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URBAN DYNAMICS BETWEEN CHALLENGES AND OPPORTUNITIES: THE CASE OF EL KHROUB, ALGERIA

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Abstract. Since the mid-1970s, demographic concentration in Algeria has significantly influenced urban policies in major cities, prompting the transfer of surplus populations to peripheral areas. The socio-spatial dynamics of El Khroub, the second-largest city in the vicinity of Constantine, exemplify this developmental trend. The demographic alleviation of Constantine, the «mother city», toward El Khroub resulted in a remarkable transformation, rapidly elevating it from a village to a medium-sized city. This study aims to provide a retrospective analysis of El Khroub's evolution, focusing on the scale and circumstances of its spatial and social transformation. Utilizing both historical and analytical approaches, the research offers a comprehensive understanding of the city's development and the challenges that accompanied its rapid growth. While El Khroub gained opportunities from this policy, its rapid expansion also brought significant challenges. The findings highlight the complex relationship between development policies and urban dynamics, revealing both the benefits and drawbacks of rapid urban transformation.

Key words: new urban housing zones, urban growth, demographic dynamic, urban sprawl, population transfer policy, socio-spatial fragmentation.

Introduction. Urban growth is a complex phenomenon that manifests through demographic dynamics (such as migration and natural population growth) and geographical transformations (like urban sprawl and changes in land use). It is strongly influenced by the ongoing global economic integration in many regions worldwide (Cohen, 2004). Fuelled by natural growth and migration (Almatar & Alhajri, 2024), urban growth significantly contributes to the development and promotion of cities (Lucas, 1997).

However, urbanization becomes a concerning phenomenon when it is rapid and poorly managed, as it leads to numerous multidimensional issues. Excessive urban sprawl impacts various environmental, economic, social, and legal aspects (Debbabi & Bouteche, 2023). Li & Li (2019) emphasize that demographic pressure is a key driver of urban sprawl, particularly in large cities. They also observe a significant positive correlation between economic growth and urban sprawl, indicating that economic development inevitably leads to increased urban land use. Furthermore, Qu et al. (2020) state that rapid urban growth necessitates greater spatial resources to support socio-economic development.

Managing urban growth has become a complex global issue, representing one of the major challenges of the 21st century (Cohen, 2004). Thus, the management of urban expansion has garnered increasing interest among policymakers and researchers (Qu et al., 2020).

Population growth and migratory flows deeply influence urban and social morphology (Germain, 2014). Amorevieta-Gentil et al., (2015) highlight that migration significantly shapes population composition. Population increases necessitate the expansion of residential, commercial, and industrial areas, leading to transformations of urban landscapes. Migration, whether internal or international, brings cultural and socio-economic diversity, reflected in architecture, neighbourhood organization, and urban services. These demographic and migratory dynamics are crucial to understanding the evolution and reconfiguration of urban spaces over time. Migration, therefore, shapes urban morphology and social composition in complex and ambivalent ways. On one hand, it enriches the urban fabric with cultural and economic diversity; on the other, it poses considerable challenges related to integration and social cohesion. Public authorities must develop and implement effective policies to transform this diversity into a true asset, fostering harmonious coexistence and greater social inclusion.

To understand the transformations of urban morphology, researchers frequently adopt a historical evolutionary approach. This method allows for the analysis of the evolution and transformation of cities and villages over time (Thin & Kamalipour, 2024).

According to Marois & Bélanger (2014), in the 20th century, North America experienced significant demographic growth in residential suburbs, which now concentrate most of the population expansion, while central cities stagnate or decline. The migratory movements of White populations from central areas to the suburbs, particularly in the United States, have exacerbated this trend by causing racial and economic segregation, resulting in significant disparities in access to public services and a transformation of the socio-demographic landscape. The consequences of suburban growth include the loss of agricultural land, reduced biodiversity, and increased traffic congestion.

Bouteche & Bougdah (2024) point out that in Europe, particularly in France, after World War II, the influx of migrant workers, mainly foreigners, reshaped urban landscapes with the formation of slums on the outskirts of major cities. Additionally, the rehousing of immigrant populations in large suburban housing estates, marked by inadequate infrastructure and services, exacerbated segregation, social disparities, and tensions within these communities. Unlike developed countries, where urbanization followed industrialization, in developing countries, urbanization is profoundly demographic and often lacks economic development (Boukhemis et al., 1990; Dureau, 2004; Lucas, 1997; Véron, 2007). In Algeria, for instance, cities in the east, along with villages and hamlets, became significant recipients of migration flows after independence in 1962, despite exceedingly limited capacities for housing, employment, and infrastructure. These movements transformed some villages into small towns, elevated by public authorities to the status of commune, district (*daïra*), or even province (*wilaya*), without these localities being adequately prepared for such rapid transformations, leading to unbalanced urban network development (Boukhemis et al., 1990).

Rahmani (1982) notes that this demographic evolution had a major impact on economic policy and shaped the state's planning and development strategies. Among the consequences of these demographic concentrations in major cities such as Algiers, Oran, Constantine, and Annaba were the relocation of surplus populations to the peripheries starting in the late 1970s.

During this period, significant progress was made in developing the most underprivileged territories, along with a re-evaluation of small and medium-sized urban centres within the framework of rebalancing the urban network at the national level, notably through the 1974 administrative division. This spatial restructuring led to the emergence of small urban centres, thereby accelerating urbanization (Raham, 2005).

This period also marked the launch of new housing projects and programs under the form of new urban housing zones (ZHUN), introduced within the four-year plan (1974–1977). The design of these zones, defined by ministerial circulars No. 0335 (February 19, 1975), No. 2015 (February 21, 1975), and No. 519 (March 8, 1976) (Rouag-Djenidi, 2005), initially focused on large cities and later extended to neighbouring villages. This resulted in uncontrolled expansion of major cities and the

transformation of village cores into satellite towns. However, the urban planning policies of the time exhibited numerous shortcomings and dysfunctions, creating a gap between policy and urban reality (Bouchemal, 2010).

The socio-spatial dynamics of El Khroub, the second-largest city in the periphery of Constantine, follow this development logic. With Constantine, the mother city, reaching saturation, demographic transfer to El Khroub occurred, transforming its status from a village to a medium-sized city. This evolution transformed El Khroub from a colonial village core with an area of 12 hectares in 1962 into a medium-sized city spanning 511.1 hectares by 2008 (URBACO, 2008).

In recent decades, the city's spatial development has seen considerable growth, benefiting from its relatively flat terrain and extensive communication networks. Today, El Khroub is regarded as the second urban center in Constantine Province and its most significant satellite. Located about 20 kilometres southeast of Constantine (Fig. 1), El Khroub serves as a transition zone between the north, the «Tell region», and the south, the «High Plains».

From this context, several questions arise: How has this colonial-origin village developed over time to achieve medium-sized city status within a few decades? What are the impacts of this transformation on space and society?

Materials and methods. The primary objective of this study is to conduct a retrospective analysis of the evolution of El Khroub, focusing on the extent and circumstances of its transformation from both spatial and social perspectives. Once a small rural village, El Khroub rapidly developed into a medium-sized city due to a policy of population transfer from its parent city, Constantine. This policy led to a dramatic transformation of its spatial and social structure.

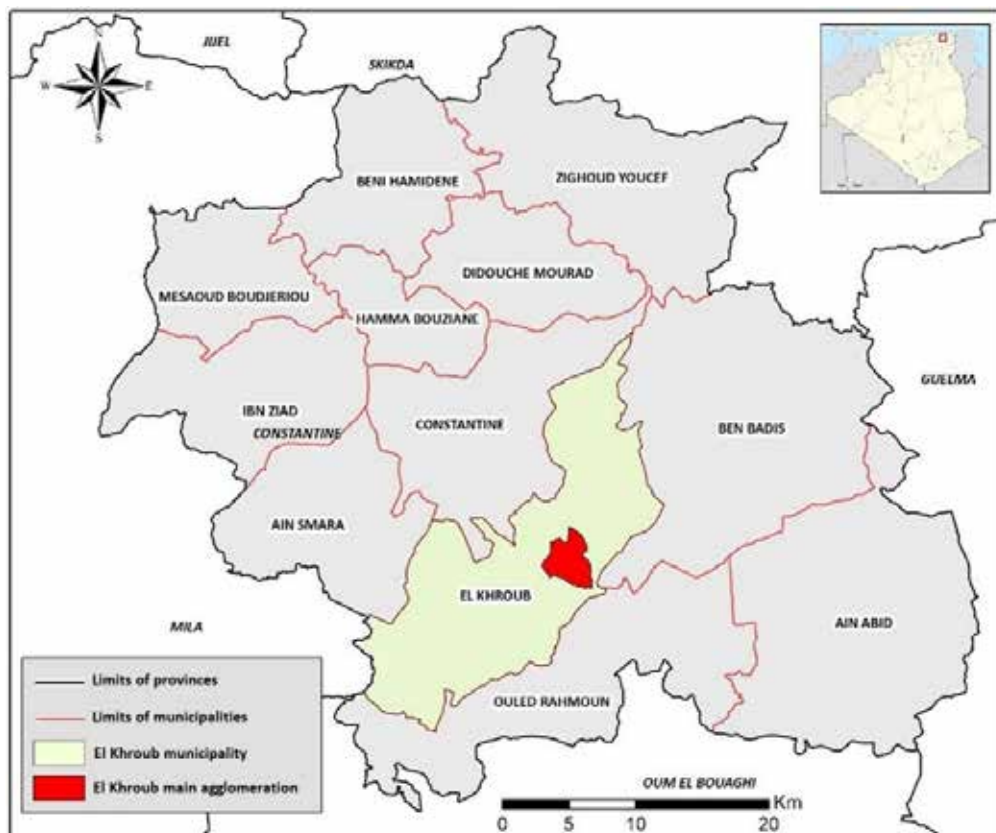


Fig. 1. Location of the city of El Khroub in the Constantine Wilaya

Source: Authors (2023)

Secondly, the study aims to examine the dual nature of this transfer policy, exploring both the dysfunctions caused by this upheaval and the opportunities it created for the formerly rural settlement.

Two complementary approaches were adopted for this research. The first is a historical approach, which helps contextualize the city's emergence and development, as well as the underlying logics of its growth and transformation in urban morphology. The second is an analytical approach, which enables the study of the city's urban morphology, i.e., the spatial evolution of its urban form over time, and assesses the socio-spatial (its social morphology) and economic consequences of the population transfer policy.

To achieve these objectives, two investigative techniques were employed:

- Literature review to establish a theoretical foundation and gather existing knowledge on the subject.

- Fieldwork in the form of direct observation to examine on-the-ground realities and supplement the findings.

Results and discussion

1.1. The context of El Khroub's emergence (the transfer policy)

The development of Constantine has been shaped over time by its physical, geographical, and historical conditions, as well as by local and regional planning and development policies. Since the French occupation, the city has undergone several phases of urbanization influenced by the political and economic circumstances of the country.

Due to the rapid and significant population growth in Constantine, the saturation of buildable land, uncontrolled urban sprawl, and the need to preserve arable land, local authorities shifted their focus to the three surrounding colonial villages—El Khroub, Ain Smara, and Didouche Mourad. This shift was part of the 1975 Master Urban Plan (Benidir, 2003). These villages were identified as suitable locations for large-scale housing programs (ZHUN) to meet Constantine's growing housing needs. Consequently, these small urban centres transformed into satellite towns, contributing to the creation of Greater Constantine.

To address the high demand for housing, the state adopted a functionalist urban planning approach characterized by the importation of industrialized building techniques, such as standardization and prefabrication. This approach aimed to accelerate construction (Naceur & Farhi, 2003) and reduce costs.

In this context, El Khroub became a focal point for housing development, with about twenty ZHUN projects initiated since the mid-1970s. The first project, comprising 450 housing units in the northern part of the town, was launched in 1976 (Marouk, 2008). The city heavily invested in these housing programs, first to address the needs of its own population and then to accommodate residents from Constantine.

1.2. El Khroub: Consequences and impacts of an extensive housing programme

As part of the transfer policy, the ZHUN procedure became mandatory for all projects exceeding 1000 housing units or, in exceptional cases, for clusters of 400 units or more (Mebirouk, 2011). These operations were guided by objectives to:

- Expand the hosting capacity of cities by identifying land suitable for urbanization, typically on the outskirts of major cities.

- Integrate newly urbanized areas into their surroundings by effectively utilizing planned infrastructure and facilities, which could serve as important tools for rebalancing and integrating existing and future socio-physical spaces (Zucchelli, 1983).

According to these directives, the establishment of new residential zones required comprehensive studies for integration, organization, and structuring. These studies were to determine the number and types of housing, as well as the facilities and activities to be included, while simultaneously planning road layouts and utility networks (V.R.D).

However, the reality on the ground revealed a different scenario. Most ZHUN projects across Algeria were developed on the peripheries of existing urban areas (Rouag-Djenidi, 2005), adopting a piecemeal approach where housing clusters were added without fully integrating them into the urban fabric. This approach led to severe repercussions for agricultural land and land use in general, causing significant and often irreversible impacts.

El Khroub exemplifies this situation: its first ZHUN developments were established on the outskirts of the old village core, driven primarily by land availability. This pattern of development has resulted in several socio-spatial consequences.

1.2.1. Irrational land consumption

El Khroub's urban expansion proceeded on land without adequate consideration of its nature, particularly its agricultural value. Most of the residential areas to the north and west of the city were built on high-quality agricultural land due to its relative flatness, which reduced construction costs.

As a result, the city experienced significant growth following housing programs, expanding over 175 hectares between 1977 and 1988 (Fig. 2). Collective housing, primarily in the form of ZHUN, dominated this expansion, occupying 60% of the extended area and reaching relative saturation between 1987 and 1997 (Marouk, 2008). By 1998, the urbanized area reached 460.32 hectares (URBACO, 2008), easing the housing pressures faced by Constantine (Fig. 2).

However, rapid urban land consumption left El Khroub unable to meet its residents' housing demands. This shortage pushed the city to identify a new site for its growing population, leading to the creation of the new town of Massinissa to the east starting in the 2000s.

1.2.2. Unregulated urban sprawl, disorder, and fragmentation

According to Hafiane (2007), discussing an Algerian city is more about quantifying a population and an area than describing a structured urban system. This observation aligns with the impact of the establishment of ZHUNs, which fostered a fragmented model of urban growth. Residential areas and infrastructure were developed without prior integration studies, and the availability of land often dictated the location of these projects, leading to an imbalanced and chaotic urban sprawl that reflects the lack of a cohesive urban system.

This fragmented urban development is evident on multiple scales:

- Spatial fragmentation between urban areas: Residential neighbourhoods lacked synergy with each other and existing urban fabric, creating visible incoherence, particularly between the northern ZHUNs, the old centre, eastern and western subdivisions, and southern ZHUNs (Fig. 3).

- Fragmentation due to national road no. 3: The road, along with the site's topography, created a spatial divide between the upper area (centred around Massinissa) and the lower area (the old core and its urban sprawl). This duality disrupted the unified functioning of the city.

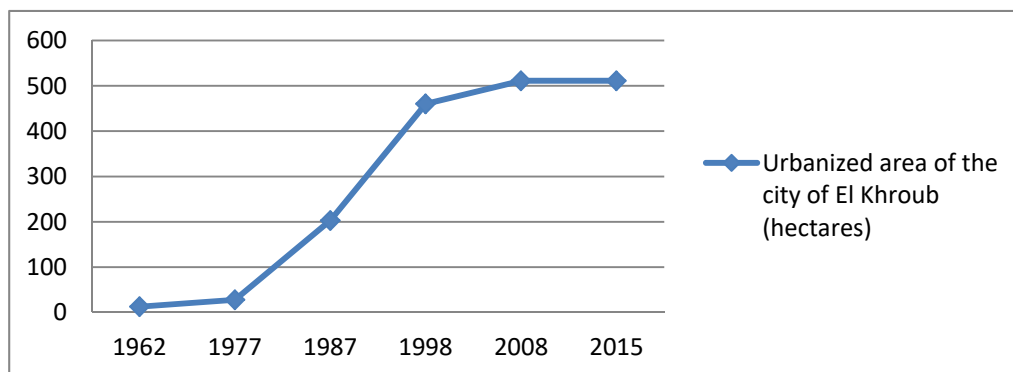


Fig. 2. The evolution of the urbanized area of the city of El Khroub

Source: URBACO (2008)

– Micro-level fragmentation: Excessive ZHUN procedures left 70% of some residential areas as unused or undefined spaces, with minimal adherence to urban planning principles or regulatory frameworks. During this period, urban concerns were primarily focused on housing, with minimal attention given to the development of vacant spaces within neighbourhoods. Consequently, these areas frequently remained in an undefined status, characterized by superficial studies, misuse, and poor management and maintenance. This situation was exacerbated by the involvement of multiple actors in the implementation process, leading to inefficiencies.

– Socio-spatial Fragmentation: Differences between the centre and the ZHUNs emerged due to the varying social and cultural backgrounds of their inhabitants. While the old centre housed a rural-



Fig. 3. Location of the main ZHUNs and public facilities in the city of El Khroub

Source: Authors (2024)

origin population, ZHUNs were predominantly occupied by urbanites from Constantine. This divide reflects differences in historical, cultural, and social dynamics, further contributing to the fragmentation of the urban landscape.

The city's urban planning was predominantly sectoral, a fragmented approach that significantly contributed to disorder and incoherence in its development. Projects were distributed among various agencies based on the type of work, often without proper integration or oversight.

In this context, the Ministry of Housing, Urban Planning, and Construction – now known as the Ministry of Housing, Urban Planning, and the City – took charge of these initiatives, delegating responsibilities to multiple stakeholders. Key actors included the Office of Promotion and Real Estate Management (OPGI) for housing construction, the Communal People's Assemblies (APC) for neighbourhood-level public facilities, and the Ministry of Health for healthcare infrastructure, among others (Touati, 2006). However, the involvement of more than eight state agencies from various sectors, coupled with a lack of effective coordination, resulted in widespread urban disorder and inconsistencies.

1.2.3. Neglected outdoor spaces

The studies for ZHUNs were comprehensive in terms of programming, addressing a wide range of basic needs. These included educational facilities, playgrounds, green spaces, parking areas, and road infrastructure. Particular attention was given to spatial hierarchy and sunlight analysis in the overall development plan. However, in practice, implementation was limited to a few educational and cultural facilities. Notably, the development of outdoor spaces was largely overlooked (Fig. 4). This neglect resulted in the emergence of a new urban feature, the undeveloped space, which now accounts for over 34% of the city's total area (Guechiri, 2023).

1.2.4. Dormitory towns without urban identity

In the 1970s and 1980s, ZHUNs emerged as a pragmatic and rapid solution to the housing crisis facing Algerian cities. Urban production during this period was heavily influenced by economic circumstances. The ZHUN model, along with large housing complexes, introduced a modernist urban grid system and a new way of life that clashed with the traditional lifestyle of Algerian society. This model radically altered the urban landscape, creating a visual and spatial environment unlike anything previously built. The imposed transformation not only reshaped residents' living environments but also profoundly impacted their way of life.

Within these residential zones, any reference to urban identity or neighbourhood life – an essential unit of urban vitality – was effectively erased. Unlike Constantine, the city of origin for most of



Fig. 4. Overview of the ZHUN of the 900 housing units

Source: Authors (2023)

these families, where neighbourhoods served as spaces of sociability and community, ZHUNs lacked such dynamics entirely. Constantine's urban fabric features a dual identity: the traditional Medina, compact and human-scaled, organically developed without a predetermined plan and perched on the Rocher, and the colonial fabric, characterized by rigid alignments, repetitive structures, and monumental designs alien to indigenous forms.

The design of the initial ZHUN projects was entrusted to design offices affiliated with the Algerian Territorial Development Fund (CADAT), the National Centre for Applied Urban Studies and Research (CNERU), and Urban Planning Study and Implementation Offices (URBA). These study centres were supervised by European architects and specialists from countries like Czechoslovakia, Bulgaria, and Poland. This international composition contributed to the misalignment between ZHUN designs and the Algerian context, as they often disregarded the cultural, religious, and societal specificities of the population (Bendada, 2019).

In addition to this profound shift in urban identity, outdoor spaces within ZHUNs were left undeveloped, remaining barren and underutilized. When the first ZHUNs were handed over, only the housing units had been completed, leaving residents to face numerous challenges. Among these were inaccessible buildings, a lack of essential facilities, no play areas for children, no communal meeting spaces, and severe isolation due to limited transportation options. These deficiencies transformed ZHUNs into «dormitory towns» – mere sleeping quarters devoid of vibrant community life (Benlakhlef & Bergel, 2019; Kateb, 2003).

This critical situation hindered the development of healthy social relationships necessary for collective living. Instead, it reinforced residents' sense of alienation, detachment from their new neighbourhoods, and dependence on their native cities. It also contributed to the neglect of outdoor spaces, many of which remain unfinished to this day, perpetuating their incomplete and barren state.

1.3. El Khroub: An economic growth engine for the wilaya of Constantine

The rapid urbanization of El Khroub has brought profound changes to its spatial and social structure. Over several decades, an extensive housing programme was implemented alongside the establishment of numerous public services and facilities, significantly contributing to the city's economic development. Key facilities include (Fig. 3):

- The Souk (the market): A hub of national trade located at the city's centre. Despite its economic significance, its location posed logistical challenges. Although a relocation plan was outlined in the 1983 Master Urban Plan (PUD), it was never executed.
- Mohamed Boudiaf Public Hospital: Serving a supra-communal area.
- The New Daira Headquarters: Inaugurated on April 16, 2016.
- The bus station: Playing a vital role in the southern crown of Constantine.
- Educational institutions: Including the Institute of Veterinary Sciences, a vocational training centre, and a university residence, all located in the southern ZHUNs.
- Cultural and Recreational Facilities: Such as the municipal library and the Mohamed El-Yazid Cultural Centre in the southern ZHUNs, and the Snober Land leisure centre situated in the historic core.
- Colonial-Era Infrastructure: Including the railway station, which has historically reinforced El Khroub's position as a strategic exchange hub.

Together, these facilities have established El Khroub as a new urban and economic centre within the wilaya of Constantine.

The city has also witnessed significant commercial growth, further solidifying its role as an economic hub for the Constantine metropolitan area. This commercial expansion stems from demographic growth, urban spillover policies, and various phenomena that emerged between the 1980s and 1990s:

- Economic system logic: An adjustment of supply and demand to meet the needs of a growing population in El Khroub.

- Mass production of commercial spaces: Built on the ground floors of newly constructed buildings.
- Market liberalization: Beginning in the 2000s, ending state monopolies on foreign trade and facilitating the importation of goods (Bergel & Benlakhlef, 2011).

According to the first economic census of Constantine (ONS – Constantine, 2012) (Table 1), El Khroub ranks second in the province and the Constantine Group for economic activity, contributing 11.70% and 15.90% of total activities, respectively. Commerce and services dominate its economy, with a balanced structure reflected in a commerce-to-services ratio where commerce (50.53%) slightly outweighs services (30%). This balance highlights a robust commercial foundation complemented by a steadily growing service sector.

In comparison, smaller agglomerations such as Hamma Bouziane, Didouche Mourad, and Ain Smara contribute far less in both absolute numbers and percentages, positioning El Khroub as the most significant secondary city in the region.

El Khroub’s substantial contributions to commerce and services underline its strategic role in the province’s economy. Its proximity to Constantine city, combined with expanding infrastructure and a growing population, has enabled it to emerge as a vital economic hub. This role not only eases the economic burden on the provincial capital but also supports balanced regional development across the Constantine province.

Conclusion. The implementation of the ZHUN programme in Algeria from the mid-1970s followed a standardized approach characterized by several recurring issues:

- Urgency and lack of foresight: Most ZHUN developments were executed under urgent circumstances, with limited consideration for long-term urban planning or the future development of cities.
- Reliance on imported methods and techniques: Housing production heavily depended on imported methods and technologies, neglecting the development of local expertise.
- Uniformity at the expense of specificity: The ZHUN programme was applied uniformly across Algeria, disregarding the unique socio-spatial and cultural characteristics of individual regions.

An analysis of urban growth in El Khroub highlights the complex dynamics and challenges associated with rapid, poorly managed urbanization. In a matter of decades, El Khroub transitioned from a small colonial village to a significant urban hub in the wilaya of Constantine, emerging as its most dynamic satellite after the mother city. However, the policy of redistributing Constantine’s excess population to El Khroub had notable consequences:

Table 1

**Economic contribution of main agglomerations in the province of Constantine:
Distribution of commercial and service activities**

		Main Agglomerations of Constantine Group						Constantine Province
		Constantine	El Khroub	Hamma Bouziane	Didouche Moura	Ain Smara	Total	
Activity Sectors	Commerce	6631	1522	642	634	420	9849	13 207
	Services	4215	903	316	16	360	5810	9512
Total		10 846	2425	958	650	780	15 659	22719
Total of all activity sectors		12 383	3012	1418	1164	961	18 938	25 729

Source : ONS – Constantine (2012)

– Rapid urban transformation under pressure: The swift urban expansion resulted in a disjointed and poorly coordinated urban growth.

– Uncontrolled land consumption: Rapid development consumed much of the available land, restricting future urban expansion opportunities.

– Urban fragmentation: Housing programs produced a patchwork urban fabric with little cohesion, deepening the divide between the historic colonial core and new residential areas.

These issues have culminated in a city marked by unregulated urban sprawl and socio-spatial fragmentation, underpinned by a lack of integrated strategy and insufficient coordination between various urban planning elements. While collective housing projects under the ZHUN programme addressed immediate housing needs, they often overlooked local cultural and identity considerations, leading to the proliferation of dormitory-style settlements devoid of urban identity.

Managing this urban growth presents significant challenges. Local authorities and urban planners must balance the need for rapid development with the imperative to preserve residents' quality of life. Future urban strategies must adopt a more holistic approach, addressing not only housing needs but also the provision of amenities, infrastructure, and green spaces to foster cohesive and liveable urban environments. This underscores the necessity of rethinking urban development strategies to embrace more contextual and integrated approaches, avoiding past mistakes and paving the way for coherent and sustainable cities in the future.

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