provides for the following:

- The residential neighborhood should be in the best places within the city in terms of location, climate, access to sunlight, and proximity to green spaces.

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- When planning housing, every home should receive even a small amount of sunlight.
- The industrial areas should be isolated from the residential areas with sufficient green spaces.
- The downtown area and public activities in residential neighborhoods must be linked to a network of roads and transportation that meets the needs of the daily movement of people.
- It is necessary to pay attention to the green spaces inside the city and to increase their surface to form also isolated areas between the main road axes with high traffic volumes and the surrounding residential areas.
- The various types of pollution (air pollution, water pollution, pollution with waste, waste and noise...) summarize the various environmental threats to which individuals are exposed.

7-2- urbanization:

7.2.1. Houses built by the colonizer for the Algerians:

- Collective building

Many buildings of a very modest style were built. They are now densely populated neighborhoods because, despite their narrowness, many couples stay for a long time with their fathers due to the impossibility of finding a house due to scarcity or high price. No improvement took place except some minor interventions such as renovating the doors and fortifying the windows with bars. Economic activities did not find the conditions suitable for prosperity in these districts due to their proximity to commercial neighborhoods. Many aspire to leave this type of housing due to the lack of vital space.

Individual construction:

It is a housing program to re-house the residents of the slums who were expelled from their villages during the colonial period. This reflects the colonizer's discriminatory view of the rural population because he planned for them a simple residence that can be developed, which is a hall surrounded by two rooms and a place in one of its corners to cook food. Few of the houses have been preserved, as new rooms have been added to them. Besides, the houses have often expanded vertically due to the narrowness of the floor space, which does not exceed 52 m².

Most of these houses were converted into small buildings with all the dangers involved in these operations, especially since the neighborhood is located on a fragile ground where there is a groundwater close to the surface of the earth. These operations are carried out without consulting specialists in the field and without asking permission from the competent authorities.

7.2.2 The houses built by Algerians for themselves

The majority of these houses has individual styles with an enhanced quality of life for families and external appearance. Vertical additions are taking place to make room for commercial activity in the abasement.

7.2.3 The houses built for the colonizers:

These houses are programmed for small and medium-sized European families. Most of them have three rooms and a kitchen, but the bathroom is shared. The medium-sized European families were replaced by many Algerian families who changed them after purchasing them, in the context of the privatization of housing, for low prices and great facilities. The most common alterations are transforming kitchens into additional rooms to accommodate the many family members and allow children to get married and live in them due to the current scarcity of houses or the high cost.

There are few houses that have been improved or decorated by their owners, but many are those whose functions have changed partially or completely due to the strategic location that is suitable for commercial and service activities. Thus, nearly half of the

houses downtown have undergone a change of use; 50% have been sold two or three times. These operations touched the houses located in the most important axes and streets suitable for liberal **professions**.

7.2.4 High-class collective housing:

These structures were constructed in the 1950s for the rich Europeans. The flats are spacious and comfortable, with modern architecture. Currently, the rooms hold a modest number of people, ranging from 1.5 to 1.62 people per room. They are occupied by high-ranking officials and liberal professionals. The percentage of home ownership is high, but only 85% to 92% of the owners live in them while the rest of the properties are rented. What is noticeable in this type of building is the care about the interiors and the neglect of the common areas, such as the stairs, the facades, the roofs, and the gate, because they are common properties. Besides, the residents are not accustomed to this legal status of housing and to managing them.

7.2.5 Modest marginal collective housing:

They were constructed in the 1950s for employees. Although this category today comprises just 17%, as workers outnumber merchants. The majority of the homeowners purchased their homes and made minimal improvements on them. No rooms were added because there were no balconies. Besides, few housing units have experienced functional alterations as a result of the presence of these structures on the periphery of the city.

7.2.6 Luxurious individual houses:

This housing is found in the luxurious districts. The design is characterized with spaciousness and front and back gardens. Its height does not exceed one floor, as Europeans were rigorously prevented from adding more than that during colonization and because it was unlawful to build in the garden.

As houses were constructed in these green spaces and those villas were changed into family buildings, we now rarely encounter a house of this design that keeps its original shape. The majority of the houses have turned part or all of their ground level into commercial shops.

7.2.7 Extensive individual houses

This type of housing was characterized with holding several families with a hall in the middle and ornamental plants. But after 1981, that is, after purchasing these houses, they were completely transformed, as families divided the courtyards. Thus, the areas in front of the apartments became narrow and less sunny. Besides, these houses suffered humidity obliging owners to make restorations. Thus, they allocated the ground floor to the shops and left upper floors for living.

8. Manifestations of the morphological imbalance of Oran:

In a city like Oran, where real estate ownership is a public property that may facilitate all kinds of disposal of urban fabrics, the unjustified distribution of shops with large areas (garments, warehouses, factories, workshops...) by the local and legitimate authorities thanks to the law on the assignment of state property issued In 1981, resulted in the transfer of large areas of the public estate to the private sector making it difficult to manage the land and make any intervention to manage the built urban structure, Seemingly, there is no value in the use of urban land and no laws effectively regulating this field.

In the daily practice during the Black Decade, the value of the use of urban soil appeared unreasonably because, in the city of Oran, the houses belonging to the old urban fabric closest to the economic centre of the city were the least expensive due to the deterioration of the buildings and the low prices that were set in the issue of the state's assignment of public property to individuals. This imbalance is also linked to the central political decision to start reselling, or rather liquidating, at free prices, the real estate that is of national collective ownership.

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Oran has known a growth that changed its features and architecture, as it became responsive only to the requirements of the population at the expense of the external shape and architectural appearance which became dysfunctional and combining all kinds of architecture. This affected the landscape of the city on several levels.

9. Conclusion:

The housing crisis and its effects are seen as one of the most severe issues confronting Algeria, particularly in recent years. It may restrict the country's economic and social progress. In reality, high population expansion is the most significant impediment to progress. As a solution to this problem, the Algerian government has taken on the responsibility of constructing new cities, which is one of the options and necessary ways to alleviate population pressure in large towns and capitals.

The key reason for building these cities has been to attain a social, economic, and cultural level that allows overcoming the issues presented by reality in existing old cities, including housing. But when these new cities become unable to meet the needs of their residents, based on the results shown by the current study, population faces difficulty in adapting to the conditions of the new surroundings and think about returning to the natives places; thus turning the new city into an expelling area with no improvement compared op the old traditional areas.

The Algerian state must draw up a new policy that works to raise the satisfaction rates of the population, increase the citizens' ability to adapt to living in new cities, and produce positive results. It is necessary to highlight the importance of the social and cultural dimensions of the population when planning these cities, because the mere spatial movement of people who used to live in underdeveloped and random areas does not guarantee the end of the housing problem.

As the main factors for attracting residents to live in new cities are improving housing conditions and job opportunities, the availability of services that have an effective impact in shaping a citizen who is able to participate in the field of development,

and creating green spaces, parks, and recreational spaces, is the main factor for their stability and continuity in the new city. Therefore, the role of the new cities in Algeria should not be limited to solving urban problems only, but the policy of these cities should be transformed into future visions to achieve better living conditions through the method of sustainable development. The movement of citizens to a new environment where there are planned services can be a motive for psychological, spatial, and social stability for them.

In terms of housing projects, a comparison of modern satellite images and old aerial photos in 1997 reveals dozens of farms that have been transformed into residential projects such as Al-Siddiqiyah neighbourhood with an area of 90 acres, Al-Dar Al-Bayda, Isti, Flawson, Khamsati etc. Since that time, new neighbourhoods have been built on the detriment of farms and besieging other farms making them unusable for agriculture. 8,522 houses were built during 1993–2004 in the three eastern municipalities (Bir El Djir - Hassi Bonif - Hassi Ben Okba) making 3.22% of the total of buildings in Oran.

The other solution to the problem of overpopulation is to raise the level of family income and instill confidence in the future. Historical experience proves this statement. Europe has achieved the different stages of its demographic transformation, supported by a developed economy and a high standard of living for the population, while the underdeveloped countries are characterized with low levels of national income per capita and very high birth rates. Thus, we notice that whenever there is poverty and destitution, there are high birth rates, and whenever there is wealth and economic well-being, lower birth rates are found. This is what will make us wonder about the efficiency of population programs and policies of the Third World in general in the face of the high population increase in light of the low levels of national income per capita which must reach a level where the population seeks a voluntary reduction in its numbers.

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