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Multi-level analysis of management challenges in residential excavations in decayed urban fabric (case study: Seyyed al-Shohada excavation, Tehran)

Somayeh Ahani[1*], Motahareh Riyahi[2], Reyhaneh Yousefi[2]

1. Faculty Member, Department of Urban Planning, Faculty of Fine Arts, University of Tehran, Tehran, Iran
2. Department of Urban Planning, Faculty of Fine Arts, University of Tehran, Tehran, Iran

80

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Abstract

This study aims to provide a multi-level analysis of managerial challenges associated with residential excavations within deteriorated urban fabrics, with a particular focus on the Seyyed al-Shohada sunken settlement in Tehran. The necessity of this research arises from the increasing complexity of managing critical urban spaces in metropolitan areas and the persistent lack of coordination across different tiers of urban governance. Employing a mixed qualitative–quantitative methodology, the research analyzed data collected from institutional, organizational, and local levels. The qualitative findings revealed the architecture of crisis through three key themes: the dysfunctional cycle of triple vulnerability – the intersection of structural poverty, physical decay, and institutional collapse; parallel social worlds – the emergence of active identity gaps and the paradox of solidarity; and three-layer institutional disjunction – the erosion of trust across communicative, operational, and perceptual dimensions. The quantitative analysis further extracted three major factors: institutional inefficiency, low social resilience, and spatial–physical dysfunction, which empirically validated and quantified the tripartite structure identified in the qualitative phase. The innovation of this research lies in proposing an integrated framework for multi-level urban management that emphasizes the dynamic interaction among macro-, meso-, and micro-institutions. Accordingly, a network governance model was developed to enable three fundamental transitions: from insular to networked governance, from symbolic to structured participation, and from single-speed to multi-speed strategic action. The results can serve as a foundation for urban policy-making and for strengthening structured stakeholder participation toward breaking the self-perpetuating cycles of urban crisis.

Keywords

Decayed Urban Fabric
Informal Settlements
Multi-Level Governance
Residential Excavations
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* Corresponding Author: somaye.ahani@ut.ac.ir

1. Introduction

Urban decayed fabrics constitute one of the most significant challenges facing developing cities, particularly metropolitan areas. This inherently multidimensional phenomenon simultaneously deteriorates the social, economic, and physical quality of urban regions, resulting in outcomes such as the stagnation of community life, the weakening of local interactions, undesirable transformations in urban lifestyles, and the erosion of collective memory (Nasr, 2016). Urban decay is not limited to its physical and social dimensions; rather, it fundamentally encompasses institutional and managerial inefficiencies that underlie the broader processes of decline (Mutisya& Mutuli, 2016).

In Iran, rapid urbanization, increasing pressure on infrastructure, and the absence of integrated urban management have visibly accelerated the deterioration of urban fabrics and the proliferation of informal settlements. According to the Statistical Center of Iran, approximately 25 percent of the total area of the country's metropolises falls within the category of deteriorated urban fabric. Notably, in Tehran, this figure reaches 30 percent, equivalent to 4,676 hectares (Aghasafari et al., 2010). These areas, on the one hand, suffer from a wide range of physical, functional, traffic, and environmental problems. On the other hand, they represent the most important potential for urban land use. Moreover, the physical challenges faced by old urban fabrics—such as severe building deterioration, irregular and insufficient street networks, and the shortage of urban services and facilities—have rendered them inadequate in meeting the contemporary demands of urban life (Mandani, 2021). One of the most prominent and complex manifestations of this urban deterioration is the presence of residential excavations, locally known as

Gouds, which have emerged as informal settlements within the old urban fabrics of Tehran. These excavations, primarily formed as a result of past extraction activities such as clay digging for brick production, have gradually evolved into residential areas accommodating low-income and migrant populations. The distinctive features of these settlements include a significant elevation difference compared to surrounding streets, narrow alleys, and limited accessibility. In many cases, they also face significant challenges, including the absence of formal property deeds, inadequate safety supervision, and a lack of basic service infrastructure (Esmaili et al., 2021). Among them, the Seyyed al-Shohada residential excavation in Tehran, located in District 16, stands out as the last remaining active Goud, representing a critical case with unfavorable physical and social conditions.

Despite the significance of this issue, planned interventions in these residential excavations have largely failed, primarily due to the lack of coherence in policymaking, the structural weaknesses of responsible institutions, and a lack of coordination among executive bodies. These failures have trapped the residential excavations in a vicious cycle of continued deterioration and deepening crisis. A substantial part of this managerial crisis stems from the fundamental inability of the urban governance system to establish effective linkages among different levels of decision-making: the micro level (local communities and informal structures), the meso level (local and regional executive institutions), and the macro level (national policymakers and higher-level regulatory frameworks). Alongside these institutional and managerial challenges, the financial model governing urban management in Iran must not be overlooked—a model fundamentally based on generating revenue through the sale of construction density, land-use changes, and building fees. Ghadami et al (2013) argue that the heavy dependence of Tehran Municipality on such unstable revenue sources has led to the perception of newly developed and affluent northern districts as "revenue-generating assets," while deteriorated and low-income areas have been excluded from the cycle of urban attention and investment. The outcome of this approach has been the emergence of a spatial and social duality within the city's structure. From this perspective, crises such as residential excavations cannot be regarded merely as physical or social phenomena. Instead, they reflect an unsustainable and profit-oriented urban financial system that, instead of promoting spatial justice, bases its decision-making on short-term economic logic.

A review of prior research related to the regeneration of deteriorated urban fabrics clearly indicates that most existing studies have been conducted at a single analytical level. At the macro level (policy-making and institutional structure), studies such as those by Sarafi and Rezazadeh (2017), Abuzari and Ziari (2019), and Akbari et al (2021) have emphasized the lack of coordination and inefficiency of national regeneration policies by criticizing centralization, overlapping regulations, and weak legislative frameworks. Nasr (2016) also identifies the absence of a comprehensive urban management law as one of the leading causes

of fragmentation in national-level decision-making. However, a significant limitation of these studies is that they have remained mainly at an analytical level, lacking field-based investigations within specific and critical spaces, such as urban excavations.

At the meso level (performance of executive institutions), the roles of municipalities, urban renewal organizations, councils, and facilitation offices have been examined. Studies by Aghasafari et al (2010) and Jamshidpour & Erfani (2018) identified weak institutional interactions, intersectoral inconsistencies, and the absence of effective operational mechanisms as significant obstacles to urban regeneration. Although Ne'matollahi et al. (2021) addressed the prioritization of managerial actions, they did not clearly define the connection between these managerial levels, macro-level policies, and micro-level capacities.

At the micro level (public participation and social capacities), studies such as Mohammadi and Salari (2023) have emphasized the importance of citizen participation, sense of belonging, and social networks as key factors in the success of regeneration efforts. Two specific studies on the Seyyed al-Shohada Goud—by Moazzezimehr & Masoud (2012) and Arghan et al. (2017)—identified social capacities, local identity, and resilience as practical tools in the urban revitalization process. However, a common shortcoming of these studies is their confinement to the micro level and their neglect of the decisive role played by higher-level institutions.

Despite numerous studies on urban regeneration and deteriorating urban fabrics, a clear gap remains in adopting a systematic and multi-level approach to analyzing managerial challenges within complex and vulnerable settlements, such as residential excavations. Previous research has either remained confined to the macro level of policymaking, focused solely on the performance of executive institutions at the meso level, or concentrated on local capacities at the micro level. This disconnection among the levels of decision-making (macro), implementation (meso), and participation (micro) constitutes one of the primary causes of inefficiency in regeneration projects within such urban contexts.

The selection of the Seyyed al-Shohada Goud as the case study for this research stems from the overlap of physical and social factors that shape its managerial challenges. Although most properties within this area possess formal land titles and clear ownership, distinguishing it from many deteriorated urban fabrics that lack defined legal status, its specific physical characteristics, including a sharp elevation difference from surrounding streets and particular soil conditions, have severely limited the possibility of in-situ redevelopment. This physical constraint, interacting with a heterogeneous social structure, high levels of in-migration, and weak local social capital, has made decision-making processes, institutional coordination, and the implementation of improvement projects increasingly complex. Therefore, the Seyyed al-Shohada Goud represents a prominent example of the interweaving of physical, social, and managerial challenges within the scale of deteriorated urban fabrics.

The present study, aiming to fill the existing gap in both the theoretical and practical literature on urban regeneration, represents the first attempt to analyze the linkages and disconnections among different managerial levels within the exemplary case of the Seyyed al-Shohada residential excavation through an innovative and multi-level approach. The analytical framework of the research encompasses three primary levels:

1. Micro level: analysis of the role of the local community, social capacities, and informal structures.
2. Meso level: evaluation of the performance of the municipality and executive organizations in managing the excavation.
3. Macro level: examination of the influence of national policies, legislation, and higher-level institutional structures.

The ultimate goal of this research is to propose an operational framework for integrated and multi-level management that, through strengthening stakeholder interactions, leads to the improvement of residents' quality of life, the resolution of institutional conflicts, and the realization of urban justice in residential excavations and other deteriorated urban fabrics. Accordingly, the main research questions are as follows:

1. What mechanisms and factors contribute to the formation and persistence of managerial inefficiency in residential excavations within Tehran's deteriorated urban fabric at the micro, meso, and macro levels?
2. How can a framework for integrated and multi-level management of residential excavations within deteriorated urban areas be designed?

2. Literature review

2.1. Fundamental concepts

It is necessary to clarify several key concepts that are repeatedly used throughout this research. The precise definition of these fundamental concepts, aimed at establishing a shared and coherent understanding, provides a clear framework for better comprehension of the study's subject matter.

Sunken settlement residential

The term Goud refers to a piece of land located significantly below the level of adjacent streets, with access to its interior possible only through long and steep stairways. The formation of these excavations was primarily the direct result of past soil extraction activities for brick production, with their size varying from approximately 2,000 to 40,000 square meters. Following the relocation of brick kilns to the outskirts of the city, the unregulated subdivision and sale of these lands by their owners led to the emergence of entirely informal settlements, lacking even the most basic urban infrastructure (Report of the High Council for the Housing of Slum Dwellers, 1981). The phenomenon of Goud residency in Tehran, beyond representing a residential pattern, reflects the historically imposed socio-economic pressures on low-income groups who generally lack viable alternatives (Esmaeili et al., 2021).

Informal settlements

Informal settlements generally refer to densely populated areas where residents reside in self-built housing, often based on customary or illegal land occupation. The primary characteristic of these areas is the chronic absence of adequate urban services, accompanied by profound physical and social disorganization resulting from the lack of formal planning (Begu, 2003). From the perspective of human rights and quality of life criteria, these settlements represent the tangible embodiment of inadequate housing—a condition in which the use of unstable building materials, the absence of basic infrastructure, and severe deprivation of essential services systematically and negatively affect residents' lives (Magigi & Majani, 2006). The three fundamental indicators of such settlements are: construction without official permits, physical and functional disconnection from the formal urban structure, and extreme infrastructural weakness. Accordingly, Tehran's Gouds—including the Seyyed al-Shohada Goud—can be regarded as clear examples of informal settlements (Esmaeili et al.,2021).

Deteriorated urban fabric

Physical deterioration refers to the gradual decline in the structural integrity of buildings and urban spaces, which can result from natural factors, improper use, or inadequate maintenance. Alongside this dimension, "functional deterioration" refers to the incompatibility between existing land uses and contemporary urban needs, resulting in the continuous decline of livability in these areas. The classification of urban deterioration is generally divided into two types: "relative deterioration," referring to vulnerability limited to certain spatial elements, and "complete deterioration," indicating comprehensive and systematic vulnerability across the entire urban area (Shaban Jola, 2014).

2.2. Related theories

To explain the managerial challenges of residential excavations and to comprehend the complex dimensions of urban governance, it is essential to draw on relevant theoretical foundations. Theories in this field provide an analytical framework for understanding the relationships among institutions, local communities, and overarching policies.

Complex adaptive systems theory

John Holland, in this theory, views cities as living systems whose various components—such as institutions, citizens, and local groups—are continuously learning, interacting, and adapting to new conditions (Holland, 1992). From this perspective, urban management must be flexible and adaptive, since linear and one-dimensional interventions cannot adequately respond to the complex dynamics of spaces such as urban excavations. The theory emphasizes that policies and programs should allow for gradual evolution, experiential learning, and responsiveness to feedback.

Multi-level governance theory

This theory, initially developed to analyze policymaking within the European Union, emphasizes that effective urban decision-making should not be concentrated solely at the level of the central government; instead, it should be distributed and participatory across local, regional, and even transnational levels (Marks, 1996). This model of governance highlights both vertical interaction (between the state and municipalities) and horizontal interaction (among institutions at the same level, such as councils, NGOs, and the private sector) (Bache & Flinders, 2004). For the effective management of urban excavations, such as the Seyyed al-Shohada Residential Excavation, this theory provides an

appropriate framework for distributing responsibilities, preventing institutional overlap, and enhancing coordination among different actors.

Right to the city theory

This theory was first introduced by Henri Lefebvre and later expanded upon in the works of David Harvey. According to this perspective, the city is not merely a place of residence but also a space for participation and collective action. Residents should have the right not only to access urban services but also to actively participate in urban decision-making and shape their own living environments (Rafieian & Jahanzad, 2015). In urban excavations, where residents are often marginalized and lack bargaining power, attention to this theory can provide the foundation for fostering participation and promoting social empowerment.

Spatial justice theory

This theory, introduced by Edward Soja, addresses inequalities in the distribution of resources, services, and opportunities within urban spaces. From Soja's perspective, space is not merely a container for social activities but can itself be a producer of inequality. Within this framework, urban interventions—including those in residential excavations—should be designed to rectify spatial disparities and ensure equal access to services, infrastructure, and quality of life for all residents (Soja, 2013).

2.3. Domestic and international experiences

International examples

At the global level, notable examples include the Dharavi Project in Mumbai, India. In this project, the relocation of residents from slums was undertaken to free up land for economic development (Patel et al., 2009). However, no example precisely comparable to the phenomenon of Goud residency has been identified in the international literature.

Challenges of managing residential excavations in Iran

In Tehran, the dominant policy has been the evacuation and relocation of residents as the primary strategy. Although some excavations have achieved partial success, cases such as the Seyyed al-Shohada Residential Excavation demonstrate significant shortcomings, primarily due to economic constraints and weak post-relocation follow-up (Esmaili et al., 2021). In certain excavations, the land use after evacuation has been converted into green spaces or transportation infrastructure; however, the success of these initiatives has depended mainly on the quality of planning and the level of public participation. Experiences such as Misagh Park (located in District 16, Area 6 of Tehran) illustrate that, in the absence of effective management, newly created open spaces can become focal points for social problems.

2.4. Related policies and regulations

Since the 1950s, various laws have been enacted in Iran to improve deteriorating urban areas. Among the most significant are the Urban Renewal and Development Law (1968), the National Document for the Empowerment of Informal Settlements (2003), the Law on Supporting the Rehabilitation of Deteriorated Fabrics (2010), and the National Document for Sustainable Urban Regeneration (2013). The evolution of these legislative frameworks indicates a gradual shift from a purely physical approach toward more participatory and multidimensional policy orientations. (Darvodi et al.,2016). However, one of the most significant challenges in implementing these policies has been institutional incoherence and fragmented decision-making structures. The absence of a precise mechanism for integrated project management, coupled with legal complexities, has resulted in slow progress and public mistrust in the execution of urban renewal programs (Akbari et al., 2021).

An analysis of urban excavations reveals that these spaces have emerged as the outcome of an interconnected chain of institutional, physical, and social deficiencies. Addressing these deficiencies requires a participatory approach grounded in multi-level analysis and spatial justice—an approach in which genuine resident participation, institutional coordination, and flexible decision-making form the core of policy design and implementation.

2.5. Theoretical framework

Based on a review of the theoretical literature and the discussed foundations, the conceptual framework of the research is illustrated in the form of a diagram (Figure 1). This framework, serving as the research roadmap, has provided the basis for designing the interview questions and developing the data collection instruments.

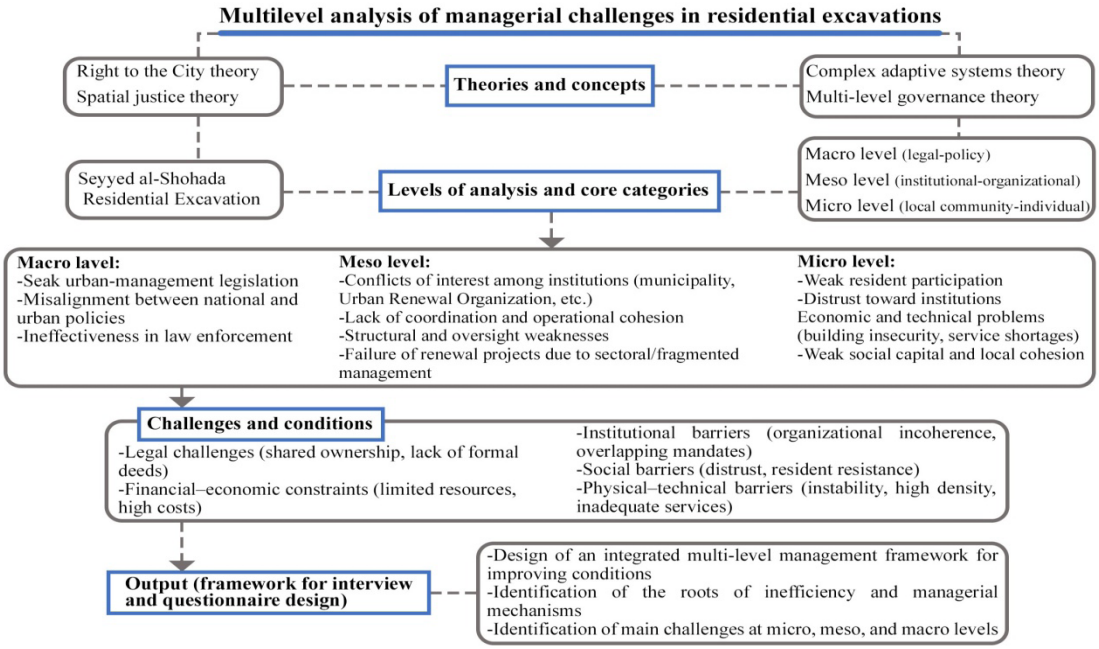


Figure 1. Theoretical framework

3. Overview of the Seyyed al-Shohada residential excavation

The Seyyed al-Shohada Residential Excavation is one of the few remaining active residential excavations in Tehran and the only surviving example within District 16 of the municipality. It is located in Area 6 of the district, within the Bagh-Azari neighborhood, bounded by Misagh Street to the north, Zarei Street to the south, Atabaki Street to the east, and Rahimzadeh Street to the west (Figures 2 and 3).

Figures 2 and 3. Location map of district 16 within the city of Tehran and the location map of the Seyyed al-Shohada residential excavation in district 16.

Formation Period (1960s): Following the relocation of brick kilns and the unregulated subdivision of lands, non-engineered settlements began to emerge deep below ground level. The houses were constructed without permits and with unstable materials. At the same time, the significant elevation difference between the ground surface and surrounding streets rendered the Goud an isolated and hard-to-access space from the outset. During this period, the population was small and the social structure relatively homogeneous, with neighborhood relations fostering an initial sense of cohesion (Esmaili et al., 2021).

Crisis Period (late 1980s to late 2000s): With the influx of low-income groups and Afghan migrants, population density increased sharply, and the Goud turned into a focal point of multidimensional poverty, physical

deterioration, and social insecurity. The weakness of urban services, the absence of a coherent renewal plan, and institutional disorganization further intensified the crisis. During this period, the Goud experienced a gradual erosion of social cohesion, an increase in crime, and growing mistrust between residents and formal institutions.

Period of Relative Stability and Managerial Deadlock (2010s–Present): In recent years, various relocation and redevelopment plans have failed to achieve results due to physical constraints, the absence of institutional consensus, and residents' social resistance. The outcome has been the emergence of a quasi-stable yet critical condition, characterized by approximately 400 deteriorated plots, narrow alleys, and numerous stairways that continue to define the Goud's physical landscape. A large portion of the current residents are Afghan migrants living in small, multi-family units with high rents and without formal contracts. Although social relations may appear friendly on the surface, they are in practice marked by ethnic tensions, competition over limited resources, and weak social trust. Overall, the Seyyed al-Shohada Goud is not a static phenomenon but a dynamic process shaped by the continuous interaction of physical, social, and institutional factors, which have been reproduced in each historical period and have now turned the area into a symbol of the challenges of management and regeneration within Tehran's deteriorated urban fabrics.

Figures 4 to 8. The Seyyed al-Shohada residential excavation.

4. Materials and methods

This research employed a mixed-methods approach, combining qualitative and quantitative methods, to conduct a multi-level analysis of managerial challenges in residential excavations within deteriorated urban fabrics, particularly the Seyyed al-Shohada residential excavation in Tehran. The research employs an explanatory sequential mixed-methods design, integrating qualitative and quantitative data to develop a comprehensive and inferential understanding of the mechanisms underlying the crisis in Seyyed al-Shohada Goud. The theoretical framework of the study is grounded in the complex adaptive systems and multi-level governance approaches, which enable the analysis of interrelationships among the micro level (local community), the meso level (executive and urban management institutions), and the macro level (national policies and regulatory frameworks).

In the qualitative phase, the research focused on understanding the lived experiences of residents and their interactions with institutions. Data were collected through in-depth semi-structured interviews and ethnographic field observations conducted over a twelve-week period. The study population consisted of urban managers and experts (20 participants) as well as residents of Goud (27 participants), representing diversity in age, gender, nationality, and housing status. Sampling for managers was conducted using a non-probability snowball method, while sampling for residents followed a stratified random approach to ensure balanced representation of different groups.

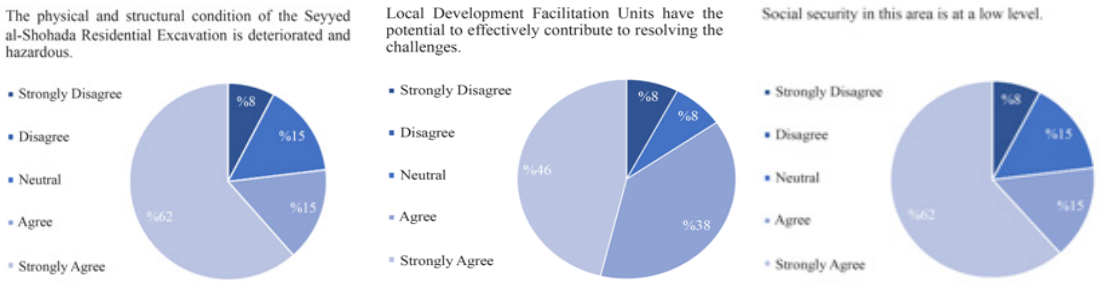
Qualitative data were analyzed using the thematic analysis method proposed by Braun & Clarke (2006) (Figure 9). Through open, axial, and selective coding, the core concepts were extracted, and three overarching themes were ultimately identified, each representing a dimension of the managerial challenges in the Goud: institutional inefficiency and weak governance, weak social resilience and identity fragmentation, and spatial–physical dysfunction. The validity and reliability of the analysis were verified through review by two independent experts, triangulation with field observations, and participant feedback.

Figure 9. Diagram of the qualitative data analysis process

The quantitative phase of the research was conducted to measure and generalize the findings of the qualitative stage. The data collection instrument was a researcher-designed questionnaire developed based on the themes extracted from the qualitative phase. This questionnaire consisted of 20 items and assessed three main dimensions—physical, social, and institutional—using a five-point Likert scale ranging from "strongly disagree" to "strongly agree" (Table 1). The statistical population for this phase consisted of 50 managers and experts involved in urban renewal and rehabilitation projects related to residential excavations, all of whom had at least three years of direct professional experience in this field. After screening the responses, 43 valid questionnaires were used for the final analysis (Figures 10 to 12).

Table 1. Questionnaire items

Questionnaire items	
Assessment of the Seyyed al-Shohada residential excavation	A1: The physical and structural condition of the Seyyed al-Shohada residential excavation has deteriorated and is hazardous. A2: The level of social security in this area is low. A3: Urban services (cleaning, waste collection, green spaces) are provided regularly. A4: The urban infrastructure in the area does not meet the needs of the residents. A5: Residents are not sufficiently satisfied with the performance of executive institutions. A6: There is strong social resistance to intervention projects in this area. A7: Formal institutions lack an accurate understanding of the area's situation. A8: The Seyyed al-Shohada residential excavation is not prioritized in urban planning programs. A9: Inter-institutional coordination for addressing this area is ineffective. A10: Past projects in this area have faced failure or stagnation.
Assessment of institutional performance	B1: We have sufficient authority to intervene effectively in this area. B2: Coordination between the municipality and other institutions (such as the police, the Welfare Organization, and the Urban Renewal Organization) is adequate. B3: The financial resources required for improvement initiatives in the area are available. B4: Accurate and up-to-date information and statistics on the area are accessible. B5: Participation or interaction with residents is taken into account in planning processes.
Recommendations and policy-making	C1: The rehabilitation of this area should be prioritized at the citywide level. C2: Focusing on the social empowerment of residents is of great importance. C3: Relocation of residents is the only effective long-term solution. C4: Physical development without considering social issues will be ineffective. C5: Facilitation offices can play a significant role in addressing the challenges of this area.



Figures 10, 11, and 12. Percentage distribution of responses for three questionnaire items

To ensure the validity and reliability of the instrument, the relevant statistical indices were calculated. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.79, indicating that the data were suitable for factor analysis. Bartlett's test of sphericity ($\chi^2 = 612.47$, $df = 190$, $p < 0.001$) confirmed the appropriateness of the correlation matrix for factor analysis. In addition, the Cronbach's alpha coefficient

was 0.91 for the entire questionnaire, and it ranged between 0.78 and 0.94 for the subscales, indicating a high level of reliability.

The data were cleaned and coded, then analyzed using SPSS software. In the first step, descriptive statistics were calculated to examine the distribution pattern of the variables. Subsequently, exploratory factor analysis (EFA) was conducted using the principal component analysis (PCA) extraction method and varimax rotation. In the initial stage, several principal components were identified, collectively explaining a substantial portion of the total variance. To align the results with the theoretical framework, a promax rotation was applied, and the final data structure was consolidated into three major and complementary factors: institutional inefficiency and weak governance (38.7% of the variance), weak social resilience and identity fragmentation (28.9% of the variance), and spatial–physical dysfunction and infrastructural weakness (17.6% of the variance), which together accounted for 85.2% of the total variance.

Overall, the mixed-method approach adopted in this study enabled the precise identification and assessment of managerial challenges in residential excavations. The qualitative phase, through the exploration of lived experiences and institutional relationships, revealed the fundamental mechanisms underlying the crisis. The quantitative phase, through statistical analysis and factor modeling, then transformed these mechanisms into generalizable indicators. Thus, the research methodology provides a scientific and reasoned framework for understanding and managing residential excavations within deteriorated urban fabrics at multiple levels.

5. Findings

The findings of this research are presented in two main sections: qualitative and quantitative. Following a nested design, the qualitative analysis begins by explaining the theoretical framework and the key mechanisms underlying the crisis. In contrast, the quantitative analysis is then employed to verify the structural validity and assess the generalizability of this conceptual framework.

5.1. Qualitative findings

Based on the qualitative analysis conducted in the Seyyed al-Shohada residential excavation area of Tehran, the ongoing crisis in this neighborhood can be explained within a systematic and multidimensional framework. The findings show that the crisis persists and deepens through three key mechanisms operating at the micro, meso, and macro levels:

- The vicious cycle of triple vulnerability: This cycle consists of three interrelated dimensions—structural poverty, physical deterioration, and institutional collapse—that interact to reproduce and intensify the crisis.
- Identity and social divides: The coexistence of two parallel social worlds between native residents and migrants has created deep identity gaps and conflicts in spatial preferences, hindering the implementation of uniform development plans.
- Three-layer institutional disjunction: This disconnection—at communicative, operational, and perceptual levels—has weakened the legitimacy of governing institutions and reduced the effectiveness of development interventions.

Together, these three dimensions form a self-reinforcing critical system, the management of which requires an integrated, multi-scalar approach grounded in a deep understanding of local realities (Figure 13).

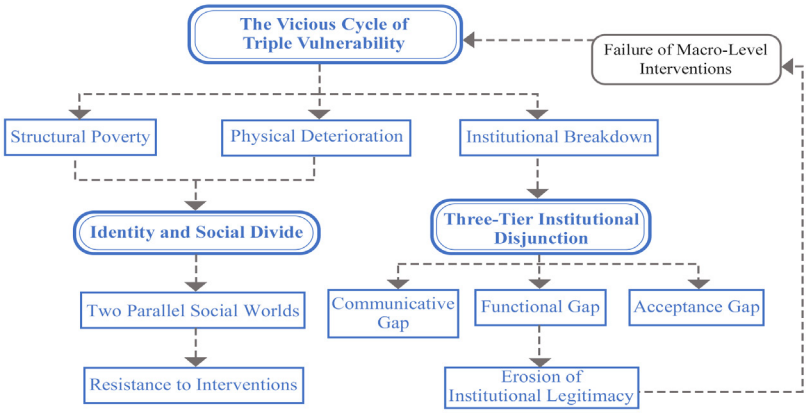


Figure 13. Key mechanisms of crisis persistence and intensification

Figure 13 illustrates how the three main analytical dimensions—the vulnerability cycle, identity divide, and institutional disjunction—interact to form a closed critical system that continuously reproduces itself unless interventions are made at key leverage points. The following sections provide a detailed explanation of each of these dimensions.

Analysis of systemic crisis mechanisms: from the vicious cycle of triple vulnerability to the transfer of structural risk

The qualitative analysis of field data in the Seyyed al-Shohada residential excavation in Tehran explains the crisis pattern through the concept of a "triple vulnerability cycle." This cycle represents a self-reinforcing system with positive feedback, in which the interaction and synergy among three key dimensions—structural poverty, physical deterioration, and institutional collapse—lead to the persistence and deepening of the crisis.

Multi-Level Analysis of Crisis Mechanisms: From the Micro to the Macro Scale

At the micro level, this vicious cycle generates dynamics that transform structural poverty from a purely economic condition into an internal mechanism accelerating the depreciation of both physical and social capital. This process transforms physical deterioration into a multidimensional threat, with the most evident manifestations including seismic vulnerability, pathological soil erosion, and the collapse of health infrastructure, among others.

In practice, the financial limitations of residents act as an internal mechanism that accelerates physical degradation and reinforces "spatial poverty traps" within the area. The severity of these threats is such that one local official emphasized, "The physical condition of the neighborhood is so critical that it can be said the main challenge of the Goud lies in its physical state, while other issues remain secondary."

At the macro level, the nature of the crisis transforms and, through the "mechanism of structural risk transfer," evolves into a systemic and supra-local challenge. The dynamics stemming from poverty, insecurity, and ecological instability within the Goud propagate through channels such as the diffusion of social vulnerabilities into the metropolis, the intensification of public health and environmental crises, and the imposition of emergency financial burdens on the public budget. These processes result in the leakage of systemic risks into the metropolitan network, making their management dependent on a cross-organizational and multi-scalar approach. This analysis provides a reasoned justification for elevating the status of rehabilitation and reorganization projects to a "strategic priority" in urban macro-level planning, supported by systematic risk analysis and the high costs associated with inaction.

Multi-scalar governance disjunction: analyzing institutional weakness at the meso and macro levels

Institutional collapse, as the third component of the vicious cycle, functions as a "stabilizing mechanism" that sustains the continuity of the crisis. This institutional weakness manifests at the meso and macro levels in the form of a "multi-scalar governance disjunction," which structurally undermines the effectiveness of interventions. This disjunction can be analyzed along two principal axes:

- Horizontal misalignment (meso level): This form of disorganization stems from overlapping responsibilities and the absence of unified decision-making protocols among parallel executive institutions—such as the district municipality, the Urban Renewal Organization, and the Waste Management Organization. This situation has led to unhealthy competition over limited resources, fragmentation of actions, and ultimately, a reduction in the effectiveness of interventions at the local level.
- Vertical misalignment (macro level): This type of inconsistency reflects the deep gap between the design of national-level policies and the complex socio-ecological realities of the neighborhood. National projects are often characterized by inflexibility and a lack of adaptability to conditions such as unconventional deed-based ownership structures, conflicting land documents, and residents' cultural sensitivities. One of the experts described this challenge as follows: "Macro-level decisions are usually made based on oversimplified assumptions, but when you enter the neighborhood, you realize that the complexity of informal ownership undermines the entire operational logic of the plan, causing these projects to experience policy paralysis in the face of local realities."

This structural disjunction ultimately results in a "three-dimensional coordination gap" that undermines the sustainability of any large-scale intervention initiative:

The first dimension: institutional misalignment exacerbates legal ambiguities.

The second dimension: legal ambiguity undermines the financial justification of renewal projects for private investors and banking institutions.

The third dimension: the resulting financial constraints

increase residents' resistance to projects that lack enforceability and sufficient transparency.

The inherent fragility of development initiatives within this institutional context is so significant that one of the urban renewal project officials, emphasizing the importance of "institutional continuity," warned: "The major concern we face now is that development and renewal initiatives lack sufficient institutional guarantees for long-term continuity and oversight. Achieving this is impossible without the active presence of all three levels of governance—micro, meso, and macro—and sustained political commitment at the highest levels of national management."

Parallel social worlds: analyzing the mechanisms of identity division and their implications for local governance

The qualitative analysis of the demographic structure of the Seyyed al-Shohada residential excavation indicates that, at the micro level, the deterioration crisis is intensified by active social and identity-based mechanisms of division. At the core of these mechanisms lies not a simple difference, but the emergence of two parallel social worlds with entirely distinct residential bases, identities, and spatial preferences. This process—arising from residential duality, divergence in spatial aspirations, and a profound paradox of livability—functions as a structural barrier to the effectiveness of any intervention.

Residential duality and the formation of the solidarity paradox

The demographic structure of the neighborhood is shaped around a fundamental residential duality:

- First pole: native homeowners with long-term residency, who define their settlement based on a "historical right" and "attachment to the familial ecosystem."
- Second pole: migrant residents with temporary and precarious housing status, who have chosen the neighborhood primarily out of "livelihood necessity" and "affordability."

This fundamental difference in the basis of residence has led to the emergence of a deep identity divide and a "paradox of polarized solidarity." In this paradox, each group achieves cohesion within its internal network—kinship among natives and ethnicity among migrants—but this intra-group solidarity comes at the cost of deepening inter-group fractures and creating an impasse for implementing uniform, top-down development plans.

Intra-group mechanisms: perceived security versus resistance to upgrading

Understanding the internal dynamics of each group is essential for analyzing this tension. Among migrant residents, the mechanism of perceived security based on differences plays a central role. This mechanism—rooted in comparing current conditions with prior lived experiences in the country of origin—demonstrates how access to basic services (such as water and electricity) and a sense of relative safety can create a form of psychological stabilization within marginality. One Afghan migrant described this condition as follows: "Here, it is safer than our country."

Although this relative perception of security functions as an adaptive strategy for particular residents, it actually reflects the depth of developmental disparity and the normalization of suburban living conditions as an accepted norm. This phenomenon poses a challenge for interventions aimed at genuinely improving quality of life. From an analytical perspective, this stabilization—while serving as a survival-oriented adaptive strategy—becomes, within the framework of formal planning, a factor that weakens the group's willingness to participate in relocation or structural renewal programs.

Among native residents as well, the group that demands the improvement of living conditions and the restoration of the neighborhood's spatial identity has increasingly tended to resist the continuation of the current situation. This stance—rooted in both objective conflicts of interest and a perceived threat to identity—has not only made constructive interaction between the two groups impossible but has also hindered the formation of local consensus around urban renewal projects.

Governance implications: the livability paradox and the fragmentation of spatial aspirations

As a result of this confrontation, a livability paradox emerges at the micro scale: factors that provide stability for one group (such as perceived security for migrants) are interpreted by the other group (the natives seeking higher living standards) as signs of the "entrenchment of undesirable conditions." This contradiction leads to increased managerial complexity and reduced policy implementability.

This identity divide has evolved into an active, interactive gap, becoming the primary internal source of resistance to large-scale interventions. Ultimately, this duality is also manifested in the fragmentation of

spatial aspirations:

- Native homeowners seek the preservation of the "courtyard-centered culture" and advocate for on-site improvement.
- Many residents—especially migrants—are trapped in a state of "forced immobility" caused by economic and legal constraints.

This divide further fuels the cycle of distrust toward governing institutions, as the system's inability to provide differentiated solutions for distinct needs leads to greater delegitimization of authority.

Three-layer institutional disjunction: analyzing a vicious cycle of legitimacy erosion

The qualitative data analysis clearly reveals that residents' distrust toward governing institutions in the Seyyed al-Shohada residential excavation is not an emotional or temporary reaction but rather a structural outcome resulting from the convergence of three dysfunctional mechanisms. This phenomenon, referred to as the "three-layer institutional disjunction," represents a dynamic process in which communicative, operational, and perceptual mechanisms interact synergistically to systematically erode the executive legitimacy of the governance system at both the meso- and micro-levels.

- The Triple Mechanism of Trust Collapse

This crisis of trust can be traced across three interwoven and mutually reinforcing layers:

- Communicative layer: the information vacuum and the rumor cycle. The failure of institutions to establish transparent, stable, and two-way communication mechanisms with the local community has created an information vacuum. This void is quickly filled by rumor networks, which act as a positive feedback loop, reinforcing distrust. These rumors actively undermine the communicative legitimacy of institutions and erode the foundation of credibility for any future promises.
- Operational layer: policy paralysis and symbolic interventions. This crisis directly reflects the policy paralysis and the inability of institutions to adapt to the complex realities of the neighborhood, such as informal ownership structures and distinctive social patterns. Instead of strategic reassessment, these complexities have been met with symbolic and short-term solutions. Interventions that merely treat symptoms without addressing the root causes of the crisis are perceived by residents as lacking sustainable effectiveness.
- Perceptual layer: structured resistance and forced immobility. This layer, representing the intersection of all previous failures, is where structured resistance emerges. The failures in the communicative and operational layers, combined with pre-existing identity divisions, have produced an almost impermeable barrier to renewal and relocation projects. This resistance is rooted in two key fears:
- The fear of losing identity and lifestyle (attachment to courtyard-centered living and "spatial aspirations").
- The fear of structural discrimination (distrust in the fairness of replacement housing distribution).

Understanding these factors reframes the concept of "forced immobility" not as a matter of choice but as a rational and comprehensible response to systemic failure.

The self-reinforcing vicious cycle and macro-level conclusion

The convergence of these three layers of disjunction creates a self-reinforcing vicious cycle. This cycle eliminates the possibility of establishing any form of "sustained mutual commitment" between the community and governing institutions, rendering the implementation of large-scale development policies practically ineffective in the field.

5.1. Quantitative findings: measurement and generalizability of managerial challenges in the Seyyed al-Shohada residential excavation

At this stage, in order to systematically assess, generalize, and validate the qualitative findings, quantitative analysis was conducted on the data collected from managers and relevant experts. Exploratory factor analysis (EFA) was employed as an effective method to identify the underlying structures of stakeholder perceptions and to reduce the dimensionality of the data. This analysis enabled a direct comparison and systematic alignment of quantitative dimensions with the key themes extracted from the qualitative phase.

The statistical population of this section consisted of 50 senior managers, experts, and direct decision-makers involved in the urban renewal and rehabilitation projects of the Seyyed al-Shohada residential excavation, selected from three leading institutions: "District 16 Municipality," "Tehran Urban Renewal Organization," and the "Ministry of Roads and Urban Development." The inclusion criteria required a minimum of three years of direct professional experience in deteriorated urban fabrics and operational familiarity with the Seyyed al-Shohada project. Ultimately, through purposive sampling, 43 valid questionnaires were collected and analyzed.

The research instrument was a researcher-designed questionnaire consisting of 20 closed-ended items, measured on a five-point Likert scale (ranging from "strongly disagree" = 1 to "strongly agree" = 5). The questionnaire items were directly derived from the key themes and concepts identified in the qualitative phase, such as institutional misalignment, identity divide, physical deterioration, and weak governance. The reliability of the questionnaire was assessed using Cronbach's alpha coefficient. As shown in Table 2, the overall Cronbach's alpha value for the questionnaire was 0.91, and for the subscales, it ranged from 0.78 to 0.94, indicating a high level of instrument reliability.

Table 2. Sampling adequacy and reliability indices of the instrument

Index	Value	Desired Level	Interpretation
KMO Index	0.79	> 0.70	Adequate sampling suitability
Bartlett's Test	$\chi^2 = 612.47$, $p < 0.001$	Significant	Appropriateness of the correlation matrix
Overall Cronbach's Alpha	0.91	> 0.70	Excellent reliability
Subscale Cronbach's Alpha	0.78 – 0.94	> 0.70	Acceptable reliability for each factor

The construct validity of the questionnaire was confirmed using exploratory factor analysis (EFA) and by calculating the KMO index and Bartlett's test of sphericity. The KMO value was 0.79, which is considered "excellent" (KMO > 0.70). Furthermore, the result of Bartlett's test of sphericity was significant ($\chi^2 = 612.47$, $p < 0.001$). These results indicate that adequate sampling has been achieved and that the data are suitable for conducting factor analysis. Subsequently, exploratory factor analysis was performed using the Principal Component Analysis (PCA) extraction method. In the first step, orthogonal varimax rotation was applied. As shown in Table 3, in this rotation, item B5 titled "Rehabilitation should be prioritized at the metropolitan level" exhibited a cross-loading (0.440 on Factor 1 and -0.656 on Factor 3).

Table 3. Rotated factor loading matrix (varimax)

Item Code	Item Description	Factor 1: Institutional Inefficiency	Factor 2: Social Resilience	Factor 3: Spatial Inefficiency	Communality	Decision
B1	Lack of coordination among decision-making institutions	0.782	0.214	0.133	0.69	Retained
B2	Weakness in implementing rehabilitation policies	0.745	0.255	0.168	0.64	Retained
B3	Insufficient budget for local renewal	0.721	0.196	0.205	0.59	Retained
B4	Lack of ownership transparency	0.702	0.188	0.162	0.57	Retained
B5	Rehabilitation should be prioritized at the metropolitan level	0.440	0.231	-0.656	0.61	Revised (Cross-loading)
C1	Low level of social trust	0.182	0.764	0.117	0.63	Retained
C2	Sense of belonging to the neighborhood	0.164	0.732	0.205	0.58	Retained
C3	Willingness to participate in local projects	0.213	0.711	0.122	0.55	Retained
D1	Weaknesses of urban infrastructure	0.183	0.188	0.756	0.62	Retained
D2	Difficulties in accessing services	0.145	0.132	0.735	0.59	Retained

The Varimax rotation was performed with a factor loading threshold of 0.40. Items with cross-loadings and loading differences of less than 0.20 were identified and marked for review in the Promax

rotation. Item B5 showed a cross-loading and was re-examined in the subsequent rotation.

Given the conceptual correlation among the different dimensions of managerial challenges (as also observed in the qualitative findings), the oblique Promax rotation was applied. As shown in Table 4, the Promax rotation produced a fully stabilized factor structure, with all factor loadings exceeding 0.70. Additionally, the cross-loading issue of item B5 was resolved entirely.

Table 4. Rotated factor loading matrix (promax)

Item Code	Item Description	Factor 1: Institutional Inefficiency	Factor 2: Social Resilience	Factor 3: Spatial Inefficiency	Communality	Final Decision
B1	Lack of coordination among decision-making institutions	0.802	0.196	0.122	0.71	Retained
B2	Weakness in implementing rehabilitation policies	0.767	0.214	0.158	0.67	Retained
B3	Insufficient budget for local renewal	0.748	0.201	0.177	0.61	Retained
B4	Lack of ownership transparency	0.733	0.174	0.148	0.59	Retained
B5	Rehabilitation should be prioritized at the metropolitan level	0.706	0.211	0.185	0.62	Retained (stabilized after Promax)
C1	Low level of social trust	0.172	0.781	0.121	0.65	Retained
C2	Sense of belonging to the neighborhood	0.159	0.754	0.196	0.61	Retained
C3	Willingness to participate in local projects	0.208	0.729	0.115	0.58	Retained
D1	Weaknesses of urban infrastructure	0.172	0.175	0.768	0.64	Retained
D2	Difficulties in accessing services	0.139	0.126	0.742	0.60	Retained

In the Promax rotation, the three-factor structure was stabilized, with all factor loadings exceeding 0.70. No item showed significant cross-loading, and the communality values were all above 0.55.

Based on the final results of the factor analysis with Promax rotation, three principal factors with eigenvalues greater than one were extracted, collectively accounting for 85.2% of the total variance. These three factors were identified as the main dimensions of managerial challenges in the Seyyed al-Shohada residential excavation:

Factor 1: Institutional inefficiency and weak governance (38.7% of variance)

Factor 2: Weak social resilience and identity divide (28.9% of variance)

Factor 3: Spatial–physical inefficiency and infrastructural weakness (17.6% of variance)

Given the high conceptual correlation among the different dimensions of managerial challenges (as also observed in the qualitative findings), the final analysis was conducted using the oblique Promax rotation. Although this analysis resulted in the extraction of three significant factors, these factors can be considered the measurable cores of more complex qualitative dimensions. In other words, each quantitative factor encapsulates several interrelated qualitative components (Table 5). This compact yet rich structure enables the prioritization of interventions based on the most critical aspects of the crisis.

Table 5. Alignment of quantitative dimensions with key qualitative themes

Extracted quantitative dimensions	Corresponding qualitative themes	Key indicators	Representative items
Institutional inefficiency and weak governance (38.7% variance)	• multi-scalar governance disjunction • three-layer institutional disjunction • absence of macro-level policy	• lack of inter-institutional coordination • executive weakness • budget shortage • lack of ownership transparency	B1, b2, b3, b4, b5
Weak social resilience and identity divide (28.9% variance)	• parallel social worlds • identity divisions • polarized solidarity paradox	• low social trust • weak sense of belonging • limited willingness to participate • social resistance	C1, c2, c3
Spatial–physical inefficiency and infrastructural weakness (17.6% variance)	• vicious cycle of triple vulnerability • physical deterioration • livability paradox	• weak urban infrastructure • difficulties in accessing services • environmental deficiencies	D1, d2

As shown in Table 5, there is a complete and meaningful correspondence between the extracted quantitative dimensions and the key qualitative themes. This alignment confirms the convergent validity of the findings and demonstrates that the designed questionnaire has successfully captured the complex dimensions of the issue identified during the qualitative phase. Accordingly, it can be concluded that the quantitative findings not only reinforce the qualitative results but also, by providing a measurable structure, enable the prioritization and quantification of these challenges for future planning and policymaking.

6. Discussion

This research, aiming to move beyond previous single-level analyses, has employed a combined interpretive–descriptive approach to explore the multidimensional complexities of the crisis in the Seyyed al-Shohada residential excavation. In light of this approach, it is first necessary to clarify how the qualitative and quantitative findings are integrated and how this integration contributes to a multi-level understanding of the crisis.

The qualitative findings, derived from an in-depth exploration of lived experiences and field observations, revealed three fundamental constructs as the core pillars shaping the architecture of the crisis: the "vicious cycle of triple vulnerability," the "identity and social divides," and the "three-layer institutional disjunction." These concepts were not merely descriptive of existing conditions but illuminated the hierarchical and causal relationships among different levels. Institutional inefficiency, identified as the dominant underlying variable, was found to be the primary driver intensifying both the social and physical dimensions of the crisis.

In contrast, the quantitative analysis, employing exploratory factor analysis, sought to validate and operationalize these complex constructs. The results of this analysis led to the extraction of three overarching factors that significantly overlapped with the qualitative concepts: (1) institutional inefficiency and weak governance (38.7% of variance), (2) weak social resilience and identity divide (28.9% of variance), and (3) spatial–physical inefficiency (17.6% of variance).

This convergence not only reinforces the internal validity of the findings but also demonstrates that the designed questionnaire effectively captured and operationalized the latent dimensions of the problem identified during the qualitative phase. The explanation of 85.2% of the total variance by these three factors serves as strong evidence that the ongoing crisis can be understood and modeled through these three principal pillars.

An analytically significant point in integrating these findings is the emergence of a phenomenon that can be termed the "self-reinforcing triple vicious cycle." In this cycle, the institutional, social, and physical dimensions interact dialectically, continually strengthening and reproducing one another. For instance, the "three-layer institutional disjunction" identified in the qualitative analysis—quantitatively measurable through "horizontal and vertical misalignment"—directly exacerbates the "identity divide and polarized cohesion," the outcome of which manifests in "pathological physical deterioration."

This systemic perspective renders any isolated or single-dimensional intervention ineffective, underscoring the necessity of an integrated governance framework. From this viewpoint, the analysis of the

crisis shifts from the methodological level to the level of governance structure, where the institutional foundation serves as the core that shapes all other mechanisms.

6.1. Multi-level analysis of the crisis: institutional, social, and spatial dimensions

Institutional dimension: multi-scalar governance disjunction as the core of the crisis

The analysis of the findings at the institutional level presents a picture of a fragmented and self-contradictory governance structure. The crisis at this level cannot be reduced merely to a lack of resources or technical weaknesses; rather, it stems from a systematic structural disjunction that manifests in two primary forms: "horizontal misalignment" and "vertical disconnection."

On the horizontal axis, duplication of responsibilities and conflicting mandates among parallel institutions (the municipality, the Urban Renewal Organization, and the Water and Electricity Departments) have led to institutional disorder. Qualitative data reveal "overlapping functions" and "unhealthy competition over resources." In contrast, quantitative data quantify this phenomenon through the factor of "institutional inefficiency," showing a very high loading (0.802) for the item representing "lack of coordination." This situation confirms the dominance of a fragmented, insular logic, in which each institution, relying on its own rationality, implements short-term and often contradictory projects, ultimately resulting in resource waste and collective ineffectiveness.

On the vertical axis, a functional gap exists between the macro level (policymaking) and the meso–micro levels (implementation and the local community). Uniform national policies, due to their inability to comprehend and adapt to the socio-ecological complexities of the Goud—such as informal deed-based ownership and the dual demographic structure—encounter "policy paralysis" when confronted with local realities. The qualitative findings, which emphasize the theme of "inability to adapt," along with quantitative data highlighting the "absence of comprehensive legislation," both point to the existence of a gap between macro-level policies and local capacities. As a result, large-scale plans, lacking adaptability to local realities, fail to achieve the necessary "implementability" and "social legitimacy." The persistence of this institutional misalignment directly affects the social structure of the Goud, leading to the emergence of new patterns of relationships and deepening identity divisions.

Social dimension: dual identity divide and the resilience paradox

At the social level, institutional dysfunction has fueled and deepened an active identity fracture. The findings reveal the emergence of two "parallel social worlds" within the Goud: one belonging to native homeowners characterized by deep-rooted "place attachment" and a sense of "historical right," and the other composed of migrant residents defined by "livelihood-based settlement" and "precarious residency status." Rather than forming a cohesive community, this duality has resulted in "polarized cohesion"—a condition in which strong intra-group solidarity coexists with profound inter-group division and mutual distrust.

This divide is not merely cultural; it is also spatial in nature. Qualitative findings point to a "livability paradox": the very factors that function as "perceived security" and sources of stability for one group (migrants) are perceived by the other group (natives) as symbols of "entrenched decline." This paradox is reflected in the quantitative data as "weak sense of belonging" (factor loading = 0.754) and "low willingness to participate" (factor loading = 0.729).

Under such conditions, social resilience does not manifest as a capacity for transformation or improvement; rather, it takes the form of a "passive, survival-oriented resilience" — one that merely sustains the system within a crisis state without enabling escape from its vicious cycle. This passive resilience, observed among particular residents as "perceived security" when compared to their previous conditions, may function as a short-term adaptive mechanism; however, in the long run, by normalizing and stabilizing adverse conditions, it becomes a significant obstacle to the collective demand for structural improvement.

Ultimately, this social fracture finds tangible expression in the physical fabric of the neighborhood itself — the spatial structure has become a mirror reflecting the conflicting social relationships embedded within it.

Physical–spatial dimension: the tangible manifestation of governance failure

The physical deterioration observed in the Goud Seyed al-Shohada cannot be interpreted merely as the outcome of temporal aging; rather, it should be understood as a dependent variable — the material embodiment of failure at both institutional and social levels. The physical space of the Goud serves as a stage upon which the deep divide between formal planning and informal realities is vividly enacted.

The qualitative findings reveal the presence of a "vicious triad of vulnerability" in which structural poverty and institutional collapse directly fuel physical deterioration. This relationship is also clearly evident in the quantitative data: indicators such as "weak urban infrastructure" (factor loading = 0.768) and "limited service accessibility" (factor loading = 0.742) exhibit strong correlations with the institutional factor. This demonstrates that spatial inefficiency is a direct reflection of institutional dysfunction. For instance, the absence of an effective sewage system (a physical issue) is not merely the result of budgetary constraints; it is the concrete manifestation of inter-institutional disorganization (institutional) and the lack of a responsive, accountable body representing residents (social). In this sense, the decaying physical environment of the Goud is not an isolated technical problem but the visible symptom of a deeper structural and governance failure.

Ultimately, these three dimensions are locked within a closed causal loop: dysfunctional institutions prevent the emergence of social consensus and active resilience; social fragmentation, in turn, fuels resistance against any form of integrated spatial intervention; and physical decay further erodes both the institutional will and the social capacity for change. As a result, the Goud has become trapped in an "unstable equilibrium at the threshold of crisis" — a condition in which every attempt at reform risks reproducing the very dysfunction it seeks to resolve.

Network governance strategies and the proposed model: transitioning from a vicious to a virtuous cycle

In light of this multi-level analysis, the central question arises: what type of governance can break this cycle of crisis? The findings clearly indicate that the solution does not lie in injecting additional resources into existing inefficient structures, but rather in a fundamental reengineering of the governance logic itself.

The proposed model of this research (Figure 14) introduces a multi-level network governance framework designed to achieve three major transitions:

1. From fragmented (island-like) governance to networked governance,
2. From symbolic participation to structured participation, and
3. From single-speed strategies to multi-speed, adaptive strategies.

This model is not conceived as a rigid procedural manual but as a dynamic and adaptive system capable of responding to the evolving complexities of urban regeneration in vulnerable settlements (Table 6).

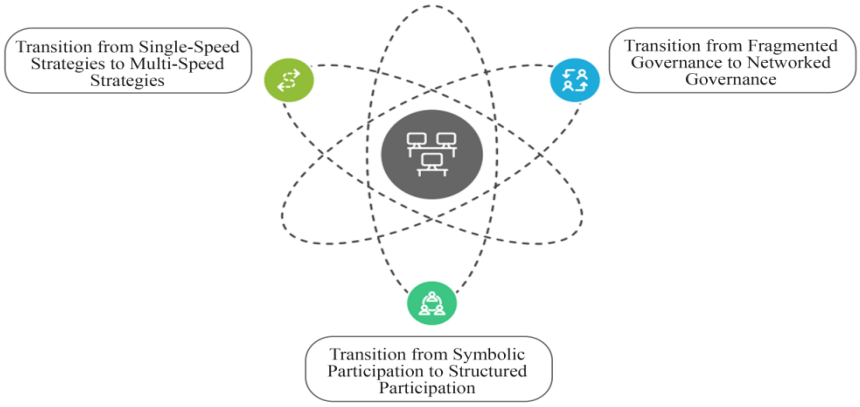


Figure 14. Integrated conceptual framework

Macro level: the Kurdān intersectoral authority – establishing strategic coordination and political stability

At the macro level, the primary strategy involves the creation of an "intersectoral kurdān authority" endowed with exceptional legal and financial powers. This authority, comprising senior representatives from the ministry of roads and urban development, tehran municipality, the governor's office, the judiciary, and the planning and budget organization, would act as the central coordinating body. Its key operational functions include:

- Approval and oversight of a national urban Goud governance charter, serving as a unified framework that resolves existing legal contradictions and clearly delineates the duties of each institution.

- Establishment of a transparent property registration and acquisition system, aimed at streamlining the formalization of ownership documents and resolving conflicts arising from informal or unregistered property claims.
- Guarantee of management continuity, through the enactment of a specific law ensuring that changes in ministerial or municipal leadership cannot halt or redirect approved projects.

This proposed mechanism explicitly replaces the current system of temporary, low-authority committees, and by centralizing strategic powers, it prevents policy fragmentation and institutional conflict.

Meso level: regional operational task force – transforming coordination into integrated action

At the meso level, to translate macro-level policies into coherent, actionable programs, the establishment of a regional operational task force under the supervision of the intersectoral Kurdān authority is proposed. This task force would consist of operational managers from the district municipality, the urban regeneration organization, and the regional offices of water, electricity, and gas utilities. Its main functions are as follows:

- Development and implementation of a comprehensive neighborhood action plan: designed collaboratively with community-based institutions (micro level), this plan consolidates all physical, social, and service-oriented projects into a unified timeline and budget framework.
- Establishment of a resource redistribution fund: by pooling the budgets of different agencies—rather than maintaining fragmented, isolated funding streams—this fund minimizes resource wastage and enables financing for complex, large-scale urban regeneration projects.
- Launch of an open data monitoring platform: this digital platform ensures transparent, real-time tracking of project progress accessible to the public, local residents, and the central oversight authority.

This proposed model effectively replaces the current "fragmented and parallel implementation" system, introducing a unified regional command center that maximizes operational efficiency and accountability across institutions.

Micro level: community-based institutions – transforming resistance into participation and active resilience

At the micro level, the key strategy is to institutionalize and legitimize community-based organizations as the primary mediators and implementing agents of localized action. These entities—comprising elected resident councils, housing and local development cooperatives, and volunteer networks—serve as the critical bridge between policy and practice. Their core functions include:

- Communicative facilitation: these institutions translate the technical language of urban policies into accessible local discourse while channeling residents' feedback upward to decision-making levels. This mechanism directly addresses the "communication gap" identified in the qualitative findings and strengthens two-way trust between citizens and institutions.
- Implementation of joint and small-scale projects: initiatives such as collective waste management, participatory street improvement, or community education programs involving both iranian and afghan women help tangibly reduce "identity divides" and strengthen "social capital."
- Management of microfinance funds: through the establishment of small cooperative credit and housing funds, fragmented individual ownerships can be consolidated to enable collective redevelopment and support resident-led "owner–builder" models.

In essence, this micro-level institutionalization converts passive resistance into active participation, empowering the local community to become a co-producer of urban transformation rather than a passive recipient of top-down interventions.

To address the "livability paradox" and the "fragmentation of spatial aspirations," the proposed network governance model employs a set of multi-speed strategies at the micro level:

First speed (immediate and foundational interventions): focused on all residents—particularly vulnerable groups—this phase prioritizes urgent safety measures such as reinforcing structurally endangered buildings and improving essential services, including water, electricity, and sanitation.

Second speed (empowerment and mobility pathways): designed for residents seeking significant life changes, this phase introduces social housing with participatory design and economic empowerment programs that create viable exit routes from the condition of "involuntary entrapment."

Third speed (gradual in-place upgrading): tailored for long-term native homeowners who value courtyard-centered living, this phase promotes on-site rehabilitation and incremental renewal while preserving the area's cultural and spatial identity patterns.

Together, these differentiated intervention speeds enable the governance framework to align with the diverse realities and aspirations of residents, transforming spatial inequality into a managed continuum of adaptive and inclusive urban transformation.

Table 6. Proposed alternatives and expected outcomes

Level of analysis	Current situation	Proposed alternative	Expected function and outcome
Micro (social–local)	Symbolic and fragmented participation of residents; distrust and social fragmentation	Establishment of intermediary and facilitative local institutions (residents' council of the Goud, volunteer networks)	Rebuilding trust, enhancing social capital, and institutionalizing structured participation in decision-making
Meso (executive–institutional)	Multiple decision-making bodies, fragmented implementations, and a lack of horizontal coordination	Formation of a regional operational task force under the intersectoral kurdān authority	Institutional cohesion, reduced functional overlap, and improved managerial efficiency
Macro (policy–legislative)	Fragmented laws and the absence of a unified national policy on Gouds.	Establishment of an intersectoral kurdān authority with independent legal and financial powers	Policy coherence, institutional transparency, and transition from centralized government to network-based governance

This integrated framework establishes a "triangle of transformation" composed of three interconnected pillars: the Intersectoral Authority (structure), the Regional Operational Task Force (process), and community-based institutions (participation). Together, these components convert the vicious cycle into a "virtuous cycle" of governance and regeneration. The reduction of institutional conflicts frees up resources; the successful implementation of localized projects rebuilds social trust; and the subsequent rise in social capital and mutual confidence enhances the overall legitimacy and efficiency of the governance system.Although derived from the in-depth case study of the Goud Seyed al-Shohada, this model's simultaneous attention to institutional, social, and spatial dimensions makes it adaptable and applicable to other informal settlements and deteriorated urban fabrics with similar structural conditions.

7. Conclusion

This study was conducted to provide a multi-level analysis of the managerial challenges of residential Gouds within deteriorated urban fabrics, focusing specifically on the Goud Seyed al-Shohada in Tehran. The findings revealed that the crisis in such settlements does not stem from isolated or single-dimensional causes; rather, it is the outcome of a complex interweaving of institutional, social, and physical factors operating simultaneously at the micro, meso, and macro levels.

Both qualitative and quantitative analyses demonstrated that the Goud Seyed al-Shohada is trapped within a series of "self-reinforcing vicious cycles," in which "institutional inefficiency," "identity fragmentation," and "physical deterioration" mutually intensify one another.

At the micro level, the identity divide between native residents and migrants, coupled with social resistance rooted in institutional distrust, has hindered the implementation of any form of integrated intervention. At the meso level, institutional misalignment and weak operational coordination among responsible agencies have exacerbated fragmentation and diminished the effectiveness of interventions. At the macro level, the absence of comprehensive legal frameworks, lack of sustained political will, and the municipality's unstable financial model have functioned as structural barriers to coherent and long-term urban regeneration efforts.

The innovation of this study lies in its development of an integrated, multi-level framework for analyzing the dynamic interplay among institutional, social, and spatial factors. Unlike previous studies that primarily adopted single-level perspectives, this research combined qualitative and quantitative methods to identify governance gaps across three levels and to explain their systematic interconnections. In particular, the introduction of the "multi-level network governance model" as a strategic pathway for transitioning from a vicious cycle to a virtuous cycle represents a key contribution of this research.

Although focusing on a single case study allowed for an in-depth and context-sensitive analysis, it also limited the generalizability of the findings. Nevertheless, the proposed model—by simultaneously

addressing institutional, social, and spatial dimensions within a systemic and multi-dimensional structure—possesses substantial "transferability value." It can be adapted and applied to other informal settlements and deteriorated urban areas with comparable structural conditions.

This integrated conceptual framework thus serves as a roadmap for understanding and managing crises in similar urban contexts. However, certain constraints remain, including limited access to high-level decision-makers and the relatively small sample size in the quantitative phase, both of which represent notable limitations of the present study.

The practical implications of this research include transitioning from fragmented governance to networked governance, designing multi-speed strategies to address the diverse needs of residents, and strengthening community-based institutions as bridging mechanisms between different levels of governance. From a policy perspective, the establishment of an Intersectoral Kurdān Authority at the macro level and a Regional Operational Task Force at the meso level can ensure coordination, managerial continuity, and sustained implementation of urban regeneration initiatives.

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Authors' Contributions

All authors contributed equally to the writing and development of this research.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this study.

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