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URBAN COHESION AND MOBILITY IN THE CITY OF BATNA

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ABSTRACT

This research paper addresses the phenomenon of urban growth in the city of Batna, by defining the related terminology, reviewing the key stages the city has gone through, and identifying the causes of the phenomenon along with the various factors influencing the population and urban areas. It also examines the effects of urbanization and its impacts on mobility, the urban and environmental contexts, as well as the surrounding environment. The study concludes by recognizing the serious risks that this phenomenon poses both to the city and its inhabitants. It emphasizes the need to provide all resources and knowledge necessary to mitigate and manage this growth, while meeting today's needs and preserving the demands of future generations. It also provides comprehensive strategic plans for well-designed urban planning, addressing multiple aspects and reducing unregulated urban sprawl to balance rural and urban areas while preserving valuable, non-renewable natural resources.

KEYWORDS

Urban Growth, Urban Sprawl, Mobility, City, Urbanization

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Introduction

Over the past two centuries, Algerian cities have witnessed significant urban growth and a dramatic transformation in their urban development patterns. These changes are due to ongoing migration from rural to urban areas in search of better living conditions and employment opportunities, along with the attraction of the industrial revolution and urban lifestyle as a result, smaller urban areas has occurred, contributing greatly to the acceleration and expansion of urbanization throughout Algeria.

Most Algerian cities today show signs of urban sprawl, moving towards increasing urbanization and a sprawling region with unfettered urban consumption. This is due to well-regulated policies, which require that they do not coordinate urban functions and control consumption levels, and that they extend into unplanned urban agglomerations, this results in spatial imbalances and affects urban development in and around the city.

As the capital of Aures province, Batna has the potential to become a regional development hub in the high plains. This raises questions about the directions and extents of the city's expansion and its impact on urban dynamics.

The research aims to shed light on the relationship between rapid urban growth and its implications for space and mobility. It also seeks to examine the future of Batna's satellite towns and propose solutions and recommendations to restore balance, rationalize the distribution of structures, and ease pressure on urban centers.

Research Terms

1. **City:** The term lacks a fixed definition; however, urban studies have contributed to its gradual conceptual evolution. A city is "a piece of land where housing is built to accommodate a population group. It differs from a village primarily in terms of population size, historical development, construction style, function, and residents' lifestyle" (Al-Saqqar, 1977, p. 300).

2. **Urban Growth:** This refers to the process where city populations increase, either through migration from rural to urban areas or by rural residents adapting to urban life (Shawki, 1966, p. 23).

3. **Urban Sprawl:** Although there is no precise definition, urban sprawl denotes the horizontal expansion of a city's-built environment into adjacent areas. It reflects the phenomenon of cities expanding their spatial footprints (P. Julien, 2000, pp. 3-33).

4. **Mobility:** Urban mobility refers to the movement of people within cities, focusing on a confined urban area and excluding intercity or rural movements (Padam Mobility, 2020, p. 37).

5. **Urbanization:** According to the Urban Dictionary, urbanization has two meanings. The first refers to creating cities or expanding urban areas. The second, more common, refers to the growing concentration of populations in cities or urban clusters. Socially, urbanization signifies the increasing number of people benefiting from urban opportunities, such as modern communication and rapid transport services (Merlin & Choay, Paris, 1987).

6. **Peri-Urbanization:** This term describes the emergence of large residential areas on a city's outskirts, often retaining rural characteristics. These areas are also known as suburbs (Baud, 2003, p. 500).

Analytical Study of City of Batna

1. Population and Housing Studies in Batna

Understanding the population dynamics in the city is crucial, as people are the key to urban development. Urban growth and sustainability require adequate housing and services. This section discusses the stages of population growth and housing construction and the factors that influence these changes in Batna.

1.1 Stages of Population Growth in Batna

The city has experienced significant population growth since its establishment, marked by several key phases, as illustrated in the following table:

Table 1. Population Growth in Batna (1954–2019)

Year Range	Population (Individuals)	Growth Rate (%)	Migrants (Individuals)
Before 1954	18,504	1.1	/
1954–1966	55,701	7.89	24,184
1966–1977	102,756	5.72	23,835
1977–1987	184,069	5.86	42,429
1987–1998	247,520	2.7	13,462
1998–2008	290,645	1.7	13,010
2008–2019	350,000	/	/

Source: Monograph of Batna Province, 2019

It is clear from the above table that the population growth of Batna governorate has gone through several phases:

a. The First Phase (Before 1954): During this phase, the city experienced slow growth. Algeria did not conduct a population census in 1954 because the society was divided into settlers and Algerians. In 1935, the population was estimated at 15,000 (GCPH, Batna, 2008) reaching almost the same number in 1954, with an increase of 1.1%. One of the main reasons for this slow growth was oppressive policy committed by France against the population of Algeria, which resulted in widespread poverty and disease during this period. The area was primarily a military base.

b. The Second Phase (1954–1966): Population increased dramatically by 7.89% to 55,751 in 1966. The main reason for this remarkable growth was the large-scale rural exodus caused by the destruction of villages and burning of land due to war, as well as colonial policies that created insecurity and instability. Migration continued after 1962 seeking for better living conditions in the city.

c. The Third Phase (1966–1977): During this phase, the population growth rate fell to 5.72%, which was very close to the national average of 5.40%. This decline is attributed to the fact that Batna is a hinterland town that did not receive much attention from authorities during this period. However, the city benefited in 1967 from the special program Aures, which includes several urban and rural development projects within the framework of regional balance policies. It also benefited from development plans such as the Transitional Three-Year Economic Plan (1967–1969) and the Two Four-Year Plans (1970–1973 and 1974–1977). The industrial zone, established in 1977, created employment opportunities, and contributed to safety, health and living conditions. As a result, the population grew to 102,756 that year (Urban Development and Planning Master Plan, 2018, p. 11), an increase of 5.72%. This increase was due to continued rural migration to the city in search of an improved standard of living.

d. The Fourth Phase (1977–1987): During this phase, the city experienced steady growth, attributed to improvements in the living standards of its inhabitants, which attracted professionals and high-ranking professionals. This was a result of various important economic, housing, and social projects. The population reached 184,069 (RUDPS, *Batna*, 2018, p. 11) with a growth rate of 5.86%. Migration accounted for 41.29% of the population increase, equating to 42,429 migrants (GCPH, *Batna*, 2008).

e. The Fifth Phase (1987–1997): During this phase, the city experienced a decline of population estimated by 2.7%. This was due to the economic crisis and the "black decade" that affected the country in general and urban centres in particular. Population was 242,917 (RUDPS, *Batna*, 2018, p. 11), with 13,462 immigrants. There has been a significant reduction in the number of migrants to urban centres. In addition, the urban fabric of the city has begun to reach saturation and the availability of housing for housing and residents has decreased.

f. The Sixth Phase (1998–2008): The population growth rate continued to decrease, reaching 1.7%, with a total population of 290,645 (RUDPS, *Batna*, 2018, p. 11). The number of migrants during this period was 13,010. This indicates that the city witnessed a reverse migration process to areas outside the urban core (GCPH, *Batna*, 2008).

g. The Last Phase (2008–2019): During this phase, the population of the city reached 350,000 (Monographie, *Batna*, 2019, p. 30), resulting in an increase in the population of 59,355. This increase is mainly observed in areas near peri-urban city centers and four highways. This migration was driven by the high cost of real estate in the city, and the desire for comfort and escape from noise and pollution.

2. Population Growth in the Study Area

The study area experienced rapid population growth, with an estimated population of 1,377,000 in the province of Batna. The city of Batna is the largest by population, with an estimated population of 350,000. The table below highlights the significant differences and differences in population distribution among different municipalities.

Table 2. Population Growth in the Study Area (1987–2019)

Municipality	1987	1998	2008	2019 *	Growth 1987–1998	Growth 1998–2008	Growth 2008–2019
Batna	184,069	247,520	290,645	350,000	63,451	43,125	59,355
Fesdis	3,810	5,811	7,517	12,000	2,001	1,706	4,483
Tazoult	18,990	22,114	27,493	37,400	3,124	5,379	9,907
Wadi El Chabia	3,810	5,835	7,236	13,300	909	1,401	6,064
Aïn Yagout	4,175	8,969	11,502	15,200	4,794	2,533	3,698
Total	216,841	292,247	346,401	429,900	74,279	54,144	83,518

Source: GCPH, *Batna*, 2008 * Monograph of Batna Province, 2019

From the table above, it is evident that the population growth in the study area has seen a significant increase across all periods:

a. The First Phase (1987–1998): During this phase, the state's focus was on achieving regional and spatial balance, benefiting most municipalities within the study area. The population grew rapidly during this period to 74,279 individuals.

b. The Second Phase (1998–2008): A decline of population in this period, lower than the previous phase, with an estimated decrease of 54,144 individuals.

c. The Third Phase (2008–2019): A population increase with 24,813 additional individuals compared to the previous phase. The primary reasons for this growth were a slight improvement in living conditions for some residents and migration from rural areas to urban centers in search of better living standards. During this phase the natural population increased to 83,518 individuals, and mortality rates decreased to some extent.

3. Population Growth Rates in the Study Area

Table 3. Population Growth Rates by Municipality (1987–2019)

Municipality	Growth Rate (1987–1998)	Population (1998)	Growth Rate (1998–2008)	Population (2008)	Population (2019) *
Batna	1.62%	247,520	2.73%	290,645	350,000
Fesdis	2.61%	5,811	3.91%	7,517	12,000
Tazoult	2.20%	22,114	1.39%	27,493	37,400
Aïn Yagout	2.52%	8,969	7.20%	11,502	15,200
Wadi El Chabia	2.18%	5,835	1.55%	7,236	13,300
Total	11.13%	292,247	16.78%	346,401	429,900

Source: GCPH, Batna, 2008 * Monograph of Batna Province, 2019

Table 03 illustrates that the population growth of the city of Batna has gone through several phases as follows:

a. The Balanced Growth Phase (1987–1998): The official census conducted in 1998 revealed that the population of Batna had reached 247,520, representing a growth rate of 1.62%, which is lower than the national average for the same period. This noticeable decline can be attributed to the economic and political crises experienced by the country, particularly in major urban centers, as well as the social and spatial repercussions of the "Black Decade." Furthermore, the transition of the political system from a planned economy to a free-market economy caused a shift in the functional and social structure of the population.

b. The Stable Growth Phase (1998–2008): The table indicates that during the period (1998–2008), the municipalities within the study area experienced continuous population growth. This can be attributed to stable security conditions and the state's adoption of social development policies aimed at alleviating the effects of the national tragedy. Additionally, significant financial allocations were made through the first five-year economic recovery program and the second five-year growth support program. However, there was a slight decrease in the populations of Wadi El Chabia and Tazoult municipalities.

4. Population Density in the Study Area

The average population density in Batna Province is 114 inhabitants/km². Considering only the study area, the density levels vary significantly:

Table 4. Population Density in Batna and Tazoult Districts (2019)

Municipality	Area (km ²)	Population (2019)	Density (inhabitants/km ²)
Batna	116.41	350,000	3,007
Fesdis	85.80	12,000	140
Wadi El Chabia	245.67	35,638	145
Batna District	447.88	397,638	888
Tazoult	112.52	34,700	308
Aïn Yagout	160.06	15,200	95
Tazoult District	272.58	49,900	183

Source: Municipal People's Assembly, Batna, 2019

Table 04 illustrates the population density of Batna and Tazoult Districts in Algeria. Batna municipality is the most densely populated, with 350,000 residents and a density of 3,007 inhabitants/km², putting significant pressure on urban services. In contrast, municipalities like Fesdis and Wadi El Chabia have much lower densities. Tazoult municipality ranks second with 308 inhabitants/km² and a population of 34,700, while Aïn Yagout has a much lower density of 95 inhabitants/km², reflecting its rural nature.

Overall, Batna District has a population density of 888 inhabitants/km², while Tazoult District has a much lower density of 183 inhabitants/km². The high density in Batna reflects urbanization, while Tazoult remains largely rural.

This disparity highlights the need for policies to balance urban and rural development, reduce pressure on urban centers, and promote sustainable growth in less densely populated areas.

5. Urban Development of Batna City and the Contribution of legislation and Urban Planning Mechanisms:

The city of Batna originated during the colonial period as it served as a connecting point between the cities of Constantine and Biskra. The name derives from the word "Batnah," which means "overnight stay." By a decree issued on 12/09/1848, it was initially named "New Lambese." Later, another decree issued on 20/06/1849 officially renamed it "Batna," a name that remains in use to this day.

Batna is considered a bridge between the Sahara and the High Plateaus of eastern Algeria, making it the beating heart of the Aures region. Over the history, the region has witnessed the succession of several civilizations. One of those, is the Numidian civilization, with some of its landmarks still visible in the area, such as the city of "Ashoukan," the village of "Baloul" with its fortress in the district of Menâa, and the tomb of "Medghassen" in the district of El Madher.

Following the Numidians' defeat by the Romans in 42 AD, the region came under Roman rule until the 4th century AD. During this period, significant urban development occurred, including the establishment of several cities such as "Cumbaresse" in 81 AD, "Thamugadi" (present-day Timgad), and "Diana" (present-day Zana) around 100 AD. Subsequently, the area experienced Greek occupation in 431 AD, lasting until 534 AD, followed by Byzantine rule.

The Islamic conquest of the region began in 669 AD under the leadership of Uqba ibn Nafi during the Islamic expansions. The Ottomans arrived in 1585 AD, and during their rule, the area was under the control of the Bey of Constantine. This situation continued until the French invasion in February 1844 AD. Due to its strategic military location, the city was governed by a military system (**Monographie Batna, 2019, p.6**).

In 1866, the first council was established. To further consolidate control, the military section was transferred from Constantine to Batna. The first district office for Constantine was set up in 1871, and it was later upgraded to a "Département" in 1956. This status continued until after Algeria's independence, when it remained part of the Aurès province. In 1974, administrative divisions were established, and Batna became a province, with 6 districts: Kays, Faïs, Arris, Ain Touta, M'rouna, and Berriche, and 34 municipalities.

Following the 1984 administrative division, Batna underwent changes, with some municipalities being transferred to the provinces of Biskra and Khenchela. Of the remaining 29 municipalities, they were divided into 60 municipalities, and the municipality of El-Djazair, previously part of the M'sila province, was also added. The stages of urban development in Batna city can be divided into two phases:

First: The French Occupation Phase

a. Period 1844-1870: The city of Batna was founded by the French occupation in 1844, with the establishment of a military quarter known as "CAMP." During this period, a decree was issued on September 12, 1844, upgrading Batna to an urban center covering 12 hectares (**Boudarah, 1989, p.156**). By 1860, the city began to expand slowly, which led to the development of the Zmala neighborhood to the southeast of the city center by 1870.

b. Period 1871-1923: During this period, the city expanded to cover an area of 26 hectares (**UDPM, Batna, 1998, p.92**). A number of facilities were established, including the town hall, a courthouse, a Christian cemetery, two schools, a market, and a theater. The city was divided into two main areas: the colonial nucleus, which was inside the military camp to the north, and the Zmala neighborhood to the south. Two main streets were developed: France Street and Mosli Street.

c. Period 1924-1945: This period saw the construction of a railway station and a military airport. Batna became an administrative center, thanks to the various projects and facilities mentioned earlier. As a result, the population increased significantly, reaching around 11,000 residents in 1925 and 15,000 by 1940 (**GCPH, Batna, 2008**).

This period significantly contributed to the city's expansion to an area of 150 hectares, along with the creation of new neighborhoods such as the STAN district in the northeastern part, the Fourrière District near the train station, and both Bouakal and Cheikhy neighborhoods in the southern part of the city.

d. Period 1946-1961: This era witnessed a large-scale migration of rural populations to urban areas due to France's repressive policies, including the burning and bombing of rural areas. The launch of the Constantine

Plan in 1958 had a significant impact on urban development, granting Batna administrative independence as a district separate from Constantine. This development led to the emergence of new neighborhoods with collective housing projects:

- 180 housing units in Ben Boulaïd neighborhood
- 180 housing units in the Fourrière neighborhood
- Expansion of the city northward into European neighborhoods
- 252 housing units in Cheikhy neighborhood
- 192 housing units in the Evolutionary neighborhood
- 260 housing units in Kchida, located in the southern part of the city.

The expansion of older neighborhoods such as Zmala and Bouakal continued, bringing the city's total area to 209 hectares (**UDPM, Batna, 1998, p.96**).

Second: The Post-1962 Phase (After Independence)

a. Period 1962-1973: This phase was transitional, coinciding with Algeria's independence, and brought about significant changes both economically and politically. During this period, the state focused on rebuilding and reconstruction. In 1968, the Aurès program was launched, leading to urban dynamics and the expansion of the city's area to 1,227 hectares, an increase of approximately 1,018 hectares. As a result, Batna developed an urban fabric in several neighborhoods, particularly in the original nucleus, and in neighborhoods such as Kashida, Chekhi, and others.

b. Period 1974-1984: During this period, the state made efforts to implement urban development according to a planned approach. In 1974, the establishment of urban planning schemes (PUD) began. In 1978, Batna benefited from its first urban planning scheme, which aimed to define the areas for future urban expansion. The city was divided into three sectors:

- **Sector One (Northeast):** Includes the military area, with a real estate reserve of 243 hectares in the long term, and the expansion of the park Afouraj neighborhood in the short-to-medium term (**UDPM, Batna, 1998, p.99**).

- **Sector Two (South and Southwest):** Focuses on the creation of two new urban residential areas (ZHU N1, ZHU N2).

- **Sector Three (Northwest):** Includes the industrial area, covering 22 hectares.

Following this, various projects were launched under the urban planning scheme for Batna, including:

- Collective housing (ZHU N1, ZHU N2) with 3,094 units (**Boudarah, 1989, p.159**), along with a neighborhood of 742 housing units,

- 1,308 housing allocations,

- 21 cooperatives with 535 plots,

- A large number of facilities, including the Islamic Cultural Center, November 1st Mosque, Girls' Secondary School, 8 middle schools, a university campus with 2,200 beds, etc.

However, the urban plan did not account for the influx of migrants searching for work and better living conditions, leading to the sale of land by property owners and its unplanned division, resulting in chaotic constructions. This led to the creation of informal settlements with poor housing conditions, as these migrants were from lower-income groups.

c. Period 1984-1994: Despite efforts by the authorities to avoid the mistakes of the past and the creation of a new urban plan in 1985, the city continued to expand informally. The expansion of unplanned neighborhoods continued due to the ownership and unregulated division of property. This resulted in the creation of new similar neighborhoods, bringing the city's total area to 3,383 hectares. In 1990, the urban planning law (29/90) was introduced, covering the municipalities of Fesdis, Tazoult, Aïn Yagout, and Wadi El Chabia. However, the study was canceled for political and administrative reasons, as well as the difficulty of implementing a plan for all municipalities.

d. Period 1994-2005: In 1994, a new urban planning master plan was created specifically for Batna. This plan was not approved until 1998, and despite the major directions it outlined, its future projections proved to be inaccurate, leading to its revision in 2005 before the end of its designated period.

e. Period 1994-2005: In 2005, the urban planning master plan was revised to include 7 municipalities, including Batna. Despite the failure of this type of plan in 1990, new urban centers were developed, such as the Fesdis urban hub, which had a scientific focus, and the Hamma urban hub, which had a residential focus.

6 .The Impact of Mobility on the City:

The size of the roads within the city and the scheduling of transportation services, whether private or public, play a key role in providing services regularly. To study and identify areas experiencing severe traffic congestion, resulting in traffic bottlenecks within or around the city of Batna, it is necessary to diagnose and analyze several variables, Understanding the nature of population movement within and outside the city in terms of:

- The timing of population movements
- Preferred and commonly used modes of transportation
- The reasons behind these movements
- Analyzing the reasons behind their movements.

Once the nature of these movements is understood, it becomes easier to address many urban transportation issues. These topics have attracted the attention of many urban planners, civil engineers, and geographers, including **Janes Vance**, who concluded that the movement of people within the city results from individual, economic, and social factors. He identified the key elements of movement in mature, functional cities as follows:

- **Commuting to work:** whether from the outskirts of the city to the center or from the center to the suburbs, though to a lesser extent (**Atwi, 2002, p.54**), or within the city's internal areas.

- **Shopping mobility:** which involves travel for the acquisition of various goods and services. For example, Batna and its surrounding towns (such as Tazoult, Fesdis, Wadi El Chabia and Ain Yagout), or neighbouring towns where people go to buy basic necessities that are not available in their local markets.

- **Commercial Mobility:** This type of movement helps us to understand the flow of people in and out of the city for purposes such as trade, transport of goods and provision of services to the population. This mobility is distinguished by the fact that it occurs at specific times, often associated with business travel or purchases. It also involves specific areas where people gather in various parts of the city, such as industrial zones, commercial zones, etc.

- **Social Visiting Mobility:** These are people who visit relatives for various occasions, whether in or out of town. However, it is difficult to study and identify specific areas where people gather for social visits only.

- **Recreational and Leisure Mobility:** The city of Batna hosts several public parks, recreational areas, and tourist sites, which play a crucial role as a major factor in the daily flow of people within the city.

The researcher **Janes Vance** coined two terms: the first is the "**gathering area**", which includes recreational and leisure zones. The second term is "**dispersal**", which refers to residential areas and suburbs.

7. The Impact of Urbanization and Its Reflections on the Urban Area, Environment, and Surrounding Areas:

The rapid urban growth of Batna has led to numerous direct and indirect effects and impacts, including:

7.1 The Impact of Urbanization on the Area:

The continuous and rapid rural-to-urban migration has led to the saturation of the inner city, giving rise to urban sprawl over the past few decades. This has created strong competition between the city and surrounding rural areas, often at the expense of agricultural activities (**Bousmaha, 2017, p.161**). As a result, urban expansion has taken over agricultural lands, with much of the land being allocated for industrial developments, such as the industrial zone in the Kashida neighborhood.

Significant disorganized growth has occurred from the failure of urban planning plans and the absence of enforcement of the law against violators, giving rise to several issues. It is important to note that the authorities have encountered difficulties in the housing sector, especially in striking a balance between demand, production capacity, and actual needs as a result of the growing housing demand.

The expansion of the city and the increasing population density require a massive water supply. However, the high-water consumption by industrial areas within the city has led to a decrease in the availability of potable water, exacerbating problems for the responsible authorities. As for the road network, which is the main lifeline for meeting the demands of urban mobility, it suffers from many issues and is unable to meet the transportation needs of the population. This results in traffic congestion and severe mobility challenges.

7.2 The Impact of Urbanization on the Built Environment and the Ecosystem:

During the French occupation, Batna was a military outpost with an area of only 0.44 km² and a population of several hundred inhabitants. Today, it has expanded to an urban area covering approximately 29 km², which means it has increased 655 times, while the population is nearly 25 times as large as it was. This

growth is largely due to rural-to-urban migration especially in 1978, as people moved to the city in search of work and better living standards. This migration has a negative impact to the urban environment, by land overconsumption, in particular the city center.

The continuous growth of the city necessitates the provision of facilities and infrastructure. Due to their unavailability in the city center, the authorities demolished old buildings from the colonial core and constructed commercial centers, facilities, and public parks. This problem is particularly prevalent in poor countries with high population densities such as India, China, and Bangladesh. Additionally, issues such as energy resource depletion, a lack of renewable resources, soil and air pollution, are all environmental problems that must be studied and addressed before they become more widespread.

Conclusions

Both organized urban areas and informal settlements have emerged as a result of Algerian cities, recent rapid urban expansion. Living circumstances have gotten worse as a result of inadequate infrastructure and poor planning. The substantial migration of people from rural to urban regions in Batna has led to a sharp rise in population density and the expansion of unofficial settlements on the fringes of the city. The problems of land scarcity and already inadequate infrastructure have been made worse by this urban expansion, which has combined urban and rural areas at the expense of agricultural land.

Even though urban growth has improved the economy by creating more housing and job possibilities, it has also had negative effects on the environment by causing pollution from increasing traffic and the loss of agricultural land. In summary, comprehensive measures that prioritize well-planned urban growth and restrict uncontrolled urban sprawl are necessary to achieve sustainable development. This would preserve natural resources while striking a balance between rural and urban areas.

Recommendations

To address these challenges and promote sustainable urban growth, the study proposes the following recommendations:

1. Balance Urban and Rural Development:

- Promote coordination between urban centers and rural hinterlands.
- Manage land use efficiently to preserve agricultural lands and implement sustainable development principles.

2. Control Urban Sprawl:

- Provide essential facilities and infrastructure in satellite towns to ease pressure on central urban areas.
- Develop strategic spatial planning to distribute economic activities evenly.

3. Promote Rational Land Use :

- Ensure urban land is utilized effectively based on sustainable development standards.

4. Enhance Infrastructure and Public Services :

- Improve transportation, water, and electricity services to enhance living conditions in rural areas, reducing migration to cities.

5. Encourage Public-Private Partnerships :

- Foster collaboration between public and private sectors to enhance agricultural productivity and develop sustainable urban projects.

6. Invest in Modern Housing Solutions:

- Explore advanced construction techniques and promote investment in eco-friendly urban designs.

7. Alleviate Traffic Congestion:

- Implement public transit systems such as a tramway to reduce congestion and improve urban mobility.

REFERENCES

1. Julien, P. (2000). Measuring an expanding urban universe. *Economie et statistiques*, 336, 3–33.
2. Shawki, A. M. (1966). *Society of the city and urban sociology*. Modern Cairo Library.
3. Al-Saqqar, F. M. (1977). *Regional planning* (2nd ed.). Dar Al-Ma'arif.
4. Al-Atwi, A. (2002). *Geography of cities* (Vol. 2). Dar Al-Nahda Al-Arabia.
5. Merlin, P., & Choay, F. (1987). *Dictionnaire de l'urbanisme et de l'aménagement*. Paris.
6. Baud, P., Bourgeat, S., & Bras, C. (2003). *Dictionnaire de géographie*. Hatier.
7. Boudarah, A. M. (1989). *Different zones in third world cities: A field study in Batna city* (PhD dissertation, Cairo University). p. 156.
8. Boudarah, A. M. (1989). *Previous reference*, Cairo University. p. 159.
9. Bousmaha, A. (2017). *Urban sprawl and its impacts on rural land in Algeria: The case of Sétif and its region*. In *The small Mediterranean agricultural exploitation: A response in times of crisis*. CIHEAM, Paris, France.
10. RUDPS, Batna, 2018, p. 11. *Review of the urban development and planning scheme, Batna*. (2018). p. 11.
11. *Monograph of Batna Province*. (2009). p. 30.
12. GCPH, Batna, 2008. *General census of population and housing*, National Office of Statistics, Batna. (2008).
13. UDPM, Batna, 1998, p.92-96. *Urban development and planning master plan, First Phase Batna*. (1998). p. 92, p. 96.
14. *Municipal People's Assembly, Batna, 2019*
15. Padam Mobility. (2020). *Nouvelles formes de mobilité urbaine*. Paris. <https://padam-mobility.com/nouvelles-formes-de-mobilite-urbaine>