

Management of regeneration of the central fabric of Tabriz within the framework of smart growth principles

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Extended Abstract

1. Introduction

The rapid urbanization and economic development in Iranian metropolises like Tabriz have led to substantial transformations in the physical, social, and environmental structures of cities. Particularly, central urban districts—once vibrant cultural and economic hubs—now face severe degradation due to obsolete infrastructure, overpopulation, unplanned expansion, and social disparities. The central district of Tabriz, situated in Region 8, embodies these complexities, encompassing valuable historical elements as well as socioeconomically vulnerable neighborhoods. This research explores a new pathway for urban regeneration by integrating the principles of smart growth. This approach is considered a viable strategy for achieving sustainable urban renewal, especially in distressed and deteriorated areas. The smart growth model offers an alternative to conventional, one-dimensional physical redevelopment strategies by promoting comprehensive, compact, environmentally friendly, and inclusive development. The primary goal of this study is to assess the regeneration potential of Tabriz's central fabric through the lens of smart growth, aiming for integrated and sustainable urban development. This includes:

- Identifying the key factors impacting regeneration.
- Examining the correlation between smart growth indicators and regeneration outcomes.
- Proposing a model for implementing integrated regeneration strategies aligned with smart urban principles.

The geographical focus is on Region 8 of Tabriz, particularly the historical and cultural core of the city encompassing approximately 420 hectares, including the renowned Tabriz Bazaar and Imam Street corridor.

2. Materials and Methods

This is an applied research study employing both qualitative and quantitative methods. Initially, theoretical foundations were established through a literature review. Empirical data were collected using structured questionnaires and interviews.

-Phase 1 (Qualitative): Delphi technique was used to refine indicators with insights from 19 subject-matter experts.

-Phase 2 (Quantitative): A sample of 384 residents of Region 8 participated in a Likert-scale survey, analyzed via SPSS and AMOS to apply Structural Equation Modeling (SEM).

Reliability was tested using Cronbach's alpha (average > 0.83), and validity was confirmed through CVR scores exceeding 0.74 across all dimensions.

3. Results and Discussion

The analysis confirms a statistically significant and positive relationship between smart growth principles and successful urban regeneration outcomes in Tabriz's central district.

Implemented Indicators:

- Pedestrian-oriented design, urban design scales, and intergenerational justice were found to be already operational to some extent.

.Potential but Latent Indicators:

- Management and productivity, sustainable employment, and value-creating economic opportunities were identified as underutilized yet critical for full regeneration.

.Most Influential Dimensions:

- Environmental indicators (e.g., green infrastructure, pollution control) exhibited the highest direct and indirect impact.

- Cultural indicators played a key role in strengthening local identity and social cohesion.

.Structural Equation Modeling (SEM):

- Demonstrated a high degree of model fitness: RMSEA = 0.065; CFI = 0.92; GFI = 0.95.

- Economic (0.83), social (0.88), environmental (0.94), and physical (0.81) factors had the strongest path coefficients toward the central regeneration outcome.

.Urban Fabric Characteristics:

- High structural vulnerability due to old, non-resistant materials.

- Narrow, inaccessible roads and declining public services.

- Influx of low-income populations and deteriorating demographic profiles.

- Fragmented urban blocks limiting redevelopment potential.

The application of smart growth principles in urban regeneration provides a framework for holistic urban revitalization that balances physical upgrading with socio-economic and environmental sustainability. The study underscores several critical strategies:

-Compact Urban Design: Reconfiguring land use through densification and functional mix to reduce sprawl.

-Mobility and Accessibility: Promoting public transport, walkability, and cycling to reduce congestion and environmental stress.

-Cultural Integration: Leveraging heritage assets to strengthen identity and foster tourism and investment.

-Community Engagement: Ensuring participatory planning to boost legitimacy and long-term success.

The research suggests that Tabriz's regeneration efforts must move beyond physical renewal to adopt multi-dimensional planning, incorporating governance reforms, economic incentives, and climate-resilient infrastructure.

4. Conclusions

The regeneration of Tabriz's central urban fabric, through the smart growth paradigm, represents a promising strategy to reconcile the city's rich historical identity with the demands of modern urban living. The research concludes that:

-Smart growth indicators have a measurable and positive influence on regeneration success.

-Environmental and cultural factors are particularly pivotal in driving sustainable outcomes.

-An integrated application of smart growth principles—across design, infrastructure, economy, and governance—can lead to smart, inclusive, and sustainable urban renewal.