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Urban transformation in Algeria's high plateaus: GIS evidence from Setif (2000–2025)

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Abstract---This article examines the multidimensional urban transformation of Setif over the first quarter of the twenty-first century. Drawing on GIS-based spatial analysis, official statistical data, and an original Triple Integration Model that links demographic, spatial, and economic dynamics, the study traces urban transformations in Setif municipality over the period from 2000 to 2025. The analysis reveals that rapid population growth (from 243,000 in 2000 to 421,500 inhabitants in 2025), combined with large-scale state housing programmes and strategic infrastructure investment, propelled the city into the role of a 'Gateway City' and regional economic hub for Algeria's High Plateaus. However, this quantitative leap was achieved at significant cost: 1,790 hectares of productive agricultural land were consumed, morphological incoherence proliferated, and urban governance mechanisms proved unable to keep pace with spatial dynamics. The article argues that Setif embodies a broader paradox common to rapidly urbanising cities in the Global South: functional metropolitan success coexisting with structural spatial imbalance and governance deficits. Policy implications for land-use regulation, investment law, and sustainable urban planning are discussed in the light of national and international frameworks.
Keywords---urban transformation, gateway city, economic restructuring, urban governance, Setif, GIS.

1. Introduction

In the first quarter of the twenty-first century, mid-sized cities in the Global South underwent a structural metamorphosis that defied the linear trajectories postulated by classical urban theory (Miossec, 1999, 2013). Nowhere is this more evident than in Setif, north-eastern Algeria, whose urban built-up area expanded from roughly 2,070 hectares at the end of the twentieth century to more than 4,460 hectares by 2025 (statistics of DPAT and DPSB — Directorate of Planning and Land Use Management and Directorate for Budget Programming and Monitoring —; Authors' GIS treatment and calculations) — a doubling in barely 25 years. This trajectory was driven not by market spontaneity alone, but by a deliberate, if imperfectly executed, state-led strategy that channelled hydrocarbon revenues into mass housing programmes, regional infrastructure, and industrial zone development (Kharchi, 2025a). The result was simultaneously a success story of economic polarisation and a cautionary tale of spatial governance failure.

The relevance of the Setif case extends well beyond Algeria's borders. As a 'post-rentier' metropolitan experiment (Diafat et al., 2017), it encapsulates questions of deep concern to economic geographers, planners, and legal scholars alike: How should investment law accommodate the rapid conversion of agricultural land to urban uses?

What governance frameworks are needed to ensure that housing and industrial policies produce spatially coherent, aesthetically legible, and ecologically sustainable urban environments? And how do informal economic corridors interact with formal urban hierarchies in shaping regional development?

This article addresses these questions through a theoretically grounded, empirically rich analysis of Setif's urban transformation. It draws on an original Triple Integration Model (TIM) that treats demographic momentum, economic restructuring, and spatial dynamics as mutually reinforcing feedback loops rather than independent variables. The article is structured as follows: Section 2 reviews the theoretical context; Section 3 presents the geographical and demographic framework; Section 4 analyses urban expansion and morphological change; Section 5 examines economic restructuring and regional repositioning; Section 6 discusses governance dimensions and policy implications; and Section 7 concludes.

2. Theoretical Framework: Beyond Classical Urban Models

Classical urban theory — Burgess's (1925) concentric-zone model, Christaller's (1933) central-place hierarchy, Hoyt's (1939) sector model, and Harris & Ullman's (1945) multiple nuclei model — was grounded in the spatial logic of industrial capitalism in the North Atlantic. Its applicability to cities in post-colonial, resource-dependent economies has been repeatedly questioned (Golubchikov, 2016; Humer et al., 2021; Bodo, 2019; Hölscher et al., 2021). The case of Setif illustrates why a more synthetic framework is required.

The present study draws on four theoretical currents. First, the urban transition theory (Li et al., 2024; Sun et al., 2023; Torrens et al., 2021) conceptualises urbanisation as a multi-stage process in which early industrial growth gives way to increasingly complex social and environmental challenges that demand governance innovation (Sadigov, 2022; Webb et al., 2023). Second, Pumain's (2018, 2021) evolutionary urban systems perspective treats cities as nodes in hierarchical networks that diffuse innovation downward through the urban hierarchy, a dynamic relevant to Setif's ascent from provincial town to regional metropolis. Third, Gunnar Myrdal's polarisation theory (as reviewed in Ramachandra et al., 2012) explains the cumulative advantage that concentrates investment and population in dominant centres while peripheries remain under-resourced. Fourth, the sustainable and smart development paradigm (Nguyen et al., 2017) offers a normative horizon against which current governance deficits can be assessed.

Building on these foundations, the Triple Integration Model (Figure 1) posits that urban transformation in Setif is best understood as the product of three interlocking feedback loops: a Demography-Economy loop, in which a youthful population (30.2% aged 15–34) generates labor supply and consumer demand that stimulate local

investment; an Economy-Space loop, in which industrial and commercial expansion drives land consumption and infrastructure development; and a Space-Demography loop, in which new housing poles and transport corridors attract further in-migration and reinforce population growth (Kharchi, 2023; Kharchi & Miossec, 2024; Zhao, 2025). These loops are not merely theoretical constructs: each will be substantiated empirically in the sections that follow.

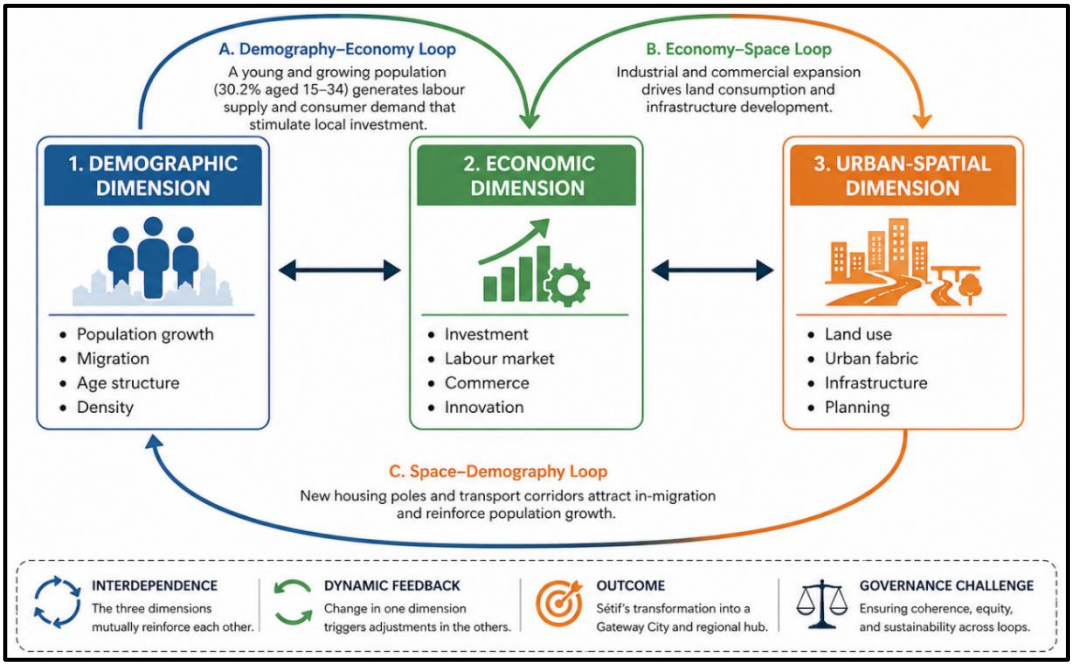

Figure 1: Triple Integration Model of Urban Transformation: Three interlocking loops driving Setif's urban transformation (2000-2025)
Realised by: The authors, 2026.

3. Geographical and Demographic Framework

3.1 Location and Natural Constraints

Setif municipality (36°11' N, 5°25' E) is the administrative capital of Setif Province, located approximately 300 km south-east of Algiers at an elevation ranging between 946 and 1,246 metres above sea level on Algeria's High Plateaus (Figure 2).

Its geostrategic position — at the intersection of the East-West Motorway A2, National Roads RN 5 (east-west), 9, 28, 75 and 77 (north-south), and the East-West Railway — has historically made it a transit hub for goods and people between the northern coastal ports (Bejaia, Jijel) and the interior (Figure 3). This centrality was amplified by the upgrading of the 8 Mai 1945 Airport to international status, cementing Setif's role as a multimodal logistics node (Melal et al., 2023; Kharchi, 2025b).

The city's topography is generally favourable to urban expansion. GIS-based analysis of digital elevation models (data: OpenTopography, 2026) reveals that the central and eastern sectors are characterised by gentle slopes (0–7%), while steep gradients (15–30%) are confined to the northern fringe. This flat terrain, combined with a semi-continental climate (annual precipitation 386–897 mm; mean temperature 13.6–16.2° Cover 2000–2025), presented no structural barrier to horizontal urban expansion (Figure 4) — thus refuting the hypothesis, occasionally advanced in earlier literature, that topographic constraints were responsible for Setif's compactness. The real constraints, as this analysis demonstrates, were institutional and organisational rather than physical.

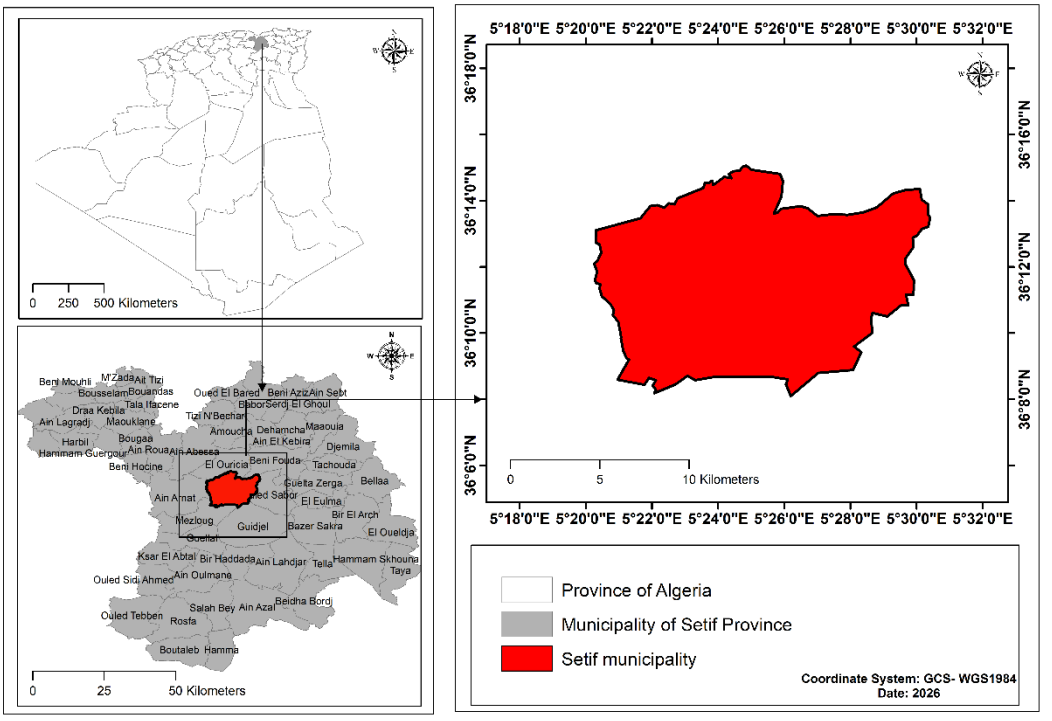

Figure 2: Geographical and astronomical location of Setif municipality.
Source of data: Humanitarian Data Exchange (HDX), 2026
Realised by: The authors, 2026.

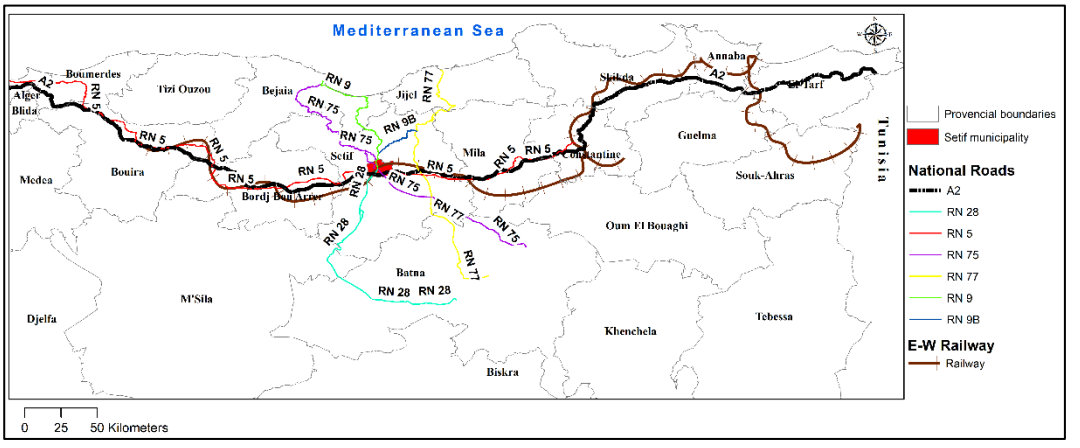

Figure 3: National transportation network crossing Setif municipality.
Source of data: Humanitarian Data Exchange (HDX), 2026
Realised by: The authors, 2026.

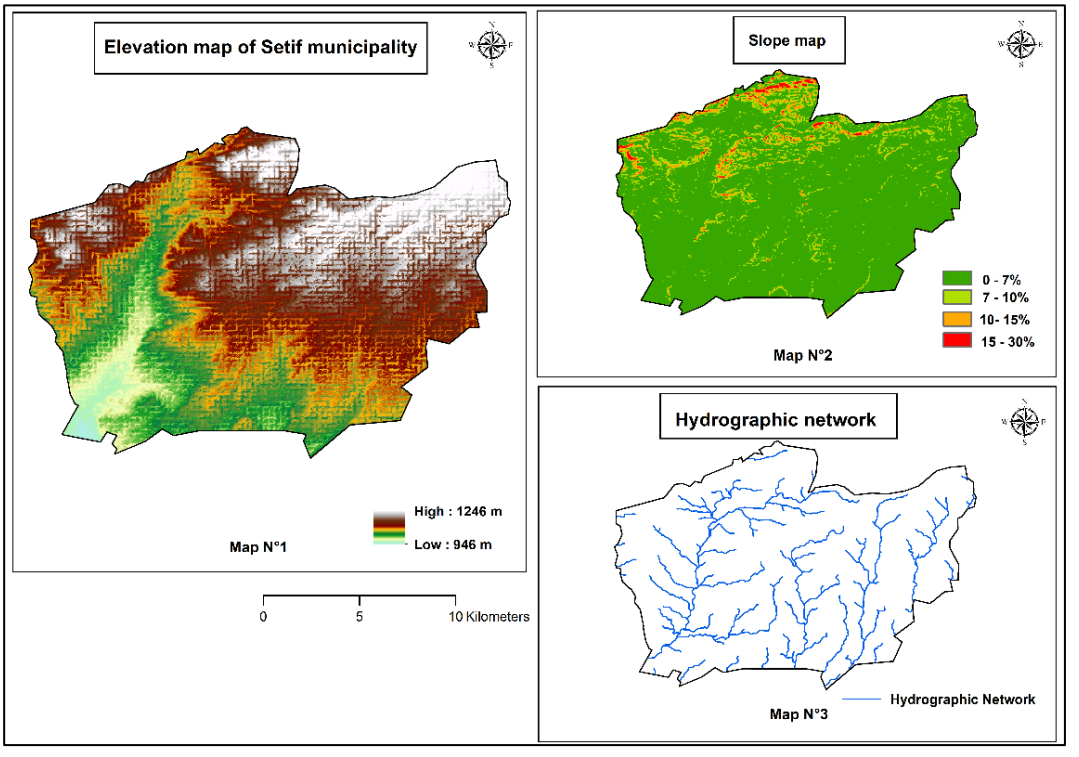

Figure 4. Elevations, slopes and hydrographic network – Setif municipality
Source of data: OpenTopography, 2026
Realised by: The authors, 2026.

3.2 Demographic Dynamics

Setif's population has grown continuously from 239,190 in 1998 to 421,500 in 2025, an increase of 76.2% over 26 years (Table 1). The growth trajectory was not linear (Tajine, 2025): the period 2008–2015 recorded the highest annual rate (3.41%), corresponding to the peak of Algeria's post-2001 economic recovery programme; the rate subsequently decelerated to 1.40% in 2020–2025, suggesting demographic stabilisation without territorial saturation.

Two drivers underpin this growth. Natural increase — where births consistently exceeded deaths by a ratio of approximately 6:1 throughout the period — constitutes the primary motor. Internal rural-to-urban migration constitutes the secondary driver, accounting for the reversal of the urban-rural population ratio from rural-dominant in 2008 to overwhelmingly urban by 2025. External migration played a marginal and fluctuating role (DPAT and DPSB of Setif, statistics from 1998 to 2025).

The age structure further illuminates the city's urban dynamics: 30.2% of the 2025 population falls in the 15–34 cohort (Ibid.), the most economically active and residentially mobile group. This demographic dividend constitutes both an asset — a large labor force and consumer base — and a planning challenge, since it generates sustained demand for housing, higher education, and employment that the public sector has struggled to meet in spatially coherent ways.

Table 1

Population growth in Setif municipality (1998–2025)

Period	Population Range	Annual Growth Rate	Key Driver
1998–2008	239,190 → 288,460	2.06%	Natural increase + early rural migration
2008–2015	288,460 → 347,510	3.41%	Recovery programmes & housing boom
2015–2020	347,510 → 393,970	2.23%	Infrastructure-led polarisation
2020–2025	393,970 → 421,500	1.40%	Demographic slowdown, continued sprawl

Source of data: DPAT and DPSB of Setif (statistics from 1998 to 2025); compiled by the authors, 2026.

4. Urban Expansion, Morphological Change, and Spatial Governance

4.1 Three Phases of Territorial Growth

GIS-based cartographic analysis of satellite imagery (data: Spatial Thoughts & Earth Engine Data Catalog, processed with ArcGIS, 2026) permits the identification of three distinct phases in Setif's post-independence territorial expansion.

Phase I (pre-2000): Transition and Intensification. The colonial city, established as a military post in 1847 within a regular Haussmannian grid, covered just 283 hectares. The post-independence period saw successive waves of expansion: informal peri-urban clustering (1962–1970), mass social housing estates (ZHUN — New Urban Housing Zones — programme, 1970–1990), and self-build residential subdivisions (1980–2000). By 2000, the built-up area reached 2,760 hectares. Crucially, the 1990 urban planning law (Law 90-29), which introduced the PDAU (Master Plan for Development and Urban Planning) and POS (Land Use Plan) instruments, arrived too late to contain the informal expansion already under way, illustrating the persistent tendency for spatial practice to precede regulatory frameworks in rapidly urbanising Algerian cities (Abu Qarin, 2020).

Phase II (2000–2010): Urban Explosion. The restoration of political stability and the boom in hydrocarbon revenues after 2001 triggered a qualitative leap. An additional budget of 15 billion Algerian dinars was allocated to urban infrastructure, and 45,887 housing units were delivered under the Logement Social Participatif (LSP) programme across 13 locations. The built-up area surpassed 3,000 hectares by 2008. Morphologically, expansion followed the main traffic arteries, generating a 'radial-leap' pattern that integrated formerly discrete peripheral settlements (Gaoua, Chouf El Akdad) into the urban fabric while creating new functional sub-centres around the university campus (El Bez) and the Ain Fouara commercial district.

Phase III (2010–2025): Polycentric Growth and Urban Hubs. The 2012 Inter-municipal PDAU formalised a polycentric growth strategy, designating five peripheral growth poles (including Tinar in Ouled Sabor municipality, 1,014 ha; and Chouf El Akdad, 350 ha) to absorb housing pressure and redistribute population. Over 75,365 housing units were delivered under multiple programmes (AADL, LPA, LSP). The East-West Motorway — traversing the municipality of Setif (Figure 3) — was completed and the commissioning of the Setif Tramway in 2018 restructured the main urban mobility artery. By 2025, the built-up area exceeded 4,460 hectares.

4.2 Land Consumption and Agricultural Loss

The territorial expansion of Setif imposed severe ecological and economic costs. Table 2 and Figure 5 document the transformation of land-use categories between 2000 and 2025. Urban impervious surfaces grew by 1,700 hectares (+61.5%), while cropland shrank by 1,787 hectares (–13.6%). Setif's fertile black soils (the so-called

'terres noires') — long valued for cereal and legume production — are effectively irreversible once sealed under concrete. This raises acute questions about the adequacy of Algeria's urban-agricultural land boundary regulations and whether the existing legal framework (Law 90-25 on land use, the PDAU system) has sufficient enforcement mechanisms to protect strategic agricultural reserves.

Table 2
Land-use change in Setif municipality (2000–2025), hectares

Land-use Category	2000 (ha)	2010 (ha)	2025 (ha)	Change 2000–2025
Impervious surfaces (urban)	2,763.79	3,770.64	4,464.54	+1,700.75
Cropland	13,112.19	12,075.12	11,325.06	–1,787.13
Forest & shrubland	352.17	374.67	440.01	+87.84

Source of data: Spatial Thoughts global land cover data & Earth Engine Data Catalog; compiled by the authors, 2026.

The contrast with forest and shrubland — which grew by 87.84 ha over the same period, partly as a result of rural depopulation and partly due to afforestation campaigns — highlights the selective nature of environmental governance: tree-planting programmes are visibly successful, while farmland protection remains structurally weak. This asymmetry reflects a broader issue in Algerian urban law: environmental provisions tend to be aspirational whereas land-use conversion remains driven by housing demand and investment logic.

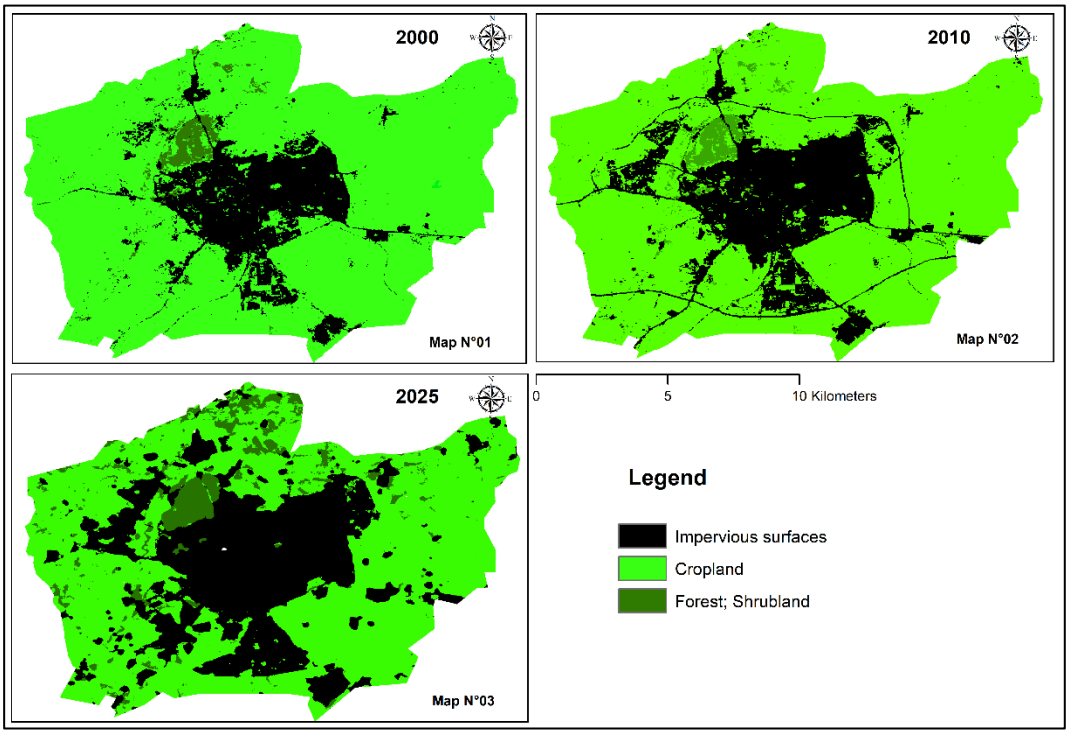

Figure 5. Land-use change in Setif municipality (2000–2025)
Source of data: Spatial Thoughts global land cover data & Earth Engine Data Catalog; compiled by the authors
Realised by: The authors, 2026.

4.3 Morphological and Aesthetic Incoherence

Beyond the quantitative dimensions of land consumption, Setif's transformation exhibits a qualitative dimension of morphological fragmentation. A comparative analysis of Google Earth imagery (2000 vs. 2025) reveals the progressive dissolution of the colonial orthogonal grid — with its consistent red-tiled rooflines and harmonious street frontages — under a wave of flat-roofed concrete construction characterised by exposed red brickwork, closed-off balconies, and inconsistent facade finishes. The urban periphery, dominated by large housing estates delivered under LSP and AADL schemes, exhibits what Kabisch (2019) terms 'functional urbanisation without urban quality': high occupancy rates, poor public space endowment, and inadequate green infrastructure.

This morphological degradation has identifiable legal dimensions. Law 08-15 on building compliance requires facade finishing as a precondition for the certificate of conformity, yet non-enforcement is pervasive. International urban conservation frameworks such as the 1964 Venice Charter and France's Malraux Law (1962), which Setif's colonial heritage would formally justify invoking, have not been transposed

into Algerian planning law in any enforceable form (Stoica, 2021). The consequence is a city that, while internationally legible as a regional metropolis, has yet to develop the aesthetic governance instruments — facade regulations, heritage protection orders, street-furniture standards — necessary to produce a coherent public realm.

Planning literature increasingly emphasises the '3-30-300' green infrastructure rule as a minimum ecological standard (Konijnendijk, 2022; Romero-Muñoz et al., 2024): every resident should see three trees from their window; 30% tree canopy coverage per neighbourhood; a green space within 300 metres of every dwelling. Current GIS mapping of Setif indicates that large peripheral sectors fail all three criteria — for instance, Table 2 and Figure 5 indicate a Forest and shrubland coverage rate between 2.2 and 2.8% over the period from 2000 to 2025 —, a deficit that will deepen with continued horizontal expansion unless vertical densification and green retrofitting are embedded in revised planning instruments.

5. Economic Transition and Regional Repositioning

5.1 Structural Shift in the Economic Base

Setif's economic transformation over the study period represents one of the most dramatic restructurings of any Algerian provincial capital. Table 3 summarises the evolution across five sectors. The employed population grew by 137% between 2000 and 2025 (from 46,975 to 111,562 workers), reflecting both demographic pressure and genuine economic diversification.

The industrial sector was the primary engine of this transformation. Starting from a modest textile base employing 7,452 workers in a single 283-hectare zone in 2000, it expanded to encompass two industrial zones (425.18 ha; 212 firms; 340 SMEs), and an estimated labor force of over 17,000 by 2010. This growth was catalysed by nationally directed investment under the National Agencies ANADE, ANDI, and AAPI frameworks, which channelled preferential loans and land allocation to industrial applicants in designated zones. The sector's spatial footprint — clustered along the RN5 corridor and on the urban periphery — reinforced the city's role as a logistics hub and contributed to its inter-regional centrality index of 0.42 (Kharchi, 2025b).

Commerce underwent an equally radical transformation. The sector expanded from 5,064 retailers and 1,114 wholesalers in 2000 to 15,255 retailers, 2,169 wholesalers, and 942 import operators by 2025, with a cumulative commercial registration count of 33,649. The emergence of the Setif–El Eulma informal trade corridor — characterised by a 127% increase in El Eulma's night-time light intensity and a 34% increase in Setif's, as measured by remote sensing (Ibid.) — underscores the scale of the parallel economy, estimated at 33–45% of regional GDP. This informal dimension poses specific challenges for commercial law and tax administration: substantial trading activity escapes formal registration, VAT compliance, and urban planning

control, even as its physical infrastructure (warehouses, wholesale markets, logistics parks) visibly shapes the city's spatial structure.

Table 3
Evolution of Economic Sectors in Setif (2000–2025)

Sector	2000	2010	2025	Trajectory
Industry	7,452 workers; 1 ind. zone (283 ha)	17,248 workers; integration of crafts	2 zones (425 ha); 212 firms + 340 SMEs	Dominant national investment hub
Commerce	5,064 retailers; 1,114 wholesalers	11,721 retailers; 10 markets, 40 malls	15,255 retailers; 2,169 wholesalers	Central economic identity of city
Services	31,446 (general); 19 hotels	9,401; 25 hotels; tramway study	46 hotels; 140 agencies; 723 urban buses	Logistics city trajectory
Construction	7,594 workers; ZHUN 171 ha	6,839; 99.86% electricity coverage	Cont. lead; 99.99% energy	Urban expansion engine
Agriculture	483 workers; 8,428 ha arable	1,681; encroachment noted	286 ha irrigated	Structural marginalisation

Source of data: DPAT and DPSB of Setif (statistics from 2000 to 2025); compiled by the authors, 2026.

The services sector evolved: the number of hotel establishments grew from 19 (2000) to 46 (2025); the number of travel agencies multiplied sevenfold to 140; and the fibre-optic subscription rate reached 21.58% (DPSB of Setif, 2025). The tramway — a 2018 investment with lasting spatial consequences — restructured intra-urban mobility patterns and stimulated commercial activity along its corridor, consistent with international evidence on transit-oriented development (Djouani et al., 2022).

5.2 The Gateway City Thesis and Regional Dominance

The convergence of industrial growth, commercial expansion, service sector deepening, and multimodal infrastructure investment has propelled Setif into the role of a 'Gateway City' — a concept introduced by Burghardt (1971) to describe cities that function as entryways into hinterland regions, mediating flows of goods, capital, and people between the coastal core and the interior. Diafat et al. (2017) were among

the first to apply this framework explicitly to Setif, and the present analysis confirms and deepens their diagnosis.

The city now represents approximately 36% of the urban population of the eastern High Plateaus region and is ranked second nationally — after Algiers — in population density and economic activity at the provincial level (Kraria et al., 2022). It hosts two major university campuses (El Bez and El Hidhab) attracting students from across the country, a Cancer Control Centre and Mother-and-Child Complex drawing patients from multiple provinces, and industrial and logistics zones supplying enterprises throughout north-eastern Algeria. This concentration of education, healthcare, manufacturing, and trade in a single urban node produces the classic polarisation dynamic described by Myrdal: Setif's gravitational pull intensifies with each new investment, reinforcing spatial inequality between the city and its hinterland.

The interaction between formal and informal economic geography is particularly salient in the Setif–El Eulma corridor. El Eulma's specialisation in the re-export of consumer goods through the 'Dubai market' network generates fiscal and commercial spillovers into Setif's formal economy — through transport, warehousing, banking, and retail services — while simultaneously challenging the regulatory capacity of Algerian commercial law. Investment in the formal productive base and in institutional governance of the informal sector are thus complementary rather than alternative strategies for the region's development.

6. Governance Dimensions and Policy Implications

6.1 The Planning Gap: Between Legal Framework and Spatial Reality

One of the most significant findings of this study is the persistent 'planning gap' between the formal legal instruments governing urban development in Algeria and the spatial reality on the ground. The PDAU and POS system, introduced by Law 90-29, was theoretically comprehensive: it required master plans for all municipalities above a threshold size, integrated regional planning through SNAT (National Scheme for Territorial Planning) outlines, and mandated the protection of agricultural land. In practice, however, three structural weaknesses have consistently undermined these instruments in Setif.

First, plan revision has systematically lagged behind urban growth, leaving planning authorities in the position of retroactively legitimising fait accompli rather than prospectively guiding development. The late revision of the PDAU is a symptomatic instance of a broader national pattern. Second, inter-institutional coordination between municipal authorities, provincial planning directorates, and national investment agencies has been characterised by fragmented mandates, delayed project execution, and insufficient monitoring capacity. Third, citizen participation — mandated in principle by national planning law — has been structurally marginalised:

affected communities were not systematically consulted in the designation of peripheral growth poles or the relocation of housing programmes.

These governance deficits have spatial consequences of real economic magnitude. The conversion of 1,790 hectares of agricultural land to urban uses represents a permanent loss of productive capital. Traffic congestion resulting from planning that consistently prioritised building delivery over road network extension imposes daily economic costs on firms and workers. And the proliferation of unfinished facades, closed balconies, and degraded public spaces — visible markers of low civic and aesthetic governance — depresses property values, reduces urban attractiveness, and erodes the social capital needed to maintain public goods over time (Park et al., 1925; Mumford, 1961).

6.2 Investment Law and Land Governance

The Setif case raises important questions for the design of investment law and land governance in rapidly urbanising contexts. Algeria's investment promotion regime — channelling public funds into industrial zones and housing programmes — was extraordinarily effective at generating built-up area and employment, but poorly designed to internalise spatial externalities. Investment decisions were evaluated primarily on sectoral criteria (jobs created, capital invested) without adequate weight being given to land consumption, infrastructure costs, or urban coherence. The result was a pattern of investments that were individually rational but collectively suboptimal: mass housing poles that generated car-dependent, poorly serviced peripheral neighbourhoods; industrial zones that consumed fertile land without adequate buffer planning; and commercial corridors that grew outside the reach of formal spatial regulation.

Reform in three areas appears particularly critical. First, spatial conditionality in investment approval processes — requiring that major projects demonstrate compliance with master plans and agricultural land protection rules before receiving public financing — would align investment law with planning objectives. Second, the introduction of enforceable urban aesthetic codes, modelled on existing international precedents (the French Code de l'Urbanisme's facade compliance provisions; Barcelona's Eixample block standards), would address the morphological incoherence documented above. Third, the formalisation of the Setif–El Eulma commercial corridor through negotiated investment zones that acknowledge the informal economy's spatial logic while subjecting it to progressive tax compliance would generate fiscal revenues that could finance public space improvement and green infrastructure.

6.3 Digital management and Smart Pathways

Remote sensing and GIS technologies are already employed by researchers and planners for ex-post analysis (as this study demonstrates) (Yu et al., 2023), but they have not been institutionalised as real-time management tools. The adoption of a 'digital urban observatory' — a continuously updated GIS platform integrating satellite imagery, building permit data, land-use change monitoring, and infrastructure performance metrics — would provide planning authorities with the situational awareness needed to detect and respond to unauthorised construction, agricultural encroachment, and infrastructure gaps in near-real time.

More broadly, Setif's trajectory illustrates that the smart city paradigm (Nguyen et al., 2017) cannot be reduced to technology deployment: it requires a governance architecture capable of linking digital data to regulatory action (Kharchi, 2025c). Without enforcement capacity — including the political will to penalise aesthetic violations, impose compliance deadlines on facade finishing, and revoke permits for non-conforming constructions — digital tools will remain informational rather than transformative. The investment in governance capacity — multi-disciplinary planning teams, participatory planning processes, and a legally empowered urban observatory — is thus at least as important as the investment in digital infrastructure.

7. Conclusion

This article has traced the urban transformation of Setif in the first quarter of the twenty-first century. The research situates this spatial metamorphosis within the interplay of demographic momentum, state-led investment policy, and evolving regional economic functions. The Triple Integration Model provides an analytical framework that captures the mutual reinforcement of demographic, economic, and spatial dynamics in ways that linear sector-by-sector analyses cannot.

The central empirical finding is one of functional success coexisting with structural spatial imbalance. Setif has become, unambiguously, the dominant city of Algeria's High Plateaus: it concentrates 36% of the region's urban population, hosts national-level educational and medical infrastructure, and commands multimodal transport networks that give it a gateway function between the coast and the interior. These achievements reflect deliberate and largely effective investment policy. Yet the same process that produced this metropolitan success also generated 1,790 hectares of irreversible agricultural land loss, morphological fragmentation, aesthetic degradation, and governance gaps that undermine long-term urban sustainability.

The policy implications are not unique to Algeria. Any rapidly urbanising city in the Global South that relies on state-directed investment programmes to absorb demographic pressure will face similar tensions between housing quantity and urban quality, between economic growth and spatial coherence, between planning ambition

and enforcement capacity. The Setif case suggests that these tensions are not technologically solvable — they require governance reform: legal frameworks that internalise spatial externalities into investment decisions; planning institutions with multi-disciplinary capacity and democratic legitimacy; and regulatory instruments that treat aesthetic quality, agricultural land protection, and green infrastructure not as luxuries but as prerequisites for sustainable metropolitan development.

Future research should extend this analysis in two directions. First, a comparative study of Setif with other High Plateau cities (Bordj Bou Arreridj, M'Sila, Batna…) would permit assessment of whether the dynamics identified here are specific to Setif's gateway location or are systemic features of Algeria's urbanisation model. Second, a longitudinal tracking of the polycentric growth poles designated in the 2012 Inter-municipal PDAU — using annual satellite imagery and population register data — would permit evaluation of whether the spatial governance reforms advocated above are beginning to take effect.

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