

# Urban Acupuncture as a Strategy to Enhance Social Interactions: Insights from the Historic Center of Baghdad, Iraq

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## Abstract

This study delves into Urban Acupuncture (UA) as a transformative strategy for enhancing urban infrastructure, focusing on the Historic Center of Baghdad. The research examines how small-scale, responsive interventions inherent in UA can contribute to sustainable development, particularly in transportation and communication networks.

It employed surveys among the decision-makers and experts in Baghdad as a methodology followed by a cause-effect analysis to evaluate the impact of UA. Findings reveal a significant positive influence of UA on transportation and communication infrastructure, endorsed by key stakeholders for enhancing public transportation and modernizing infrastructure.

The study highlights the potential of small-scale interventions in urban renewal and acknowledges the complexities of implementing such strategies in Baghdad's unique urban landscape. Conclusions emphasize the efficacy of UA in urban renewal and advocate for further exploration into its nuanced impacts, recommending longitudinal studies for a comprehensive assessment.

**Keywords:** Urban Acupuncture, Transportation Development, Sustainable Urban Renewal, Small-Scale Interventions, Social Interaction Enhancement

## Introduction

Urban environments are dynamic entities that continuously evolve, reflecting and shaping the social interactions within them. The concept of Urban Acupuncture (UA), a metaphorical intervention in urban environments aiming to bring about social and ecological healing, offers a promising avenue for enhancing urban life. This research aims to explore the potential of UA in revitalizing urban spaces, with a focus on its impact on social interactions in the historic core of Baghdad. Through a detailed examination of Urban Acupuncture's role in Baghdad, this study seeks to contribute to the broader discourse on sustainable urban development and social well-being. By elucidating the relationship between physical urban interventions and social interactions, it aims to offer insights into how cities can be designed and modified to foster a vibrant, cohesive community life. This study aims to provide empirical evidence of UA's impact on urban social life.

The objectives of this study are twofold. They are as follows.

- To examine the role of Urban Acupuncture interventions in enhancing social interactions among residents of Baghdad. This involves analyzing specific UA projects within Baghdad's historic core, assessing their design, implementation, and the social dynamics they foster.
- To evaluate the effectiveness of UA in promoting community engagement and social cohesion. By measuring changes in social interaction patterns before and after UA interventions,

## Theoretical Basis

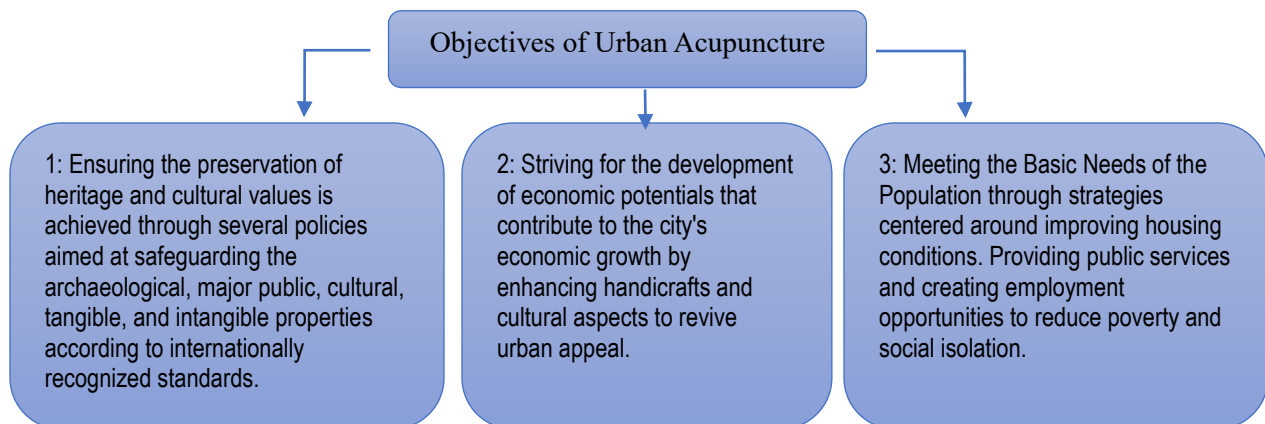
### Historical Overview of Urban Acupuncture Concept

The theory of Urban Acupuncture (UA) was developed in the 1960s and initially applied in South America and Southern Europe (Barcelona). Moreover, there are Asian examples of urban acupuncture. This concept emerged when numerous scientists and planners began re-evaluating urban renewal policies, seeking methods and approaches for rejuvenating urban spaces through rapid, small-scale, and cost-effective interventions. Three theorists have played a prominent role in this concept: Spanish architect Manuel de Solà-Morales, whose projects began around the 1970s, followed by Brazilian planner Jaime Lerner and Finnish architect Marco Casagrande, who also contributed to applying urban acupuncture theory in their projects (Elshinawy et al., 2023; Rosa-Jiménez et al., 2017).

Upon reviewing previous studies, urban acupuncture can be defined as follows: Urban acupuncture is an economical and effective approach to stimulate and activate cities through rapid, targeted interventions in specific urban areas. It aims to reshape and enhance urban life by improving environmental, social, and economic contexts. This approach manifests in activating open spaces and designing streets in ways that enhance social interaction, reinforce urban identity, and uphold local values. Urban acupuncture relies on a comprehensive analysis of social, environmental, and economic factors to identify areas in need of intervention, using a local approach and community participation to achieve its goals.

Moreover, it promotes a balance between the environment and the city through stimulating sustainable development and employing new technologies to effect positive change in the urban context. Social stimulation is one of the primary goals of urban acupuncture, enhancing communication and interaction among residents and fostering social cohesion in the city. The effectiveness of urban acupuncture depends on achieving gradual and sustainable change in targeted areas, where small interventions stimulate growth, improve the general environment, and enhance the quality of urban life (Rosa-Jiménez et al., 2017; Tousi et al., 2022)

Urban acupuncture theory aims to restore the economic, social, cultural, and historical development of deteriorated urban areas. It seeks to rebuild cities where people live and work, enhancing environmental quality, social, cultural, and recreational facilities, and improving residents' quality of life. Additionally, it aims to rejuvenate areas and neighborhoods suffering from inadequate infrastructure and urban services, which do not meet the requirements of contemporary society, as illustrated in the Figure 1.



**Fig. 1:** Objectives of Urban Acupuncture

Source: Author

### **Urban Acupuncture: Enhancing Social Interactions in Urban Parks**

Urban Acupuncture (UA) strategies, focusing on targeted, minor urban interventions, can significantly impact social interactions within urban environments, particularly in parks. By optimizing spatial configurations, such as pathways and communal areas, UA aims to create spaces that encourage social engagement. According to Sheng, Wan, and Yu (2021), the design and layout of urban parks play a crucial role in facilitating social behaviors, highlighting how UA's principles can be effectively integrated with urban social dynamics. This approach suggests that strategic urban modifications, informed by UA, could enhance social connectivity and foster community cohesion (Sheng et al., 2021)

### **Urban Design and Social Cohesion: Expanding the Scope of Urban Acupuncture**

Urban Acupuncture (UA), a concept that focuses on making small-scale interventions in urban environments to bring about larger positive changes in the urban fabric, can play a pivotal role in enhancing social cohesion through thoughtful urban design and the utilization of public spaces. Research underscores the significance of urban design in fostering social interactions and cohesion within public spaces, suggesting that well-designed urban areas and green spaces can act as catalysts for social engagement and community building.

Llopis Abella et al. (2020) illustrate the impact of urban design on social cohesion through a virtual reality experiment in Karachi, Pakistan, demonstrating that improvements in the design of public parks increased their attractiveness and the willingness of people to use them. They highlight the potential of urban design interventions to promote social contact and cohesion in highly segregated urban settings (Abella et al., 2020)

Moreover, the presence of urban green spaces has been associated with various health and psychological benefits, including increased social cohesion. Jennings and Bamkole (2019) discuss how urban green spaces encourage positive social interactions that cultivate social cohesion, thereby enhancing public health and well-being. They emphasize the role of these spaces in providing opportunities for people to engage in activities that promote social cohesion and community well-being (Jennings & Bamkole, 2019)

### **Principles of Urban Acupuncture**

Urban Acupuncture (UA) operates on several key principles, as derived from various authors who have applied UA in different contexts. These principles are vital for understanding and effectively implementing UA strategies in practical urban issues. They are as follows

1. **Identifying Areas of 'Illness':** This principle, at the core of UA, involves pinpointing 'sick' points or areas in the urban fabric, often plagued with urban, economic, or social problems (Nassar, 2021)
2. **Developing Scenarios:** Essential to UA is the creation of various scenarios, selecting the most favorable one that appeals to the majority and secures commitment from both residents and municipal authorities (Bell et al., 2020)
3. **Citizen Participation:** In UA, decision-makers are not the sole sources of design proposals. Instead, citizen involvement guides planners towards a completely new developmental vision (Balicka et al., 2021)
4. **Immediate Action:** UA requires 'sparks' of immediate and effective actions to invigorate spaces, contrasting with the prolonged processes typical in traditional planning (Nassar, 2021)
5. **Educating the Population:** Understanding how the community receives built environment interventions accelerates the success of UA. Educating the population about their community and built environment is crucial for sustainable future development (Alkinani, 2019; Rosa-Jiménez et al., 2017)
6. **Holistic Approach:** This principle acknowledges the need for integrating all related elements, including economic, environmental, infrastructural, historical, and legislative components (Bugarič, 2018)

7. **Small-scale Intervention:** UA interventions should be applied to small spaces, aiming for significant impact through small, cost-effective, experimental projects (Acupuncture – Basic Research and Clinical Application, 2018)
8. **Social Catalyst:** UA interventions in urban areas should act as catalysts for human interaction, creating spaces for socializing and transforming the city into a vibrant hub for interventions (Salman & Hussein, 2021)
9. **Transforming Space into Place:** Revitalizing a place involves preserving its positive aspects, rectifying negatives, and connecting it to its history and culture (Casagrande, 2020)

### **Applications of Urban Acupuncture**

Urban Acupuncture finds its application in diverse urban contexts, aiming to address specific issues within the urban fabric. It involves strategic, small-scale interventions that target 'pressure points' in the city to alleviate stress in the urban system, much like acupuncture in traditional Chinese medicine aims to relieve stress in the human body. These interventions may include:

1. Development of community spaces to enhance social interaction.
2. Revitalization of underutilized or neglected urban areas.
3. Implementation of green spaces and environmental initiatives.
4. Small-scale infrastructural improvements.

Through these targeted interventions, UA seeks to stimulate broader positive changes in the urban environment, contributing to the overall health and vitality of the city.

### **Review of Literature**

The review of literature presents a comprehensive exploration of urban acupuncture, a concept at the forefront of sustainable urban development. It examines various studies that collectively illuminate the multifaceted applications and impacts of urban acupuncture strategies in different urban settings. From revitalizing old urban areas through sponge city concepts to transforming spaces during the COVID-19 pandemic. Each study contributes to a deeper understanding of how small-scale, strategic interventions can significantly influence urban landscapes and communities. These studies provide a rich tapestry of research, underscoring the dynamic and evolving nature of urban acupuncture in addressing contemporary urban challenges.

Recent studies in urban acupuncture and sustainable urban renewal offer comprehensive insights into innovative urban design strategies. Beginning with the most recent, Wang et al. (2023) delve into sponge city renewal strategies, examining systematic approaches and multidisciplinary integration for urban revitalization. Elshinawy et al. (2023) explore urban acupuncture's role during the COVID-19 pandemic, focusing on how small-scale interventions can reshape urban spaces under lockdown constraints. Tousi, Sinou and Perouli (2022) investigate the rejuvenation of open spaces in Greek ex-refugee areas, highlighting the impact of urban acupuncture on urban morphology and microclimate. Xi et al. (2021) and Ding, Xu and Huang (2021) emphasize community perspectives in rural micro-regeneration and historical district transformation, respectively. Salman and Hussein (2021) along with Al-Hinkawi and Al-Saadi (2020) provide theoretical perspectives on the applications of urban acupuncture in revitalizing urban areas. At the same time, Naghibi, Faizi and Ekhlassi (2020) and Bell et al. (2020) discuss environmental improvement through urban acupuncture and landscape design interventions in coastal communities. Further, Bugarič (2018) and Rosa-Jiménez et al. (2017) offer insights into social interaction and urban regeneration strategies in disadvantaged areas. Together, these studies form a cohesive narrative of the evolution of urban acupuncture and its pivotal role in sustainable urban development.

In conclusion, the diverse array of studies presented in this review of literature vividly illustrates the dynamic role of urban acupuncture in sustainable urban development. Each study, with its unique focus and context enriches our understanding of how targeted urban interventions can catalyze significant positive changes in urban environments. This body of work not only highlights the importance of innovative urban

design strategies but also reinforces the necessity for adaptable, community-focused approaches in shaping the future of urban landscapes. (Table 1)

While the literature review provides comprehensive insights into the application of Urban Acupuncture (UA) in various urban settings, it reveals certain gaps in knowledge. Specifically, there is a lack of detailed case studies focusing on the application of UA in the context of the unique urban and cultural landscape of Baghdad. Moreover, the existing literature primarily explores short-term impacts of UA interventions, leaving a gap in understanding their long-term sustainability and effectiveness. However, there is limited research on the specific impact of UA on social interactions and community engagement in the context of historical urban centers. Addressing these gaps would provide a more holistic understanding of UA's potential in diverse urban environments, particularly in cities with rich historical and cultural backgrounds like Baghdad.

**Table 1:** Summary of the studies

Source: Author

Source	Study Summary
(Wang et al., 2023)	Discusses sponge city renewal strategies in old urban areas, emphasizing systematic, demand-oriented approaches and the integration of various specialties for effective urban renewal.
(Elshinawy et al., 2023)	Explores the application of urban acupuncture during the COVID-19 pandemic, addressing urban challenges posed by lockdowns and social distancing measures.
(Tousi et al., 2022)	Focuses on urban acupuncture in Greek ex-refugee areas, highlighting its impact on urban morphology and microclimate.
(Xi et al., 2021)	Examines micro-regeneration strategies for rural renewal, emphasizing resident perceptions in traditional village conservation.
(Ding et al., 2021)	Delves into urban acupuncture for transforming old communities in historical districts, preserving heritage while improving public spaces.
(Salman & Hussein, 2021)	Explores urban acupuncture theory, its applications in revitalizing urban areas through small-scale interventions.
(Al-Hinkawi & Al-Saadi, 2020)	Reviews urban acupuncture as a tool for sustainable urban development, focusing on the Rusafa Center in Baghdad.
(Bell et al., 2020)	Discusses urban acupuncture in coastal communities, exploring landscape design's impact on health and wellbeing.
(Naghbi et al., 2020)	Focuses on vacant urban land as a community asset for environmental improvement, discussing urban acupuncture's role in regeneration.
(Daugelaite et al., 2018)	Analyzes urban acupuncture's impact on urban spaces from social and psychological perspectives.
(Bugarič, 2018)	Reviews theories and applications of urban acupuncture, especially in the Nørrebro district of Copenhagen.
(Rosa-Jiménez et al., 2017)	Addresses challenges and strategies for urban regeneration in vertical slums, advocating holistic approaches.

## Research Methodology

This study utilizes a case study methodology, concentrating on the Historic Center of Baghdad to assess the effectiveness of Urban Acupuncture (UA) in urban regeneration. The research employs qualitative methods, gathering perspectives from key stakeholders and academic experts. The study involved 50 respondents, including decision-makers from the Rusafa Old Municipality and professors from the University of Baghdad, offering a comprehensive view of UA's impact from diverse expert angles.

The study does not test any predefined hypothesis; instead, it seeks to explore and document the effectiveness of UA interventions. Information was gathered through interviews and surveys with these stakeholders, focusing on their experiences and perceptions regarding UA in Baghdad.

To gauge social interaction, qualitative assessments from the survey responses were utilized, allowing for an in-depth exploration of social dynamics influenced by UA initiatives. In this context, 'social



infrastructure' refers to critical services and facilities contributing to community welfare, such as educational institutions, healthcare facilities, and recreational spaces.

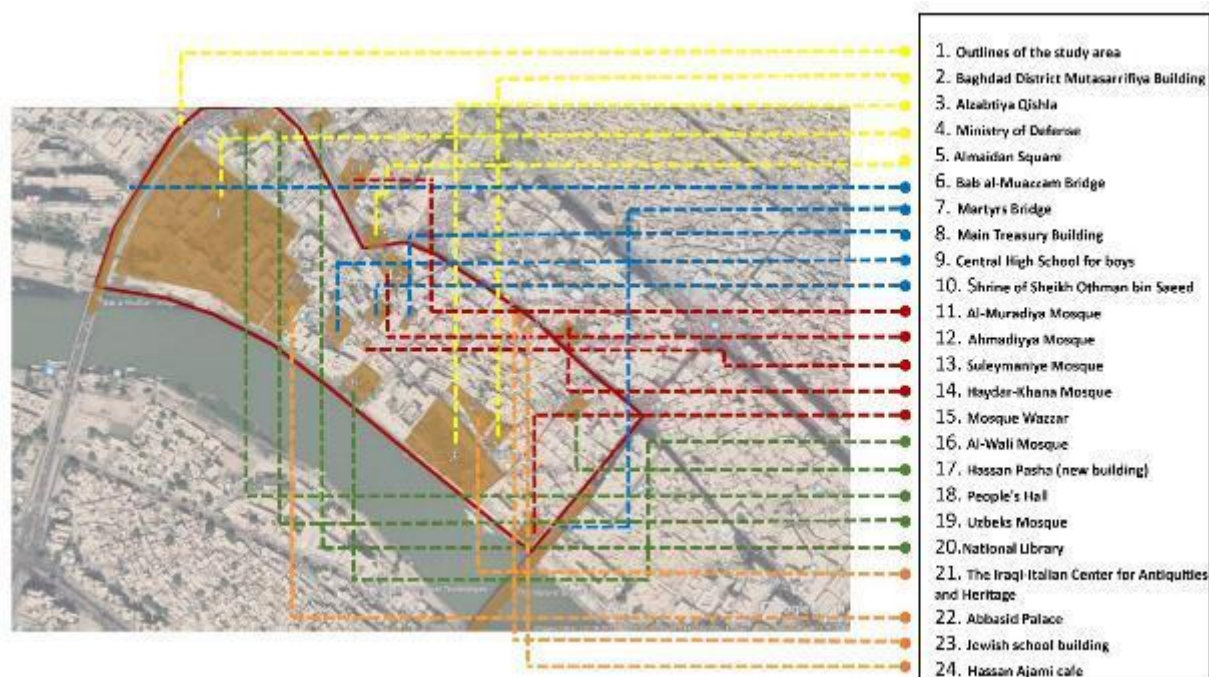
The research analyzed various urban development indicators, in addition to social interactions. This inclusive approach provided a well-rounded understanding of UA's impact on the historic center of Baghdad, encompassing more than just the social components.

### The Case Study: The Historic Center of Baghdad

The city of Baghdad, renowned for its civilizational authenticity, is a treasure trove of archaeological and religious sites that testify to its rich historical and cultural heritage. This study focuses on a particularly prominent area within Baghdad, known as the Historic Center of Baghdad. This area, which includes the Al-Qishla and Al-Mutanabbi Street, is situated on the eastern side of the region and is bordered by Bab Al-Mu'azzam Bridge on its western side, as depicted in the figure.

As illustrated in Figure 2, which outlines the boundaries of the study area based on Google Maps, the Historic Center of Baghdad holds significant civilizational importance. It represents the cultural and historical heritage of Baghdad, making it an ideal subject for this research to test its hypothesis and apply the theoretical framework derived from previous chapters.

The importance of this area extends beyond its historical and cultural value. It has garnered attention and interest from the government and citizens alike, leading to initiatives by the Baghdad Municipality to rejuvenate and renovate the area to preserve its heritage. This revitalization has turned the Historic Center into a hub for cultural and social activities, simultaneously serving as a temporal and mental break from the onslaught of modern technology and its implications. This renewed awareness of the value and significance of heritage is pivotal.

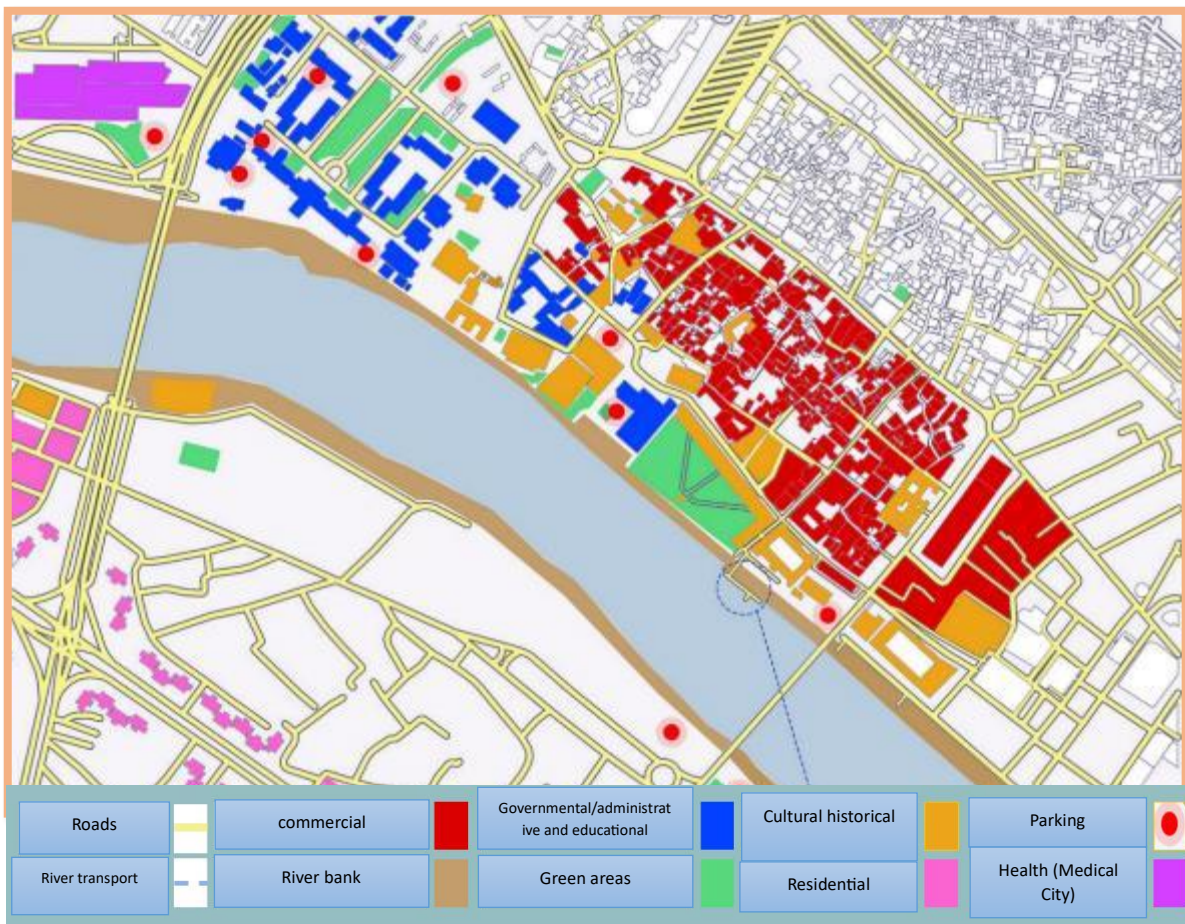


**Fig. 2:** The Historic Center of Baghdad  
Source: Author based on Google Maps

The area is characterized by historical, cultural, social, and economic values that reflect and enhance Baghdad's cultural identity while reinforcing collective memory. Through understanding the urban and heritage development of local buildings and promoting economic aspects, the area serves as a vital cultural and social destination for Baghdad, hosting cultural activities, social gatherings, and art exhibitions.

Its architectural designs offer insights into the enduring spirit of the place and its cultural timeline (Hassan & Alkinani, 2022)

Furthermore, the region is distinguished by varied land uses, as shown in the Figure 3. This diversity encompasses both horizontal and vertical dimensions, as evidenced by field visits and prior studies. The area is marked by a cultural and commercial character, with a mix of randomly organized administrative buildings and limited, inadequately equipped residential use. The need for urban renewal and activation of urban storage is pressing, necessitating well-planned cultural and recreational activities, alongside a parallel and organized variation in land use, particularly given the area's significance, marked by the riverbank and Al-Mutanabbi Street, the main artery of the region. The importance of these elements necessitates the activation of activities that enhance these aspects, including the development of the riverside and the street (Abdulameer & AlKinani, 2023; Abid et al., 2020)



**Fig. 3:** Land use of The Historic Center of Baghdad

Source: Author

## Findings

In this analysis, the efficacy of urban acupuncture strategies in the historic center of Baghdad, are revealed. Focusing on transportation and communication. The results reflect the perspectives of stakeholders on key aspects such as public transportation efficiency, infrastructure improvement, and the development of alternative transportation networks. This introduction sets the stage for a detailed examination of these findings, emphasizing their implications for urban development and sustainability in Baghdad.

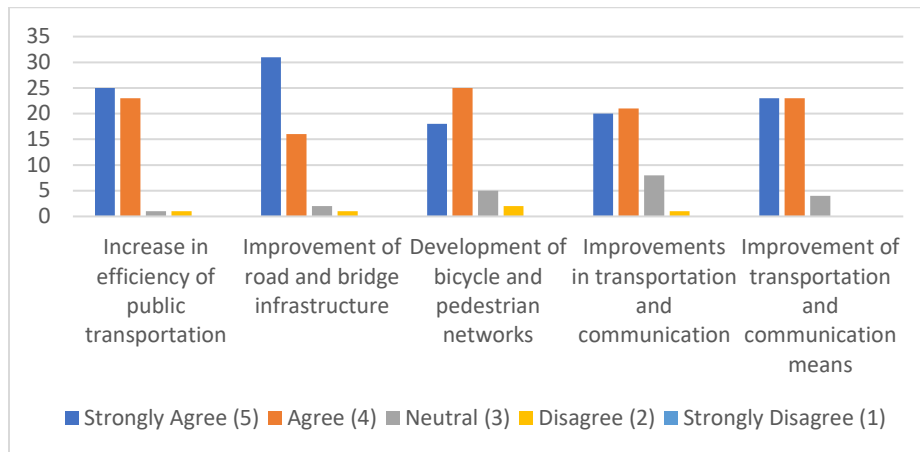
- **Public Transportation Efficiency:** A significant portion (50%) of the sample strongly agreed that the development of public transportation effectively improves city mobility. This consensus underscores the critical role of efficient public transportation in enhancing urban movement.
  - **Road and Bridge Infrastructure Improvement:** The majority (62% strongly agree, 32% agree) recognize the essentiality of improving road and bridge infrastructure for better traffic movement and reduced congestion, highlighting its impact on traffic fluidity.
  - **Bicycle and Pedestrian Network Development:** With 50% agreeing and 36% strongly agreeing, the development of these networks is seen as vital in offering alternative modes of transportation and reducing congestion, thereby enhancing urban mobility diversity.
  - **Transportation and Communication Improvements:** A significant 82% agreed on the importance of these improvements in enhancing social connectivity, emphasizing the role of transportation and communication in fostering community interactions.
1. **Economic Development and Investment Attraction:** The majority (92%) agreed that improving transportation and communication means are instrumental in boosting economic development and attracting investments, indicating the potential of these sectors in urban economic growth.

These findings, when combined with the comprehensive analysis in the study, reveal the pivotal role of transportation and communication in urban development, not only in enhancing mobility but also in fostering economic growth and social connectivity in Baghdad's historic center. This is illustrated in Table (2), Figure (4)

**Table 2:** Survey Responses for the Infrastructure Development Indicator  
Source: Author

Item	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Arithmetic Mean
Transportation and Communication Development Indicator						
Increase in efficiency and provision of public transportation, and its contribution to improving mobility in the area	25	23	1	1	0	4.4
Improvement of road and bridge infrastructure leading to better traffic movement and reduced congestion	31	16	2	1	0	4.5
Development of bicycle and pedestrian networks, and their contribution to improving alternative transportation modes and reducing road congestion	18	25	5	2	0	4.18
Implementation of improvements in transportation and communication, and their contribution to enhancing social connectivity	20	21	8	1	0	4.2
Improvement of transportation and communication means, and their contribution to enhancing economic development and attracting investments	23	23	4	0	0	4.38
Overall Arithmetic Mean	Positive	4.33				

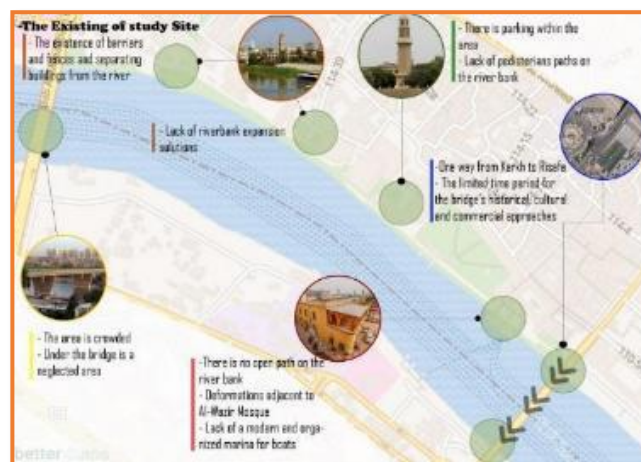




**Fig. 4:** Survey Responses for the Infrastructure Development Indicator  
Source: Author

From the Table 1, it is concluded that all the secondary indicators of the main Infrastructure Development Indicator are positive, with varying intensities when compared to the arithmetic mean according to the Likert scale. The indicator for the improvement of basic services, as perceived by the purposive sample of experts from ministries and specialized institutions, is considered positive. It is deemed essential and vital for the city's foundation, contributing to connecting different parts of the city, its events, and activities with each other, as well as linking the city with neighboring cities. Consequently, the main indicator is regarded as one of the most crucial aspects that need to be present in the area and the city, as illustrated in the following figures 5 and 6.

The study encapsulates the results derived from the purposive sample evaluation, which were obtained through a structured questionnaire. The aggregated data indicates a strong consensus among stakeholders in favor of enhancing the efficiency of public transportation and the infrastructure of roads and bridges. There is a notable affirmation for the development of bicycle and pedestrian networks, reflecting a commitment to improving alternative transportation modes and reducing congestion. The collective responses also underscore the significance of transportation and communication improvements in bolstering social connectivity and economic development. The arithmetic mean of the indicators, calculated based on the Likert scale, exhibits a positive outlook across the board, confirming the effectiveness of the proposed urban development interventions.



**Fig.5:** The Current State of the Transportation Infrastructure Network in the Historic Center of Baghdad.

Source: Author



**Fig. 6:** Proposal for the Development of the Transportation Infrastructure Network in the Historic Center of Baghdad.

Source: Author

## Conclusion

This study explored the role of Urban Acupuncture's (UA) within the Historic Center of Baghdad. It ascertained its substantial contributions toward urban infrastructure, particularly in transportation and communication realms. By leveraging small-scale, targeted interventions, UA has shown its potential to significantly improve city mobility, connectivity, and by extension, social interaction within this historic urban fabric.

The findings demonstrate the efficacy of UA in revitalizing urban landscapes—transforming not only physical spaces but also knitting the social fabric closer through enhanced public spaces and mobility solutions. This dual impact on the city's physical and social spheres directly aligns with the research objectives to evaluate UA's influence on social dynamics within the historic core of Baghdad. It concludes that enhanced transportation and communication infrastructure have emerged as pivotal in fostering richer social interactions and community engagement, thereby contributing to the vibrancy of urban life in Baghdad.

Furthermore, the research establishes a pressing need for a nuanced understanding of UA's role in urban renewal processes. Therefore, it calls for an integrated approach that considers the unique cultural and historical contexts of Baghdad, suggesting that future research should delve deeper into UA's impacts on social cohesion and community vitality. The conclusions indicate a need for a broader, theory-informed perspective on urban renewal, urging for interventions that are not only physically transformative but socially integrative, fostering a sense of community and belonging among residents.

These findings show that Urban Acupuncture holds transformative potential for cities like Baghdad, offering a roadmap for urban renewal that is both culturally sensitive and socially inclusive. This study is a step forward in our understanding of UA's impact, setting a foundation for future research to build upon, particularly in examining the long-term effects of such interventions on social interaction within urban environments.

## Recommendations

In the study examining Urban Acupuncture (UA) as a transformative strategy for the Historic Center of Baghdad, key insights were gained into the impact of UA on the city's transportation network. While the study shed light on the potential for enhancing the urban environment, it also highlighted the complexity of

directly correlating UA interventions with social interactions due to the multifaceted nature of urban dynamics. Building on these insights, the following recommendations are proposed:

1. Enhance Infrastructure and Transportation: Focus on targeted UA interventions to improve the transportation network, emphasizing sustainable and culturally sensitive solutions.
2. Incorporate Social Considerations: While directly measuring social interaction was complex, future UA projects should include strategies to foster social engagement and community building.
3. Preserve Historical Integrity: Ensure that UA interventions respect and integrate Baghdad's rich historical and cultural heritage.
4. Engage Community and Stakeholders: Involve local communities and key stakeholders in the planning and implementation of UA projects to ensure their needs and perspectives are addressed.
5. Conduct Comprehensive Evaluations: Implement robust evaluation mechanisms to assess the impact of UA interventions on both the urban infrastructure and social dynamics.

These recommendations aim to guide the effective implementation of Urban Acupuncture techniques in Baghdad's historic center, recognizing the multifaceted impact of such interventions on the urban fabric.

## Reference

- Abdulameer, M. A. & AlKinani, A. S. (2023) *Theoretical structure of apparent and latent in the urban townscape: Subject review*. 060016. <https://doi.org/10.1063/5.0163370>
- Abid, E. H., Alkinani, A. S. & Abudmunim, S. A. (2020) The Compact city and urban image of the traditional city center. *IOP Conference Series: Materials Science and Engineering*, 737(1), 012236. <https://doi.org/10.1088/1757-899X/737/1/012236>
- Acupuncture – Basic Research and Clinical Application*. (2018). MDPI. <https://doi.org/10.3390/books978-3-03897-235-8>
- Al-Hinkawi, W. Sh. & Al-Saadi, S. M. (2020) Urban Acupuncture, a Strategy for Development: Case Study of Al-Rusafa, Baghdad. *IOP Conference Series: Materials Science and Engineering*, 881(1), 012002. <https://doi.org/10.1088/1757-899X/881/1/012002>
- Alkinani, A. S. (2019) Urban renewal of the historic centre of Rusafa. *IOP Conference Series: Materials Science and Engineering*, 518(2). <https://doi.org/10.1088/1757-899X/518/2/022075>
- Balicka, J., Storie, J. T., Kuhlmann, F., Wilczyńska, A. & Bell, S. (2021) Tactical urbanism, urban acupuncture and small-scale projects. In *Urban Blue Spaces* (pp. 406–430). Routledge. <https://doi.org/10.4324/9780429056161-19>
- Bell, S., Mishra, H. S., Elliott, L. R., Shellock, R., Vassiljev, P., Porter, M., Sydenham, Z. & White, M. P. (2020) Urban Blue Acupuncture: A Protocol for Evaluating a Complex Landscape Design Intervention to Improve Health and Wellbeing in a Coastal Community. *Sustainability*, 12(10), 4084. <https://doi.org/10.3390/su12104084>
- Bugarič, B. (2018) Urban acupuncture treatment: Implementing communication tools with youth in Ljubljana suburbs. *Urbani Izziv*, 29(supplement), 95–108. <https://doi.org/10.5379/urbani-izziv-en-2018-29-supplement-006>
- Casagrande, M. (2020) *From Urban Acupuncture to the Third Generation City* (pp. 131–153). [https://doi.org/10.1007/978-3-030-26717-9\\_7](https://doi.org/10.1007/978-3-030-26717-9_7)
- Daugelaite, A., Gražulevičiūtė-Vileniške, I. & Landauskas, M. (2018) Possibilities to Apply the Urban Acupuncture Concept in Kaunas: Social Aspect. *Landscape Architecture and Art*, 13, 18–27. <https://doi.org/10.22616/j.landarchart.2018.13.02>
- Ding, R., Xu, H. & Huang, J. (2021) *Research on the Public Space Reconstruction of the Old Community in the Historical and Cultural District*. <https://doi.org/10.3233/ATDE210165>
- Elshinawy, E., Serag, Y., Elshater, A. & Afifi, S. (2023) Urban acupuncture theory for reclaiming urban spaces during the COVID-19 lockdown in New Cairo City. *HBRC Journal*, 19(1), 301–318. <https://doi.org/10.1080/16874048.2023.2271149>

- Hassan, H. M. M. & Alkinani, A. S. (2022) *Challenges facing the transition of traditional cities to smart: Studying the challenges faced by the transition of a traditional area such as Al-Kadhimiya city center to the smart style*. 020193. <https://doi.org/10.1063/5.0093103>
- Naghibi, M., Faizi, M. & Ekhlasi, A. (2020) The role of user preferences in urban acupuncture: Reimagining leftover spaces in Tehran, Iran. *Urbani Izziv*, 31(2), 114–126. <https://doi.org/10.5379/urbani-izziv-en-2020-31-02-005>
- Nassar, U. A. E. (2021) Urban Acupuncture in Large Cities: Filtering Framework to Select Sensitive Urban Spots in Riyadh for Effective Urban Renewal. *Journal of Contemporary Urban Affairs*, 5(1), 1–18. <https://doi.org/10.25034/ijcua.2021.v5n1-1>
- Rosa-Jiménez, C., Nebot, N., García Moreno, A. & Ballesteros, M. J. M. (2017) Near Zero Consumption Building as an Urban Acupuncture for a Vertical Slum. A Case Study in the City of Malaga, Spain. *IOP Conference Series: Materials Science and Engineering*, 245, 052028. <https://doi.org/10.1088/1757-899X/245/5/052028>
- Salman, K. A. H. & Hussein, S. H. (2021) Urban acupuncture as an approach for reviving. *IOP Conference Series: Earth and Environmental Science*, 779(1), 012031. <https://doi.org/10.1088/1755-1315/779/1/012031>
- Tousi, E., Sinou, M. & Perouli, A. (2022) Urban Acupuncture as a Method of Open Space Regeneration in Greek Ex-Refugee Areas. The Case of Nikea, Piraeus. *Journal of Sustainable Architecture and Civil Engineering*, 30(1), 5–18. <https://doi.org/10.5755/j01.sace.30.1.29423>
- Wang, Y., Liu, H., Zhang, W., Wei, H. & Feng, L. (2023) *Sponge City Renewal Strategy of the Old Urban Areas Under the Background of Systematic and Full-Field Promotion*. <https://doi.org/10.3233/ATDE230350>
- Xi, X., Xu, H., Zhao, Q. & Zhao, G. (2021) Making Rural Micro-Regeneration Strategies Based on Resident Perceptions and Preferences for Traditional Village Conservation and Development: The Case of Huangshan Village, China. *Land*, 10(7), 718. <https://doi.org/10.3390/land10070718>
- Jennings, V. & Bamkole, O. (2019) The Relationship between Social Cohesion and Urban Green Space: An Avenue for Health Promotion. *International Journal of Environmental Research and Public Health*, 16(3), 452. <https://doi.org/10.3390/ijerph16030452>
- Llopis Abella, J., Fruttero, A., Tas, E. O. & Taj, U. (2020) *Urban Design, Public Spaces, and Social Cohesion : Evidence from a Virtual Reality Experiment*. World Bank, Washington, DC. <https://doi.org/10.1596/1813-9450-9407>
- Sheng, Q., Wan, D. & Yu, B. (2021) Effect of Space Configurational Attributes on Social Interactions in Urban Parks. *Sustainability*, 13(14), 7805. <https://doi.org/10.3390/su13147805>