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INTEGRATING CONSOLIDATED INFORMAL SETTLEMENTS: PATHWAYS TO SOCIO-ENVIRONMENTAL JUSTICE AND EQUITABLE URBAN FUTURES IN CONSTANTINE, ALGERIA

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Abstract:
This study addresses the critical challenge of socio-spatial fragmentation driven by Consolidated Informal Settlements (CIS) in Constantine, Algeria. It investigates their multi-scalar impacts on resident well-being, critically evaluates the limitations of prevailing legal frameworks, and proposes a transferable model for equitable integration. This study examines how CIS in Constantine, Algeria, contribute to socio-spatial inequality and affect residents' daily lives. Using a mixed-methods approach: surveys with 660 residents (selected from 4,056 buildings using stratified random sampling), GIS mapping of service access, a review of Algerian urban laws, and comparisons with global case studies, the research shows that CIS residents face systemic exclusion. This is evidenced by severe infrastructure gaps (with 68% lower basic service access than in planned areas) and measurable psychosocial distress. In response, the study proposes an evidence-based, four-pillar approach for integrating CIS into the city, including tenure security through rights recognition, community-coordinated infrastructure upgrading, embedded psychosocial support systems, and adaptive municipal codes that enable incremental formalization. This framework supports the UN-Habitat "Right to the City" principle and helps meet Sustainable Development Goal 11 ", inclusive, safe cities". As the first evidence-based CIS integration model developed for North Africa, it links spatial marginalization directly to well-being using local data. It also shifts focus from top-down government control to community participation, offering useful policy lessons from a post-conflict context often overlooked in global urban debates.

Keywords: Consolidated informal settlements, Urban marginalization, Socio-spatial inequality, Equitable development, Right to the City, SDG 11, Participatory governance.

Introduction:

The rapid proliferation of consolidated informal settlements (CIS) in cities across the Global South represents a pressing urban challenge, reflecting complex socio-economic and governance deficits. Unlike transient forms of informal housing, CIS are entrenched, self-built communities that have developed over decades, often absent of legal recognition or formal planning compliance (Roy, 2005). In Constantine, Algeria, these settlements are not an anomaly; they comprise over 23% of the metropolitan footprint (Author's GIS analysis, 2023), creating a stark and visible dichotomy within the urban fabric. Formally planned neighborhoods with full amenities stand in stark contrast to CIS systematically deprived of essential services such as water, sanitation, security infrastructure, and adequate public spaces. This pervasive spatial inequality manifests as deep-rooted systemic urban marginalization, directly impacting

residents' psychosocial well-being, economic mobility, and overall quality of life—a critical dimension largely underexplored in Maghreb contexts (Nuissl & Heinrichs, 2013).

This study contends that CIS are more than mere housing deficits; they are complex manifestations of socio-spatial fragmentation that necessitate a shift from punitive, top-down interventions towards integrated, human-centered approaches. Despite their prevalence, there is a profound scarcity of empirical, granular data on the multi-dimensional impacts of CIS in post-conflict Algerian cities, a critical oversight given their unique socio-political dynamics and rapid urbanization. Furthermore, existing policy often defaults to demolition and relocation, overlooking the potential for equitable urban integration that could transform these areas into vibrant, productive parts of the city. Critically, much urban marginality research has neglected the psychosocial and broader behavioral outcomes of urban exclusion (Wacquant, 2008), leaving a significant gap in our understanding of the human cost of living in conditions of insecurity and deprivation.

1.1.Bridging Critical Gaps for Equitable Urban Futures

This research addresses three critical gaps by:

1. Providing empirical data on the multi-faceted impacts of CIS on resident well-being, service access, and legal frameworks in Constantine, a case study that exemplifies North African urban challenges.
2. Evaluating the limitations of existing legal and policy frameworks in Algeria, particularly their failure to foster genuine community participation and integrate CIS into the broader urban planning agenda.
3. Proposing an evidence-based framework for CIS integration that advances socio-environmental justice and aligns with international principles such as UN-Habitat's "Right to the City" and Sustainable Development Goal 11 (SDG 11), offering a transferable model for equitable urban development.

To reach the study objectives, a mixed-methods approach was adopted. Our methodology included extensive field surveys of 660 CIS residents (from a random stratified sample representing 1/5th of 4,056 CIS buildings), advanced spatial analysis using GIS mapping to quantify service accessibility deficits, a critical policy review of Algerian urban legislation, and a comparative literature analysis of global CIS integration models.

We hypothesize that the uncontrolled growth and lack of formal integration of CIS in Constantine profoundly impact residents' well-being. This manifests as social marginalization through exclusion from essential services and opportunities, psychological distress due to inadequate basic amenities and insecurity, and environmental degradation stemming from poor sanitation and waste management practices. Ultimately, this study argues that legally recognizing and strategically integrating CIS as dynamic sites of urban potential, rather than mere pathologies, is indispensable for achieving inclusive, resilient, and sustainable urban development. By challenging conventional top-down policy approaches and foregrounding robust empirical evidence from a context often overlooked in global urban scholarship, this research offers a critical pathway towards achieving socio-environmental justice and equitable urban futures in rapidly urbanizing regions.

2. Defining Consolidated Informal Settlements

Studying the socio-environmental and behavioral impacts of CIS necessitates a precise conceptualization of this pervasive global phenomenon. Approximately one-third of the world's urban population resides in areas developed outside formal planning frameworks (UN-Habitat, 2015; Clerc et al., 2017). This proportion is significantly higher in developing regions; for instance, 61% of urban residents in Africa inhabit such settlements, often characterized by inadequate basic services, precarious security, and high population densities (Varnai & Moles, 2018, p. 04).

Terminology varies widely, encompassing labels like "spontaneous," "non-integrated," "illegal," "automatic," and "non-compliant" settlements (UN-Habitat, 2003; Roy, 2005). Despite this heterogeneity, the core concept refers to dwellings established unlawfully**,** often on land with ambiguous or contested ownership, without adherence to legal building codes, planning regulations, or formal service provision (AlSayyad, 2004). These areas typically emerge and expand organically, frequently adjacent to or within existing urban centers.

For analytical clarity, this study distinguishes between two primary forms of informal housing based on physical consolidation and socio-economic integration (Gilbert, 2007; Dovey & King, 2012):

2.1. Precarious Informal Housing:

- Characterized by unauthorized land occupation**,** often on urban peripheries or hazardous sites.
- Constructed primarily from temporary or discarded materials (e.g., wood, tin, plastic sheeting).
- Profoundly lacks essential services (water, sanitation, electricity, waste collection) and social infrastructure (healthcare, schools).
- Inhabited predominantly by the most economically vulnerable, including recent rural-to-urban migrants.
- Features high congestion and overcrowding.
- Land tenure is typically **ambiguous or contested**, frequently involving state-owned land.
  (Al-Qaseer, 1993, p. 69; Bouroubi Rajah, p. 96; Bouguebs, 2016, pp. 16-17; UN-Habitat, 2015).

2.2.Consolidated Informal Settlements (CIS):

- Represent a more advanced, permanent stage of urban informality (sometimes termed "solid informal housing" locally).
- Constructed with more durable materials (e.g., concrete blocks, bricks, cement) and often featuring corrugated iron or tile roofs.
- Exhibit significantly superior structural quality and permanence compared to precarious settlements.
- Inhabited by populations who, while often still marginalized, have typically achieved a degree of socio-economic stability and long-term residency within the urban fabric.
- May have developed rudimentary self-organized services or achieved partial, albeit often irregular, access to formal utilities over time.
- Reflect a process of incremental consolidation and investment by residents. (Bouguebs, 2016, p. 102; Gilbert, 2007; Dovey & King, 2012; Ababsa, 2011).

The neighborhoods examined in Constantine are specifically CIS, reflecting their robust construction, long-term presence, and consolidated nature. By focusing on CIS, this research aims to understand their unique socio-environmental dynamics and explore potential pathways towards their equitable integration into the formal city, moving beyond paradigms focused solely on eradication (Durst & Wegmann, 2017).

3. Methodology: Case Study Selection and Contextualization in Constantine

Selecting representative case studies is paramount for robustly analyzing the socio-environmental and behavioral impacts of Consolidated Informal Settlements (CIS) in Constantine. Our selection was systematically guided by two key criteria: historical period of emergence and diverse spatial distribution across the urban fabric. This strategy ensured a representative sample capturing the complexity and temporal evolution of urban informality within the city.

3.1. Historical Stratification of Case Studies

Five (05) CIS neighborhoods were purposively selected to represent distinct epochs of informal urbanization in Constantine. This historical stratification enables examination of how broader socio-political, economic, and planning shifts have shaped the genesis, development, and persistent characteristics of these settlements (Roy, 2005).

- **Period 1: Colonial Genesis (Pre-1962):** Represented by Emir Abdelkader ("Faubourg") and Pine (Chali) neighborhoods. As Constantine's oldest CIS, their origins trace to the French colonial era. Their enduring informal character highlights the legacy of colonial segregation and exclusion despite post-independence planning efforts.
- **Period 2: Post-Independence Urbanization (1970-1990):** Represented by Ben Chergui and Sissawi. These emerged during rapid rural-to-urban migration and population growth following independence, characterized by insufficient formal housing provision and unplanned expansion (Hadjri et al., 2007).
- **Period 3: Contemporary Informality (1990-2014):** Represented by Jasmine (Ain El Bey). This reflects recent drivers like evolving housing demands, economic liberalization, and challenges in integrating peripheral developments (Davis, 2006; Roy, 2011).

3.2. Spatial Characteristics and Distribution of Selected Settlements

The five CIS neighborhoods form integral parts of Constantine's urban fabric. Their strategic spatial distribution provides rich context for analyzing interactions between urban morphology, infrastructure, and socio-environmental impacts, enhancing within-city generalizability (Whitehand & Gu, 2006; Roy & AlSayyad, 2004).

- **Emir Abdelkader ("Faubourg"):** North/northeast of the ancient rock. Proximity to the historic core presents unique integration challenges.
- **Pine (Chali):** Central, southeast of the ancient rock, adjacent to National Road No. 03. Like Emir Abdelkader, it demonstrates persistent informality near the historic core.
- **Ben Chergui:** Far northwest, near the urban boundary, adjacent to National Road No. 29.
- **Sissawi:** Far southeast, near the urban boundary, adjacent to National Road No. 03. Ben Chergui and Sissawi form a paired sample of peripheral settlements on opposing axes, highlighting challenges of edge management (Simone, 2004).
- **Jasmine (Ain El Bey):** Southern sector, adjacent to National Road No. 79, within Constantine's rapidly developing Ain El Bey area. Its location underscores informality within contemporary development axes.

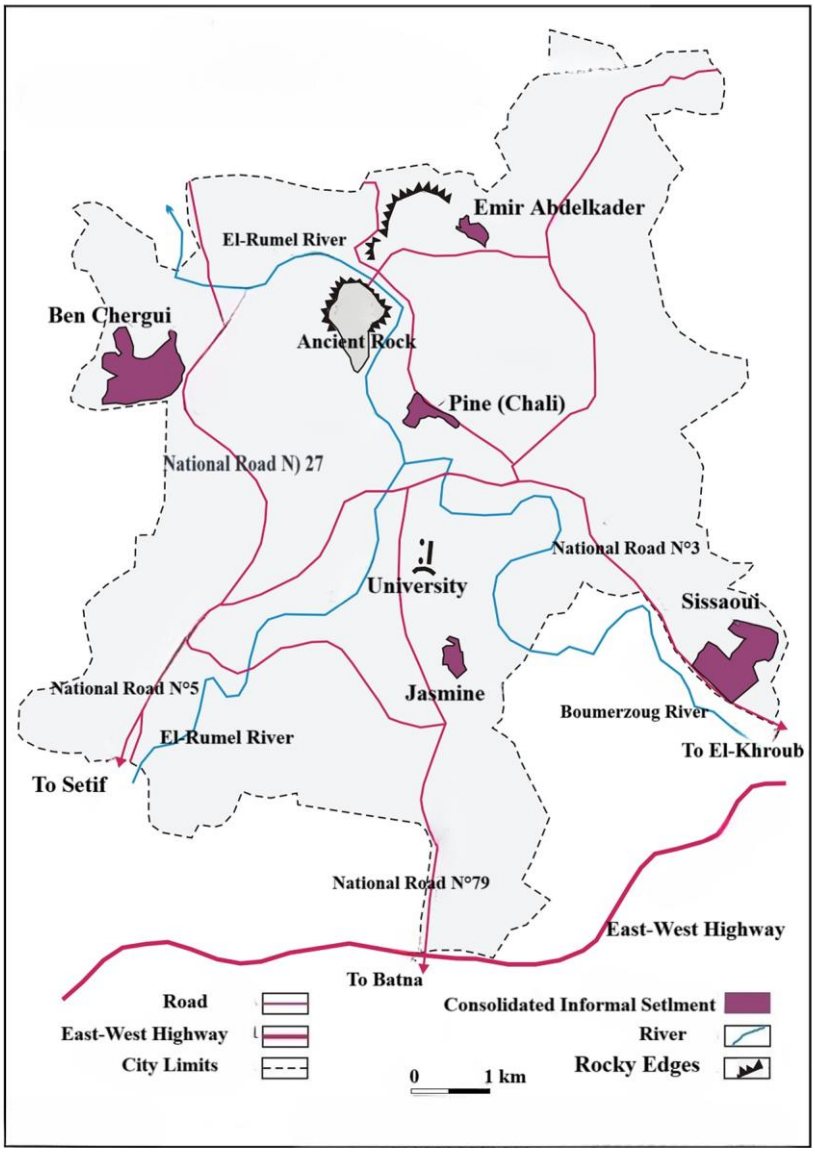

Figure 2. The Spatial Distribution of the CIS Neighbourhoods in the City of Constantine, Algeria *(Note: Map by Bouguebs, 2025)*

Collectively, these case studies capture the spatio-temporal continuum of CIS in Constantine—from historic central settlements to recent peripheral formations. A common morphological feature is their alignment with major transport corridors, highlighting infrastructure's role in shaping informal growth (Dovey & King, 2011). This historically stratified and spatially diverse sample provides a robust foundation for analyzing CIS impacts on Constantine's development and residents.

4. Socio-Psychological Impacts of Consolidated Informal Settlements (CIS)

The well-being of citizens and the intergenerational transmission of cultural values are essential to societal stability (Salatnia, 2014, p. 199). In Constantine's CIS, however, chronic deficiencies in infrastructure, housing, and services have led to a range of socio-psychological challenges. Based on extensive resident surveys, our study identifies four interconnected phenomena—

theft, violence, general crime, and drug-related activity—as disproportionately prevalent in these areas, varying by neighborhood due to spatial and historical factors.

Globally, the relationship between informal urban development and social vulnerability is well documented. Davis (2006) and Roy (2005) link limited infrastructure and economic marginalization in informal settlements to increased criminality and social tension. UN-Habitat (2015) similarly reports consistent correlations between poor housing and higher crime, particularly where security infrastructure is lacking.

4.1 Theft and Spatial Disparities in Property Crime

Theft, defined in Algerian law as the unauthorized appropriation of property (Ashour, 2008, p. 226), emerged as the most frequently reported crime. Motivated by economic hardship and lack of opportunity, theft targets both public and private assets, including residences, vehicles, and small businesses.

Our data show theft prevalence rates between 33% and 47.5% across CIS neighborhoods, with substantial variation:

Table 1. Theft Prevalence by Neighborhood and Key Contributing Factors

Neighborhood	***Theft Rate (%)***	***Key Factors***
Jasmine	47.5	a. Peripheral location; no early security infrastructure
Ben Chergui / Sissawi	41–42	b. Delayed police presence; limited informal social control
Emir Abdelkader	35	c. Central location; strong social cohesion
Pine	33	d. Proximity to city center; established surveillance networks

These patterns support the "centrality-security nexus": neighborhoods closer to the city center tend to experience lower theft rates due to faster emergency response, stronger police presence, and active informal surveillance ("eyes on the street") (Jacobs, 1961; Newman, 1972). In contrast, peripheral areas face chronic neglect, creating security vacuums that foster criminal activity (Herbert & Brown, 2006; Wacquant, 2008). In Jasmine, theft appears to be externally driven, with offenders often coming from outside the neighborhood to exploit its weak security infrastructure (Felson & Clarke, 1998). This suggests that crime is not solely a product of local deprivation but also shaped by broader spatial opportunity structures. To prevent the formation of such criminal "hot spots," security infrastructure must therefore be integrated into the early phases of urban development and planning (Sherman et al., 1989).

4.2 Violence as a Structural and Spatial Outcome

Violence, defined as the intentional use of physical force or power resulting in harm (Krug et al., 2002, p. 5), extends beyond interpersonal conflict to reflect structural deprivation and social breakdown. Our survey reveals violence prevalence ranging from 18.5% to 41%, with unexpected spatial trends.

Table 2. Violence Prevalence by Neighborhood and Key Contributing Factors

Neighborhood	***Violence Rate (%)***	***Key Determinants***
Emir Abdelkader	41	High density; overcrowded pathways; public space shortages
Ben Chergui	38	Social fragmentation; delayed security access
Pine	36.5	Traffic congestion; territorial disputes
Sissawi	27	Moderate density; improved spatial organization
Jasmine	18.5	Lower density; newer infrastructure; fewer territorial conflicts

Contrary to theft, violence peaks in centrally located, high-density neighborhoods such as Emir Abdelkader and Pine. Overcrowding, poor circulation, and lack of communal areas intensify tension, creating environments prone to conflict (Jacobs, 1961; Koonings & Kruijt, 2007). In such conditions, informal governance structures and territorial control often replace absent state authority (Auyero, 2007).

This spatial paradox contradicts conventional assumptions that central location automatically reduces social pathology (Wacquant, 2008). Instead, micro-spatial dynamics—such as vertical housing stress, lack of recreational space, and traffic through-flows—play a stronger role in shaping violent behavior than peripheral status or neighborhood age.

4.3 Key Insights and Implications

Table 3 summarizes the structural and spatial factors influencing crime and violence in Constantine's CIS:

Variable	***Effect on Theft***	***Effect on Violence***
Proximity to city center	Decreases theft	Mixed: central areas show high violence due to density
Security infrastructure	Reduces theft and violence	Especially critical in peripheries
Housing density	Moderate effect on theft	Strong predictor of interpersonal violence
Social cohesion	Reduces both	Enables informal control mechanisms
Settlement age	Older neighborhoods more stable	Less predictive than spatial organization

Table 3: Comparative Analysis of Crime Determinants in CIS

In brief, Constantine's CIS exhibit distinct spatial patterns in the prevalence of theft and violence, shaped by infrastructure, density, and social cohesion. While centrality may mitigate theft, it does not guarantee protection from violence. These findings underscore the need for multi-scalar urban strategies that prioritize both security infrastructure and community-based interventions to promote social stability. Integrating such strategies early in urban planning can significantly reduce the socio-psychological burdens facing residents of informal settlements.

3.4. Crime: Morphology and Governance Gaps

The spatial distribution of crime, encompassing property offences, public order infractions, and organised illicit activities, shows a prevalence ranging from 8% to 18.6% across the studied neighbourhoods. While lower than rates of theft or interpersonal violence, these figures are not merely indicators of criminal incidence but symptoms of systemic governance fragmentation. Crime in these contexts operates less as an isolated behavioral phenomenon and more as a spatially embedded outcome of urban marginalization, where the physical form of the city intersects with institutional withdrawal to produce zones of regulatory deficit.Crime – encompassing property offenses, public order violations, and organized illegal activities – shows lower prevalence (8-18.6%**)** than theft or violence but reveals critical governance failures:

Table 4. Spatial Determinants of Crime Hotspots

Neighborhood	**Rate**	**Key Risk Factors**
Emir Abdelkader	18.6%	• Extreme morphological entanglement • Limited security access routes
Ben Chergui	16.5%	• Peripherality + security response delays • Adjacency to high-risk zones
Sissawi	13%	• Service deprivation → resident alienation • "Security deserts" (Herbert & Brown, 2006)

Pine	11%	• Pathway bottlenecks enabling escape
Jasmine	8%	• Externally-sourced crimes

These patterns reveal a non-random geography of insecurity, where crime concentration aligns with areas of morphological complexity and institutional disengagement. The highest rates in Emir Abdelkader and Ben Chergui are not incidental but structurally conditioned, emerging at the confluence of physical inaccessibility and weak state presence.

4.3.1 Structural Drivers of Crime

a. Morphological Entanglement as a Criminogenic Landscape

The unplanned, dense, and often labyrinthine urban fabric in neighborhoods like Emir Abdelkader creates what Newman (1972) terms defensible space for offenders, environments where surveillance is impeded and escape routes are multiply redundant. This spatial opacity directly undermines Jacobs' (1961) principle of "eyes on the street," disrupting natural monitoring and enabling covert criminal activity. The urban form, in this sense, does not merely accommodate crime, it actively facilitates it by design.

b. Service Deprivation and the Erosion of Social Contract

In Sissawi and Pine, the absence of basic infrastructure—water, lighting, waste management—functions as a form of institutional abandonment (Auyero, 2007). This material neglect fosters a sense of alienation among residents, weakening their identification with formal governance structures. As Simone (2004) observes, such voids do not remain empty; they are filled by informal or para-institutional orders that may include illicit networks. The state's physical and symbolic retreat thus creates a vacuum where alternative modes of authority—and illegality—can thrive.

c. Territorial Stigmatization and the Internalization of Deviance

The labeling of certain neighborhoods as "high-risk" or "dangerous" is not a neutral descriptor but a performative act of spatial exclusion (Wacquant, 2008). Repeated institutional neglect reinforces a collective identity of marginality, where residents may come to internalize the stigma as a lived reality. This process transforms governance gaps into self-fulfilling prophecies, wherein the perception of criminality becomes a condition for its reproduction.

3.5. Drug Economies and the Spatial Logic of Illicit Markets

Drug-related activity, ranging from **5% to 13%**, cannot be explained solely through individual pathology or moral failure. Rather, it constitutes a shadow economy embedded within the broader political ecology of urban inequality.

3.5.1. Spatial Patterns and Mechanisms of Operation

The spatial distribution of drug economies across the study neighborhoods reveals not randomness, but structured adaptation to local conditions of inequality, morphology, and institutional absence. Three cases illustrate how geography, history, and governance intersect to sustain illicit markets.

- **Jasmine (13%)**: Despite higher average incomes, Jasmine's peripheral location and limited state oversight create a dual dynamic—local consumption driven by disposable income, and geographic isolation enabling discreet distribution. This supports Bourgois' (2003) argument that drug economies thrive not just in poor areas, but wherever regulatory oversight is weak.
- **Emir Abdelkader (9.5%)**: The presence of drug networks is linked to the former Faj al-Rih slum**,** whose demolition displaced informal activities without eliminating them (Davis, 2006). The area's fragmented morphology sustains these networks through residual spatial and social continuity.

- **Sissawi (8%)**: Lacking consistent state presence, Sissawi exemplifies what Herbert and Brown (2006) term "security shadows", zones where open-air drug markets operate with spatial rationality, under conditions of deliberate institutional neglect**.**

What unites these seemingly distinct cases is a convergence of structural conditions that render certain urban spaces especially fertile for illicit economies.

First, in areas with limited formal employment, drug trafficking becomes a rational survival strategy (Rodgers, 2009), especially for structurally excluded youth. In higher-income areas like Jasmine, markets respond to consumption-driven demand, highlighting how illicit economies serve both supply and demand within unequal urban systems. Second, the physical form of these neighborhoods functions as operational infrastructure. Narrow alleys, informal construction, and mixed-use buildings are not merely passive containers of crime; they actively facilitate concealment, mobility, and transactions (Felson & Clarke, 1998). Urban morphology here is not incidental; it is instrumental. Space is not simply occupied — it is tactically deployed. Third, and perhaps most enduring, is the persistence of institutional voids rooted in historical informality. Proximity to former slums or zones of state abandonment generates what Roy (2005) describes as "governance afterlives", where formal institutions fail to reassert presence even after physical redevelopment. The result is regulatory lag: a temporal disconnect in which the state's capacity to govern trails behind the pace of spatial change. In these gaps, illicit networks entrench themselves not as invaders, but as de facto service providers.

3.5.2 Crime as Spatial Product, Not Spatial Accident

Drug economies in these neighborhoods are neither aberrations nor inevitable outcomes of moral failure. They are spatially produced — engineered by inequality, enabled by morphology, and sustained by institutional retreat. To treat them as mere law enforcement problems is to misunderstand their genesis. What is required is not more policing, but structural urban reform. Policy should pivot toward:

a) Morphological regularization, which is achieved through redesigning built environments to disrupt illicit functionality while preserving community integrity.
b) Infrastructural inclusion by extending services, lighting, transport, and public space to marginalized zones.
c) Reintegration of stigmatized territories by dismantling spatial apartheid by reconnecting these areas to the formal institutional and economic life of the city.

Only through such equitable spatial and institutional interventions can the deep-rooted resilience of illicit systems be meaningfully undone.

4. Pathways to Equitable Integration: A Four-Pillar Model for Consolidated Informal Settlements in Constantine

Consolidated Informal Settlements (CIS) in Algerian cities, particularly Constantine, represent significant urban challenges extending beyond physical disfigurement to deep-seated socio-environmental fragmentation and systemic marginalization. Our findings confirm that these settlements are characterized by critical deficiencies in basic services and infrastructure, and showcase high rates of negative social phenomena, including theft, violence, crime, and drug-related issues. These outcomes are not isolated incidents but strong indicators of the profound economic pressure, social exclusion, and psychological strain experienced by residents, exacerbated by inadequate municipal regulation and security provision.

This section outlines a comprehensive, four-pillar model for the equitable integration of CIS in Constantine**,** designed to mitigate these impacts, foster social justice, and enhance urban resilience. Crucially, the model advocates for a paradigm shift: viewing CIS as sites of urban potential that require transformative integration, rather than merely zones of pathology that demand containment.

This approach builds upon global best practices in informal settlement upgrading, emphasizing participatory planning, tenure security, and holistic development (UN-Habitat, 2003; Ortiz, 2014), while recognizing the need for context-specific adaptation in Constantine.

4.1. Pillar One: Secure Tenure Regularization and Legal Framework Reform

A foundational step toward the integration of CIS into the urban fabric is the formal recognition of residents' rights through secure, context-sensitive tenure regularization. Ambiguous property regimes and exclusionary legal frameworks in Algeria currently deny communities legal standing and perpetuate their marginalization, which is not due to the absence of law, but because existing municipal codes and national urban legislation fail to recognize CIS as legitimate urban entities.

To address this issue, tenure regularization programs must be implemented that grant residents secure, yet flexible, rights to land and housing, calibrated to local histories and collective preferences. These may include a spectrum of options: from individual freehold to collective or usufruct arrangements, moving beyond the rigid formalization models critiqued by De Soto (2000) and toward the more nuanced, participatory approaches advocated by Sundaram (2017). Crucially, such regularization cannot succeed in isolation; it demands parallel reform of legal and institutional frameworks to embed community participation as a non-negotiable element of urban governance. This means rewriting planning statutes to mandate resident input in decision-making, replacing top-down, punitive enforcement with collaborative, facilitative processes that treat communities not as problems to be managed, but as partners in urban transformation.

4.2. Pillar Two: Co-Designed Infrastructure Upgrades and Service Provision

Stark infrastructure deficits (water, sanitation, electricity, roads) are central to the marginalization and socio-environmental vulnerability of CIS residents. Our findings indicate 68% lower access to basic services in CIS compared to planned neighborhoods, directly contributing to economic hardship and psychological distress.

It is recommended to prioritize investment in comprehensive infrastructure upgrades co-designed with resident communities, including:

- Extending and rehabilitating water, sanitation, and electricity networks (e.g., targeting flood-prone areas like Pine).
- Upgrading key roads, paving streets, and constructing sidewalks (e.g., in Sissaoui, Al-Yasmine) to improve accessibility and quality of life.
- Introducing or expanding reliable public transport services (buses linked to tramway/cable car) with accessible stops near CIS, enhancing mobility and opportunity access (Lucas, 2012).

Such sustainable development requires long-term municipal commitment and innovative financing (e.g., community contributions, PPPs), ensuring upgrades contribute to broader urban resilience and health, particularly climate resilience (Revi et al., 2014).

4.3. Pillar Three: Enhancing Social Capital and Well-being through Integrated Programs

The persistence of social vulnerabilities within Constantine's CIS, manifested through psychological stress, youth disengagement, and cycles of deprivation, signals deep-rooted marginalization. These conditions are not merely by-products of spatial exclusion but outcomes of long-term neglect in social infrastructure and public health systems**.** The findings support the imperative to embed social interventions within the broader urban development framework**,** recognizing that physical upgrading alone is insufficient to foster sustainable urban inclusion. Hence is highly recommended to:

- Expand and capacitate local health facilities to deliver both primary care and mental health services**,** including community-based psychosocial support. Integrated care models, as advocated by Patel et al. (2018), are critical for addressing the mental health burdens prevalent in contexts of spatial and economic marginality.

- Invest in the development of accessible, well-resourced educational institutions within or adjacent to CIS zones. Beyond formal schooling, this includes vocational and remedial education programs designed to interrupt intergenerational cycles of poverty and exclusion.
- Establish community centers, youth facilities, sports complexes, and green play areas to foster social cohesion, identity formation, and productive youth engagement. Such interventions align with Whyte's (1991) findings on the role of public space in strengthening social bonds and informal governance structures.

Addressing social well-being in CIS requires inter-sectoral coordination across health, education, urban planning, and community development actors. Policy design must prioritize bottom-up engagement models that empower residents and mobilize endogenous social capital. In line with Mitlin (2004), leveraging existing community networks is essential for building resilience and ensuring the long-term effectiveness of social development interventions.

4.4. Pillar Four: Economic Inclusion and Diversification Strategies

The socio-economic heterogeneity across Constantine's CIS showcased in the contrasting realities of neighborhoods like Ben Chergui and Sissaoui demands economic interventions that are as spatially nuanced as the communities themselves. Income disparities, entrenched labor informality, and systemic spatial exclusion cannot be addressed through uniform, top-down programs; instead, they call for multi-scalar, place-based strategies that actively promote inclusive and sustainable economic participation.

Central to this is the design of vocational training programs calibrated to local labor market dynamics, with sector-specific curricula developed through real-time assessments of employer demand. This would ensure that marginalized youth are not merely trained, but meaningfully employable. Equally important is the formal recognition and strategic engagement with existing informal economies, which often serve as the economic backbone of CIS communities.

Drawing on the insights of Chen (2012) and Roy (2005), policy must shift from suppression to support: regulating, upgrading, and incrementally integrating informal activities into the formal economy without dismantling their social and economic functions. Complementing this, access to microfinance, credit, and enterprise development services must be expanded, particularly for home-based and small-scale entrepreneurs, to transform subsistence ventures into resilient micro-enterprises.

Sustainable economic inclusion within CIS contexts requires institutional coordination across municipal authorities, financial institutions, private sector actors, and educational providers**.** Such collaboration is essential to constructing pathways toward formal employment**,** reducing socio-economic precarity, and mitigating the risk of negative externalities such as illicit economies or social unrest. Economic marginalization in CIS is not merely a function of poverty but of structural disconnection; thus, addressing it necessitates an integrated, place-based development framework.

Conclusion

This study demonstrates that CIS in Constantine are integral, yet marginalized, components of the city's fabric, distributed across its core and periphery. Our analysis reveals a key pattern: older, more central CIS generally exhibit lower incidences of negative social phenomena (e.g., theft), likely benefiting from established social cohesion and proximity to formal security. Conversely, newer, peripheral settlements, characterized by unplanned morphology and security deficits, face heightened social challenges.

The chronic interplay of resource scarcity, inadequate infrastructure, and limited security within CIS generates profound economic, social, and psychological pressures. This pervasive marginalization, compounded by ineffective municipal engagement, fuels resident dissatisfaction and manifests in observable negative social behaviors.

Addressing these critical challenges, we propose the four-pillar integration model as a robust, evidence-based solution for Constantine. This framework, which combines tenure regularisation, co-designed infrastructure, holistic social programming, and targeted economic inclusion, aims to transform CIS fundamentally. By integrating these settlements into the city's urban, social, and economic fabric, the model seeks to achieve environmental equilibrium, foster genuine social justice, and propel Algerian cities towards global standards of inclusive, resilient, and sustainable urban development.

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