Historical Centers: An exploratory comparison of sustainable applications in urban renewal projects – Najaf and Karbala, Iraq

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Abstract

This study examines sustainability initiatives in urban renewal projects in the canter of the holy cities of Najaf and Karbala, two cities of historical and cultural importance to the Islamic world in general, and to the Shiite community in particular. The study aims to evaluate the current situation in the two cities, and emphasizes the different methods for preserving the heritage and enhancing public spaces in the cities of Najaf and Holy Karbala, which were shaped by their unique historical, cultural and urban features. Despite a shared commitment to protecting their historical heritage, these cities face challenges in integrating modern technology and engaging the community in environmental conservation efforts.

A questionnaire was conducted directed to experts to determine development priorities through seven main indicators of sustainability concepts and tested on the research case study. The results showed in the canter of the holy city of Karbala a clear preference for indicators of social integration and suitability of areas open to visitors (between the two holy shrines) with a clear weakness in indicators of preservation and provision of transportation. Public and community participation in development projects. While the results in the centre of the Holy City of Najaf showed a clear preference in maintenance, development, and transportation work for people with special needs, and delegations of visitors, this difference could be due to the nature of the spaces surrounding the Holy Shrine in the canter of the Holy Shrine of Najaf at the expense of open spaces for the residents of the region. The research recommends developing a plan that takes into account sustainability and aims to balance the needs of residents and visitors alike, with a focus on spatial and functional gradation to achieve sustainability requirements within the main research indicators.

الخلاصة: تبحث هذه الدراسة مبادرات الاستدامة في مشاريع التجديد الحضري في مركز مدينتي النجف الاشرف وكربلاء المقدسة، وهما مدينتان لهما أهمية تاريخية وثقافية للعالم الإسلامي عامة, وللمجتمع الشيعي على وجه الخصوص. تهدف الدراسة الى تقييم الحالة الراهنة في المدينتين، وتؤكد على الأساليب المتباينة للحفاظ على التراث وتعزيز الأماكن العامة مدينتي النجف الاشرف وكربلاء المقدسة، والتي تشكلت من خلال ملامحها التاريخية والثقافية والحضرية الفريدة. وعلى الرغم من الالتزام المشترك بحماية تراثها التاريخي، تواجه هذه المدن تحديات في دمج التكنولوجيا الحديثة وإشراك المجتمع في جهود الحفاظ على البيئة.

تم عمل استبيان موجه للخبراء لتحديد أولويات التطوير من خلال سبع مؤشرات رئيسية لمفاهيم الاستدامة واختبارها على الحالة الدراسية للبحث, وقدأظهرت النتائج في مركز مدينة كربلاء المقدسة افضلية واضحة لمؤشرات الاندماج الاجتماعي وملائمة القضاءات المفتوحة للزائرين (بين المرقدين الشريفين) مع ضعف واضح في مؤشرات الحفاظ وتوفير النقل العام والمشاركة المجتمعية في مشاريع التطوير. في حين أظهرت النتائج في مركز مدينة النجف الاشرف افضلية واضحة في اعمال الصيانة والتطوير والنقل لذوي الاحتياجات الخاصة, ووفود الزائرين, ويمكن ان يرجع هذا الاختلاف الى طبيعة المساحات المحيطة بالمرقد الشريف في مركز مدينة النجف الاشرف على حساب الفضاءات المفتوحة لسكنة المنطقة. يوصي البحث بوضع خطة تراعي الاستدامة وتهدف الى الموازنة بين الحاجات الساكنين والزوار على حد سواء مع التركيز على التدرج الفضائي والوظيفي لتحقيق متطلبات الاستدامة ضمن المؤشرات الرئيسية للبحث.

1. INTRODUCTION

The historical centres of cities in Iraq were distinguished by their cultural landmarks and historical distinction at the regional level in terms of antiquities and buildings whose history extends back to ancient times.[1] many challenges have emerged at the present time that these cities face, such as the gradual deterioration of monuments and buildings, and the social and demographic changes and transformations that affected the cultural identity of the two cities.[2] The process of achieving sustainable urban renewal for any historical centre is difficult because it depends on the use of effective strategies. One of the most important challenges to achieving renewal is the need to mainly preserve cultural identity, and achieve a balance between urban development and heritage preservation by following strategies related to the design and manufacturing process, we can focus on community participation to address this problem. Working to integrate sustainability principles with urban renewal processes can contribute to preserving the environment and resources.[3] The use of modern technology in the restoration and documentation processes has the potential to enhance the effectiveness of renovation. Moreover, by securing sufficient financing, it becomes possible to overcome any financial obstacles that may arise. By maintaining a harmonious balance between development and the preservation of cultural heritage, as well as promoting sustainable tourism, it is feasible to cultivate an environment of respect for both the natural surroundings and the local community, ultimately leading to an economic upswing. [4]

There are many factors involved in assessing urban sustainability in historic city centres, preserving both the physical and cultural heritage holds utmost importance. However, certain cities face the challenge of modernizing specific areas of the old city to align with current advancements. [5]In many cases, appropriate strategies can be highly controversial, especially regarding determining the importance of one element over another in sustainability factors, such as the importance of using natural materials rather than focusing on technology, or the importance of preserving vintage items. Buildings versus some high value buildings. [6]This requires a lot of planning and the involvement of specialists in order to implement it, and it cannot be concluded that these procedures are the same for all historic city centres. Therefore, achieving a successful balance between the different requirements of urban preservation and city revitalization is an effort that involves more complex efforts. [7]Urban renewal strategies in the city centres of Najaf and Karbala, which represent among the most important cities in Iraq for the Shiite community due to their great religious and cultural history, include many basic principles of sustainability, such as encouraging the use of public transportation and bicycles, improving the quality of green spaces, improving the quality of air and water, and others.[8] Despite this, There are many challenges that hinder these plans, for example, providing financing for projects and achieving coordination between local contexts and stakeholders. [9]

To achieve sustainability in urban areas, a holistic strategy that encompasses social, economic, and environmental aspects is essential. Urban renewal endeavours strive to build resilient, inclusive, and enduring communities by engaging residents, creating employment opportunities, enhancing infrastructure, and embracing green practices. However, this journey is not without obstacles, including resource constraints, planning deficiencies, and socio-political barriers. Additionally, varying interpretations of sustainability can influence the execution and perception of these projects. Ensuring sustainable outcomes demands meticulous planning and continuous evaluation to align with the overarching goals of sustainability. Based on the above, the research question can be: How do the sustainable urban renewal initiatives in Najaf and Karbala, with their emphasis on preserving historical and cultural heritage while integrating modern sustainability practices, compare in terms of strategies, challenges, and community engagement? and what lessons can be drawn to inform future urban renewal projects in historic cities globally? See Fig.1
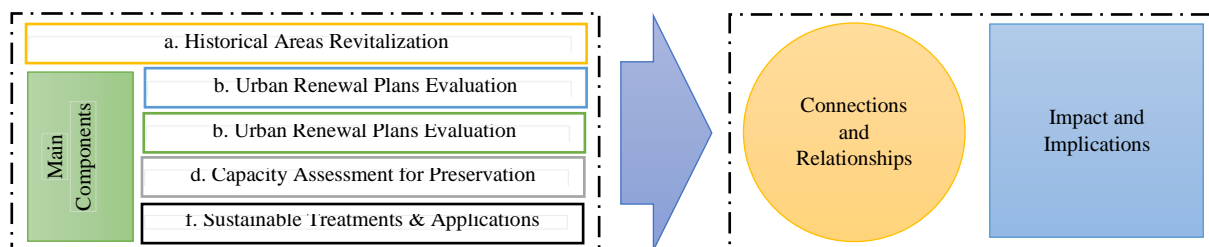

Fig.1 diagram idea for Sustainable Urban Renewal in Najaf and Karbala

Sustainable urban renewal is an integrated approach that revitalizes cities by balancing environmental conservation, social equity, and economic growth. It employs comprehensive planning across sectors like transportation and housing, encouraging mixed-use developments for walkability and community vibrancy. Preservation of cultural heritage is key, as is incorporating green infrastructure to combat urban heat and improve livability. Smart growth principles guide development towards being compact and transit-oriented, reducing sprawl and promoting efficient land use. Essential to these strategies is community engagement, ensuring projects reflect local needs and garner resident support. Additionally, innovative technologies and green materials are utilized to bolster sustainability and efficiency. These efforts aim to forge resilient, inclusive cities equipped to handle future challenges.

2. METHODOLOGY

– This research adopted both descriptive and analytical approaches. Different sources were used to collect data, and using techniques for quantitative and qualitative analysis, the data was analyzed. The research methodology included several procedural steps:
– - Literature review: The literature related to urban renewal, as well as the literature on historical Iraqi cities, especially the cities of Najaf and Karbala, will be carefully reviewed.
– Studying urban renewal experiences by collecting various data.
– Field surveys: Field surveys will be conducted in the cities concerned to collect more data, through direct observation and interviews with city residents and local officials. Data will be processed using statistical software and text analysis tools.
– Comprehensive comparison and analysis: Detailed comparisons will be made between the renewal experiences in Najaf and Karbala. The focus will be on strengths and weaknesses, and how to achieve a balance between renewal and preservation of historical identity.

This research critically examines and contrasts the urban renewal initiatives in Najaf and Karbala, two cities of profound historical importance in Iraq. The objective is to scrutinize and juxtapose the existing urban renewal schemes in both cities, discern key determinants for successful urban rejuvenation, and gauge each city's ability to safeguard their historical and cultural legacies amidst modernization.

3. SUSTAINABLE URBAN RENEWAL

The sustainable urban renewal processes and transformations taking place in many urban areas have the primary goal of improving the quality of life and the quality of the environment at all levels and providing and maintaining the environmental and economic balance in these urban areas for a long period. Sustainable urban renewal in the historical centres of cities works to reach a stage in which heritage and culture can be preserved and balance created, in addition to improving infrastructure and raising the level of services to meet the needs of modern society.[10] The main aspects that achieve sustainable urban regeneration in the historical centres of cities will be addressed:

– *Preservation:* Renovation of historical centres includes all procedures and methods that provide interest in historical buildings and historical monuments in addition to preserving their identity and aesthetics. [11]
– *Infrastructure efficiency:* raising the level of infrastructure and providing better services, such as providing public transportation, developing neighbourhood drainage, and increasing focus on energy systems. [12]
– *Environmental sustainability:* It means going to great lengths to think about achieving balance through environmentally friendly materials and the use of renewable energies while increasing the efficiency of air and water quality. [13]
– *Social interaction:* Seeking more social interaction, holding cultural events, integrating and participating with residents in historical centres, and enhancing the community spirit. [14]
– *Public places:* Great attention is given to the design and design of open areas and work to make them places and attractions to increase social interaction by providing comfort for visitors and residents, especially in squares and gardens. [15]
– *Reuse of old buildings:* Increasing the exploitation of old buildings through adapting and improving residential and commercial spaces, taking into account the process of preserving the original character of old areas, and all of this is done through innovative methods. [16]

    – ***Sustainable mobility:*** Focus on design processes that provide sustainable means of transportation to historical areas to increase the improvement of these historical centres, such as walking and cycling. [17]

Access to urban renewal methods and policies mainly represents improving the quality of life in cities, and in particular achieving sustainable development. Methods and policies for urban renewal in the historical centres of cities require achieving an integrated balance between preserving heritage in parallel with meeting the need to achieve sustainability for a long period. Through all of this, the research will focus primarily on three main indicators: Preserving heritage, sustainable transportation, and improving the quality of public places. Social Sustainability: Ensuring that regeneration efforts benefit local communities, enhance social cohesion, and preserve cultural heritage. Economic sustainability can also refer to creating economic development opportunities, job creation and investment opportunities while avoiding negative impacts on local economies. Cultural sustainability is also linked to the nature of preserving and enhancing cultural heritage, traditions and identities within renewed urban areas. Here we can refer to a research-specific definition of sustainability, which means: creating vibrant, flexible and inclusive societies that flourish now and meet the requirements of the future.

4. CASE STUDY

Historical city centres have been and still are attracting the attention of many theorists and researchers in heritage and architecture because these cities' identities and historical values are priorities and essential parts of the government and society's directions. The modernization process of these centres maintains and achieves balance in preserving history and meeting the needs of contemporary society. With the progress of the modern era and the increasing requirements for sustainable development, interest in preserving heritage and developing historical centres continues to increase. The holy cities of Najaf and Karbala carry a huge amount of cultural and historical wealth acquired over the ages and civilizations that accompanied them. Due to the historical value of these two cities, the research is to shed light on the sustainable urban renewal of Iraqi historical centres by conducting a comparative analysis between the historical centres of the holy cities of Najaf and Karbala.

The importance of the research focused on meeting the need to begin modernizing the historical centres of cities in a sustainable manner, given that Iraq is going through an important stage of rethinking the development of strategies for urban development. Therefore, the research seeks to study the best mechanisms and strategies to achieve a balance between developing cities and the process of preserving all monuments and nodes of historical value. The research aimed mainly to analyse the experiences of urban renewal in the historical city centres of Najaf and Karbala, and at the same time it focuses on sustainability issues such as preserving heritage and infrastructure and the process of enhancing the quality of life in cities. [18] see Table .1

1	location:	Najaf Centre: The historical centre of the city of Najaf is located about 85 kilometres southwest of the capital, Baghdad. Karbala Centre: The centre of the religion of Karbala is located in the well-known location of the shrine of Imam Hussein.
2	Religious connotation:	Najaf: Significance for Ismaili Shiites, housing the sacred shrine of Imam Ali. Karbala: Renowned for the shrine of Imam Hussein and the tragic events of Karbala, highly sacred in Shiite beliefs.
3	Infrastructure, landmarks:	Najaf: Central area features a bustling market in front of the Shrine of Imam Ali. Karbala: Home to the shrines of Imam Hussein and Al-Husseini, along with a historic market.
4	Cultural influence:	Najaf: Centre for the Shiite seminary, hosting various cultural and religious institutions. Karbala: Holds significant cultural sway due to historical and religious events.
5	Urban development:	Najaf: Transformed into a thriving urban centre through reconstruction and development. Karbala: Balances urban expansion with the preservation of its historical character.

Table 1 Important information about Sustainable Urban Renewal in Najaf and Karbala.

A thorough comparative study will delve into heritage conservation methods, encompassing aspects like assessment, upkeep, restoration, social dynamics, traditional material usage, cutting-edge preservation technologies, and local participation. The study will offer strategic recommendations to enhance record-keeping, employ technology effectively, foster community involvement, and embrace heritage conservation practices that resonate with the distinctiveness of each locale.

The ultimate goal is to contribute insights into sustainable urban renewal practices that seamlessly integrate heritage preservation, ensuring Najaf and Karbala retain their unique identities while evolving. The study is broken down into parts focusing on facets of revitalizing historical cities. Analytical and comparative approaches will be employed to derive insights and offer suggestions. Overcoming the obstacles encountered by cities, in Iraq demands endeavours involving government authorities, local residents and heritage enthusiasts. Through examining the narratives of Najaf and Karbala this study aims to establish a framework for striking a balance, between urban revitalization and safeguarding the historical essence of Iraq's historic cities.

4.1. CENTER OF KARBALA HOLY CITY

It is no secret to everyone that the holy city of Karbala has a prominent importance among Iraqi cities. Situated approximately 105 kilometres south of the capital, Baghdad, it shares borders with Al-Anbar to the north and west, while its southern border connects with Al-Najaf Al-Ashraf. To the northeast, Babil serves as its primary delimiter. Karbala's strategic location near Al-Najaf Al-Ashraf and other important cities, coupled with its rich historical significance, has made it a sacred and pivotal site for numerous events and developments. The city stands as a prominent religious and cultural center, attracting pilgrims and visitors for religious and historical purposes. In the holy city, you can find the Hussain Shrine, the main shrine described by the orientalist William Muir in the western part of the city.[19] This shrine is known as "Al-Sahna" or the Imam Hussain Shrine, distinguished by its towering golden dome. As for the mosque located in the eastern part of the city, it is named after our master Al-Abbas, also known as Khan Al-Amal. Regarding designations, the eastern part of the city is referred to as Our Master Al-Abbas, while the western part is known as the Hussain Shrine. The name Hussain is used to denote this section, indicating significant religious and historical importance in the holy city. The location of the shrines of Imam Hussain and his brother Abbas serves as the nucleus for the city of Najaf and played a role in its origin and growth. According to historical sources, the area of Karbala was inhabited before the year 61 AH (680 CE), making it a populated geographical region since the early beginnings of settlement. Archaeological excavations and explorations have revealed traces of ancient human existence in sites such as Huhuf At-Tar, located southwest of the present-day city of Najaf, approximately 30 kilometres away. [20]

The two sacred shrines in the city hold particular significance, with markets extending around the shrines' entrances, providing visitors with easy passage through them. The city witnessed prosperity and expansion following the state's directive to construct the shrine of Abbas, peace be upon him, for the first time, according to some sources. The shrines were endowed with lands and other assets, as Al-Muntasir Al-Abbasi ordered the reconstruction of the shrine of Imam Hussain, peace be upon him, in the year 247 AH (861 CE). He invited people to visit it and erected a tall flag to attract crowds, leading to the establishment of gatherings, markets, and the restoration of part of the city's original nature, reclaiming what it had lost earlier.

Fig.2 Karbala, the visitor's urban space between the Two Holy Mosques is isolated from the surrounding areas.

The holy city of Karbala is distinguished Assessing the Building by the presence of numerous architectural Worship units within its ancient fabric, each carrying historical, religious, artistic, or aesthetic values. However, the report indicates that a detailed review and comprehensive data collection of the city's assets have not been conducted. [21]

The sacred city of Karbala's shrine complex currently faces urban and functional pressures, resulting in changes to its urban environment. This is evident in alterations to its religious and heritage character, with distortions impacting the sacred sites' urban surroundings. The redevelopment phase of the sacred shrines and their urban environment should consider understanding the historical roles the shrines have played and grasp the nature of the shrines and their surroundings. This includes acknowledging the evolution of various built sites over time, encompassing symbolic events. These elements aid in comprehending the evolutionary process and guide the urban design of the holy city. [22] The sacred city of Karbala boasts unique features in the spatial and urban composition of Islamic cities. The Hussein and Abbas shrines, alongside the central plaza connecting them, form the heart of the city. Investing in these symbolic areas in the development of sacred cities is crucial, especially considering the potential to highlight the spiritual aspect and enhance the spiritual connection for visitors coming from various locations. These two shrines and the central plaza form a vital axis for the city and enhancing the design and architectural organization of these areas can improve the visitor experience and facilitate interaction with the surrounding environment. Additionally, considering the reinforcement of the spiritual and cultural dimensions of these areas as part of sustainable development strategies aligning with the city's religious and cultural identity is essential.

4.2. CENTER OF AL-NAJAF CITY

The holy city of Najaf holds a significant place in Islamic and Shia history, with its origins dating back to the pre-Islamic era when it was inhabited by Arab kings. It's important to note that the last part of the text discusses the city of Karbala instead of Najaf, but I will provide some information about Najaf and its historical and religious impact. Najaf is renowned for hosting the shrine of Imam Ali ibn Abi Talib (peace be upon him), where he is buried. Before Islam, this region held the remains of some prophets, making it sacred even before the interment of Imam Ali (peace be upon him), adding to its historical and religious significance. The city of Najaf has undergone significant development over time, evolving into a vibrant urban centre around the shrine of Imam Ali (peace be upon him). The expansion of the city occurred at the end of the fourth century Hijri, witnessing a population increase, particularly among the followers of the Alawite sect. Najaf's history showcases its urban and cultural evolution, with the ancient city expanding around the shrine of Imam Ali. Walls were added for protection, and residential clusters developed, initially north of the shrine. The city adopted a typical Islamic urban layout, marked by walls increasing building density. In the seventh and eighth centuries of the Hijri calendar, Najaf flourished architecturally and academically. Challenges hindered urban expansion in the tenth and eleventh centuries, but the city reverted to its original state in the twelfth and thirteenth centuries. Kufa also expanded during the Buyid era. Organic evolution continued until the Turkish government organized and demarcated areas in 1282 Hijri. Schools appeared in 1075 CE, and residential areas grew around the shrine, but the population declined in the fifteenth century due to diseases and infrastructure collapse. [23]
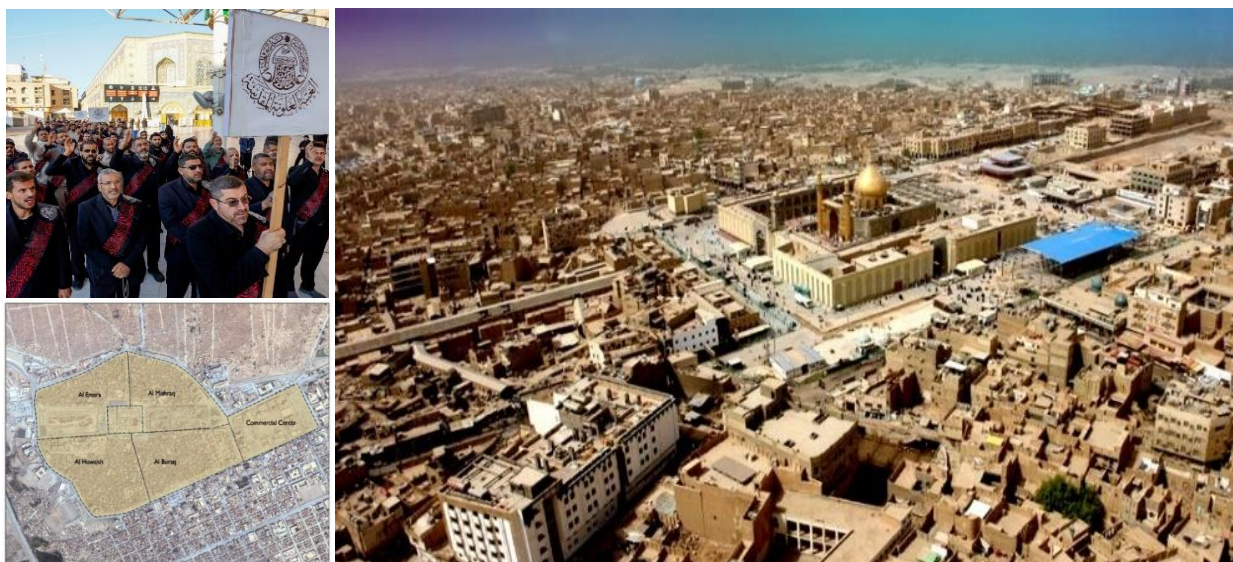

Fig.3 Al-Najaf, the visitor's urban space is isolated by a fence from the nearby of the shrine.

The ancient city of Najaf serves as a vital hub for religious activities, hosting the Husseini Shrine and functioning as a centre for burial affairs, seminaries, and schools. Its commercial importance stems from the revered shrine of Imam Ali, driving economic activity and infrastructure development, including hotel construction. The historical city's significance lies in its physical and social characteristics, shaping the urban landscape's identity. However, weaknesses in the panoramic structure and absence of unified elements hinder a comprehensive understanding of diversity. Government intervention is crucial to preserve the historical identity, encourage architectural diversity, and safeguard symbols. [24]

Fig. 4 Providing transportation between inside and outside the historical centre of the holy city of Najaf.

Strategic separation of historical layers and utilizing their temporal and formal characteristics can enhance heritage preservation and sustainable development. Architecturally valuable buildings should be emphasized, reflecting the city's history or unique works by local architects. Government action is needed to preserve the historical identity, promote architectural diversity sustainably, and adhere to legal conditions for effective heritage preservation and city development. [25]The close relationship between the urban space in the historic centre of Najaf and social activities, as well as the interaction of individuals within this space, becomes apparent. The sacred shrine of Imam Ali (AS) plays a pivotal role in shaping the city, highlighting the significant connection of the urban space with a high degree of specificity to the place. The individual is considered the foundation of the space, and residential activities associated with religious leaders, scholars, and students at religious schools are crucial factors that influence behaviour in the city. [26]
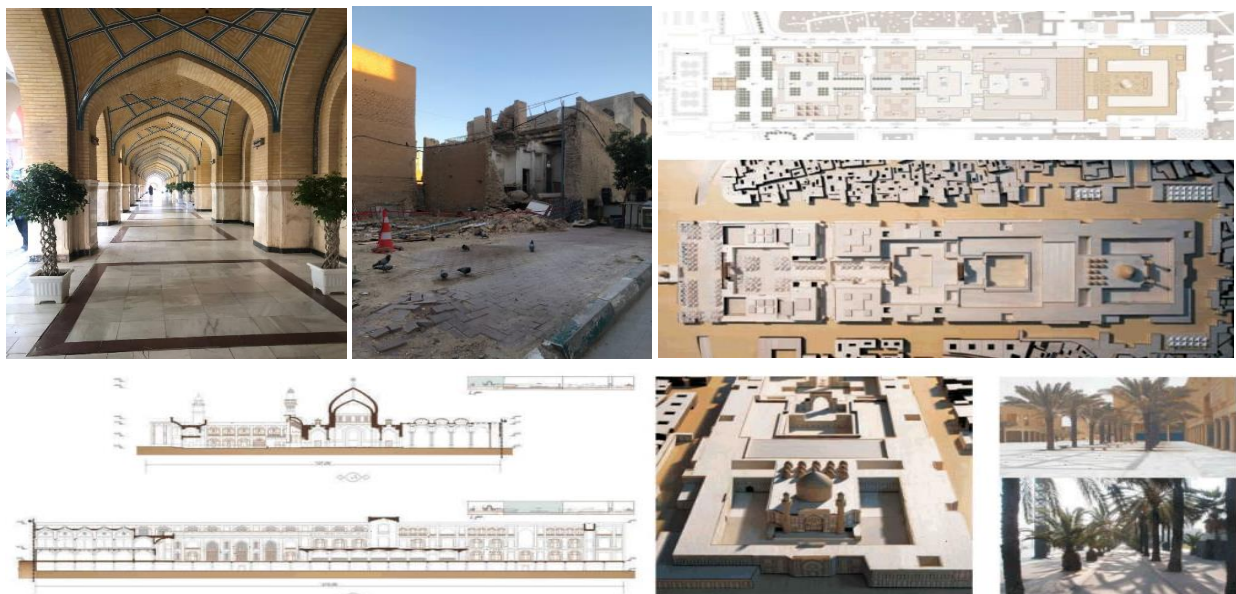

Fig. 5 Great details alongside neglected areas, Development of the Fatima courtyard near the shrine of Imam Ali

The construction in the old city is characterized by the proximity of buildings and narrow alleys, with planning significantly influenced by the presence of the sacred shrine and the surrounding wall. This specificity is evident in the old urban space, where public spaces are relatively limited compared to the building footprint in each district, reflecting the character of old construction and conservative urban planning. Urban renewal in Najaf's centre prioritizes enhancing existing structures, emphasizing economic, health, and service dimensions. Projects leverage religious pilgrimages and events, including million-person pilgrimages, for investments. Positive political will exists, but weaknesses in local laws persist. The focus lacks balance with the centre's original morphology, necessitating emphasis on sustainability. Integrated diagnosis and community involvement are crucial, requiring strengthened political will, legislation, and community communication for successful renewal projects and historical preservation. Both Karbala and Najaf have strengths and weaknesses. Karbala's strengths lie in its religious, cultural, and historical significance. However, it faces weaknesses such as a focus on religious events and deteriorating infrastructure. Najaf's strengths include its religious, scientific, and historical importance, but it suffers from weaknesses like economic lack of diversity and poverty. Karbala:(Strengths: Religious, cultural, and historical significance. Weaknesses: Overemphasis on religious events. Deteriorating infrastructure, impacting access to essential services). Najaf:(Strengths: Religious, scientific, and historical importance. Weaknesses: Dependency on religious education leading to economic diversity issues).

4.3. BALANCING TRADITION AND INNOVATION

Regarding sustainable mobility, society tackles the challenges of transportation intelligently to preserve the environment and reduce reliance on traditional modes of transport. This involves promoting efficient public transportation, encouraging active lifestyles through dedicated sports and recreational areas, and creating infrastructure that supports environmentally friendly modes of transportation like bicycles and pedestrian walkways.

These issues address vital aspects in shaping the future of cities, where a balance is struck between tradition and modern technology, and between preserving identity and meeting the needs of modern society. This balance reflects a commitment to creating a sustainable and integrated environment that allows current and future generations to enjoy a high quality of life and well-being in their urban settings. These topics will be addressed in the two cities (Karbala and Najaf) through an expert questionnaire as follows:

5.RESULTS AND DISCUSSION

5.1. PRESERVING HERITAGE

In the context of sustainable urban renewal, preserving heritage refers to the continuous efforts to preserve buildings and historical landmarks in historic centres, allowing modern society to enjoy its historical and cultural heritage. Here are some details about these aspects:

1. Assessment and documentation: Preservation of heritage includes initially assessing the condition of buildings and historical landmarks and documenting important details such as the basic structure and unique architectural elements.
2. Preservation and heritage: Modern tools and methods can play an important role in the process of material and moral preservation. These tools and techniques include 3D scanning, digital photography, the use of drones, and other tools that facilitate documentation procedures and contribute in one way or another to the restoration process.
3. Traditional materials: The most important thing in preservation operations is how to use building materials effectively in urban renewal projects because they are linked to spatial identity and create a strong connection to local cultural traditions.
4. Restoration and maintenance: Conservation and restoration work does not only include important places, but rather includes preserving all parts of the city, because neglecting a part can increase the process of reducing the value of the rest of the parts.
5. Community participation: Despite the importance of the active participation of residents, it is a basic requirement for preserving the identity of the area. However, what is most important in such cases is to

involve visitors and make them part of the participatory system that contributes effectively to the conservation process.

6. Harmonization and adaptation: The importance of adaptation with regard to old buildings in relation to the city centre cannot be denied, and the importance of reorientation is as important as the importance of adaptation within its historical context and because it gives the desired value of preservation as much as it relates to the cultural and spatial identity of the region.

7. Education and awareness: To provide a good understanding of the historical and cultural values of historical centres, work must be done to spread awareness of the processes of preserving and promoting heritage among the population.

The process of achieving heritage preservation through sustainable urban renewal strategies contributes to building historical urban centres that emulate the past in its present in a sustainable way that benefits society.
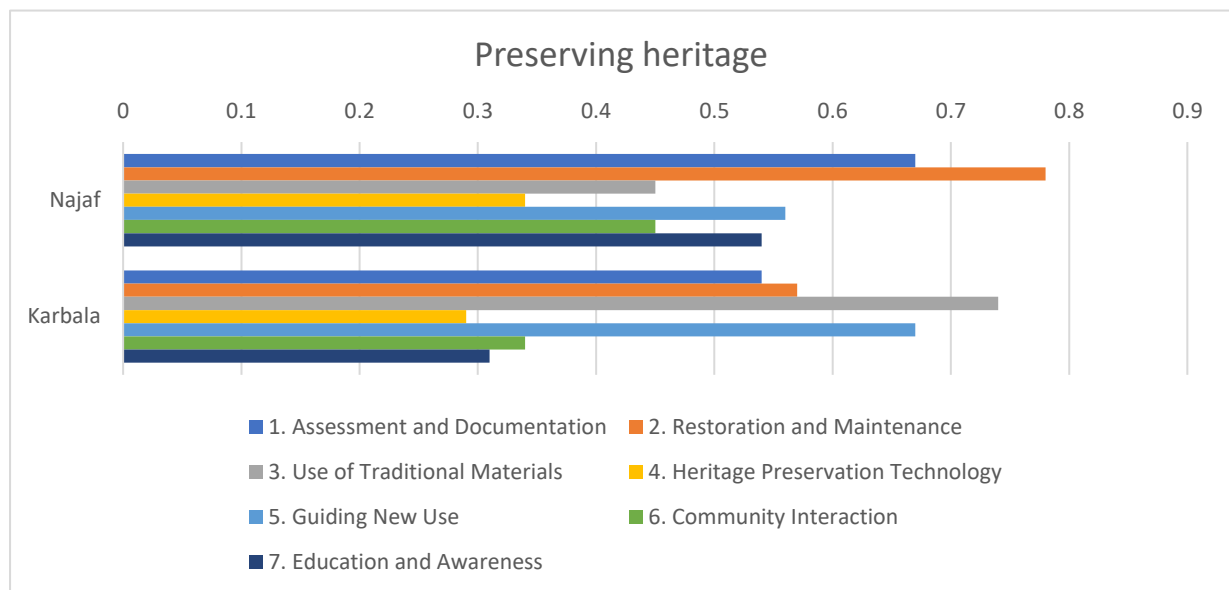

Fig. 6 Heritage Preservation indicator and expert response to this indicator.

The following results show the evaluation of multiple aspects related to the preservation process according to sustainable urban renewal. The results will be discussed below:

1. Documentation and evaluation: The centres of both Najaf and Karbala were distinguished by the process of evaluating the conditions of buildings and historical monuments, and this gave the two cities high grades. In addition, the process of documenting important details such as architectural elements and structural structures achieves a significant process of effective preservation of heritage.

2. Restoration and maintenance: The table shows the higher value of the Najaf, higher than that of Karbala, which indicates that the historical buildings are focused on the process of restoration and maintenance, and therefore the focus is on the strategy of preserving the preservation of the historical character without negatively affecting the original structures.

3. Traditional materials and their use: The table shows the higher degree of Karbala over the center of the city of Najaf. This indicates a stronger tendency to use traditional and local materials in construction in renovation operations. This strengthens the approach to preserving the original character, enhances the historical and cultural identity, and increases the bonds of connection with local traditions.

4. Heritage and preservation technology: The historical centres of both cities, Najaf and Karbala, are low, and this indicates a lack of direction or failure to integrate modern technology and its techniques, such as scanning and digital photography, into heritage preservation procedures, but in documentation and restoration, the results showed that it is possible to benefit from modern technology.

5. Directing the use and new adaptation of the centres: The results indicated a higher score for Karbala than Najaf, and this indicates a focus on directing the uses or adapting the use of historical buildings, taking into account respect for their historical context.

6. Community appreciation: Karbala received a higher score than Najaf, and this indicates the trend towards focusing on community participation and interest in the participation of the local community in a way that contributes to the decision-making process to ensure their opinion of participating in the process of preserving heritage and benefiting from it.
7. Awareness and education: Najaf received a higher score than Karbala, and this indicates the process of focusing on attention to awareness and the process of education in preserving heritage and achieving an understanding of the historical and cultural values of buildings among visitors and local residents.

It can be noted here that the results can indicate the importance of the aspects of evaluation and restoration in the sustainability process, in addition to the processes of education and awareness of the importance of hoarding, as well as the involvement of the community in that process. The process of balancing the use of traditional materials and making the most of modern technologies in sustainable urban renewal processes and utilizing them in heritage preservation processes cannot be overlooked. The results of the questionnaire for the traditional centre in Najaf al-Ashraf indicate a percentage of (78%) in the paragraph of commitment to preserving heritage and using restoration and maintenance operations. While interest in attempts to document important buildings reached (67%), the results also indicated that the use of traditional materials reached (45%), while community interaction with development and preservation operations reached (45%), but the percentage that was related to areas of improvement and the use of modern technology in the city's infrastructure by (34%). The percentage does not exceed (56%) in the process of making additional efforts to persuade people to renew, while the processes of awareness and education for renewal do not go far from (54%). In general, the results effectively indicate the diversity in efforts to activate the preservation of the city's important buildings, albeit with differences between the components of the old city center in Najaf.

The results of the Holy City of Karbala Centre indicate that the percentage of use of traditional materials reached 74%. Which can be linked to the need to preserve important sites. While only 29% was sufficient to indicate a clear weakness in interest in technical aspects and interest in technology. Given the nature of the city in receiving visitors, community interaction was relatively weak, reaching 34%. These results may indicate the large discrepancy between the percentages of items that focus on preserving the built environment on the one hand, and activating community participation on the other hand. From the above, it is clear in principle that the centre of the holy city of Najaf shows a good commitment to preserving heritage, and that the interest in restoration and maintenance has given renewal and permanence to the vital parts of the city, but there are other aspects, areas of less importance that can be worked on to improve. In contrast, the holy city of Karbala effectively focuses on the use of traditional materials such as brick covering materials in the facades, while it also suffers from the aspects of utilizing techniques in the traditional environment. Here it can be inferred that there is a real need to follow an integrated and comprehensive approach between various aspects, taking into account the issue of authenticity and community connection, especially residential, in heritage preservation efforts as an integral part of part of development strategies.

5.2. PUBLIC SPACES

Improving the quality of public spaces can refer to developing and designing public spaces more importantly and in a way that makes parks and squares more attractive and comfortable for residents and visitors. Here it is worth noting the importance of designing these areas, with a focus on reuse and meeting the different requirements of visitors to ensure a comfortable and aesthetic environment that includes everyone. Therefore, these aspects that have an impact on the urban design process can be addressed as follows:

1. Attractive design: It is more concerned with achieving an attractive and inspiring design to achieve comfort for the city's residents and visitors alike.
2. Enhancing the environment: This is done by focusing on public places and highlighting the strengths that characterize the area.
3. Infrastructure: Providing service facilities is essential and contributes effectively to the sustainability of the city and also contributes to creating its continuity.
4. Community participation: It is considered one of the most important factors that contribute to the process of designing and developing protected areas, in a way that enhances feelings of belonging among residents and enhances place value among visitors.

5. Providing safety: Attention to providing security and taking into account safety requirements is important in urban spaces, especially in the process of providing safety on visiting days and increasing the number of visitors at special times.
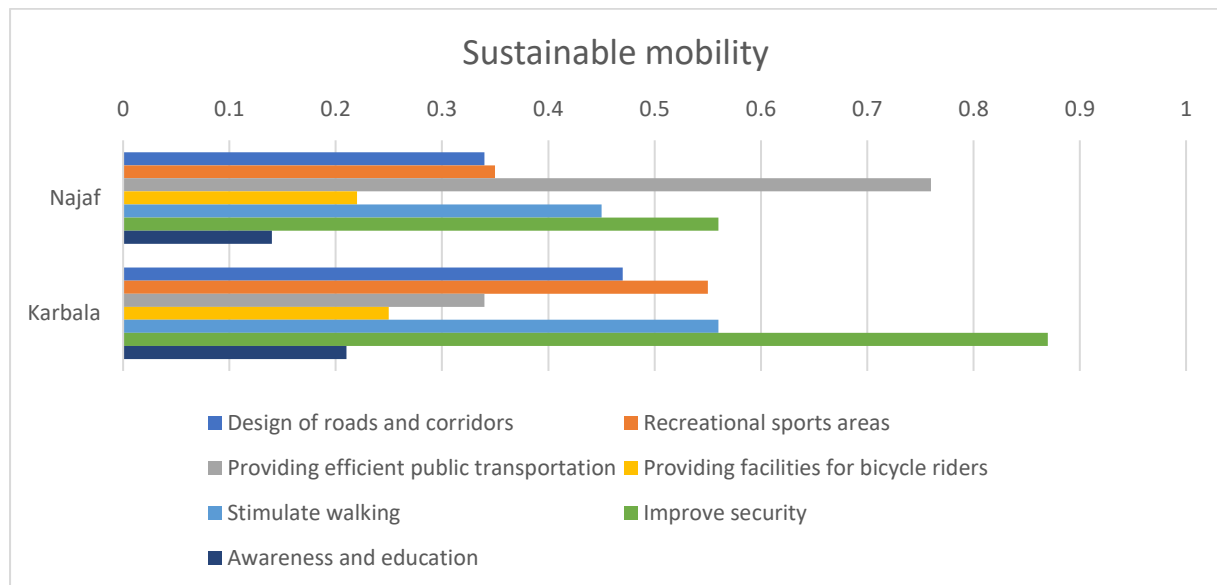

Fig. 7 Public Spaces indicator and expert response to this indicator.

Working to improve various aspects can contribute to creating responsive public spaces, and this improves the nature of the spaces in a way that makes them more comfortable to use. After reviewing the results, several design elements related to improving public spaces were found:

- *Attractive designs:* Due to the importance of awareness of design and attention to detail, a rate of 57% was achieved in the centre of the holy city of Najaf, while a rate of 65% was achieved in the holy city of Karbala. These percentages indicate that the centre of the holy city of Najaf is less interested than the city of Karbala in focusing on attractive, stimulating designs. Creativity that will enhance the comfort of residents and meet the requirements that visitors expect in public places.
- *Environmental improvement:* The centre of the holy city of Najaf, at a rate of 64%, is higher than the centre of the holy city of Karbala, at a rate of 51%. This indicates the relative superiority of the city centre of Najaf in improving and enhancing public places.
- Infrastructure: The centre of the holy city of Najaf occupies 75% in providing the necessary facilities for visitors, while the centre of the holy city of Karbala shows a greater commitment to providing facilities at 88%.
- *Community participation:* The centre of the holy city of Najaf received a percentage of 80%, slightly exceeding the percentage of the centre of the holy city of Karbala, which reached 75%. The closeness in proportions shows the relative balance in requirements between the two cities, and this indicates the importance of activating community participation in the design and development of open spaces so that visitors and residents share the same spaces that belong to the city.
- *Safety and security:* The importance of safety in the holy places is very important, and also the issue of safety is one of the priorities that the centre of the holy city of Najaf seeks. The percentage has reached 83%, and the same is true in the centre of the holy city of Karbala, which has reached 78%.

| | key vocabulary | Weight in Achieving Sustainable Renewal | |
		Najaf city Centre	*Najaf city Centre*
1	Assessment and documentation	High	High
2	Preservation and heritage	High	Medium
3	Traditional materials	Medium	Low
4	Restoration and maintenance	Medium	Medium

	key vocabulary	Weight in Achieving Sustainable Renewal	
		Najaf city Centre	*Najaf city Centre*
5	Community participation	High	High
6	Harmonization and adaptation	Medium	Low
7	Education and awareness	High	High

Table 2 Weight in Achieving Sustainable Renewal.

In this table, the "Weight in Achieving Sustainable Renewal" column represents the importance or significance of each pillar in contributing to sustainable renewal efforts. The "Priority in Case Study" column indicates the priority level for focusing on each pillar in the specific case study of Najaf and Karbala.

When looking at the results, differences in performance between different urban design elements can be explored, as the centre of the holy city of Karbala excels in the infrastructure component, while the historical centre of the holy city of Najaf shows its strength in enhancing the environment and safety, and this could be due to the nature of the area, for example. The historical centre of the holy city of Najaf. It is central in nature, and is surrounded by the Najaf Sea on one side and residential areas on the other. This differs from the city centre of Karbala, which includes multiple centres represented by the shrine of Imam Hussein and the shrine of Imam Abbas, which gives greater openness to entry into the city at the expense of issues of security and control of the region. The evaluation of Najaf City Centre also shows a positive outlook regarding improving public spaces, with an emphasis on inspiring design, environmental enhancement, and attention to infrastructure, due to the limited open areas and the centrality that the Imam's shrine imposes on the area.

Overall, both cities show positive efforts in enhancing public spaces with spaces for improvement. Top of Form. The results of the design elements in improving public spaces in Karbala indicate that there is a generally positive reception, especially in spaces such as infrastructure, community engagement and safety. The inspiring design also received a good rating, although slightly lower than some of the other elements. Promoting the environment, although still positive, received a lower rating compared to the other elements.

5.3. SUSTAINABLE MOBILITY

The aim of sustainable mobility efforts in historic areas is to promote the use of environmentally friendly transportation and reduce reliance on traditional modes of transportation that contribute to environmental pressure. In this context, the focus is on improving infrastructure, and the details of this approach are highlighted below: In the context of sustainable urban design, the focus is on directing design towards promoting sustainable mobility, through the creation of pedestrian walkways and bike paths, as part of infrastructure improvement. Sports areas can be viewed as an active and healthy lifestyle that suits the nature of the city's activities, including cycling and walking. By enhancing public transportation and focusing on mobility, transportation systems are being improved to provide environmentally friendly transportation in historic city centres. The focus in the sports and entertainment areas is on providing designated areas for area residents in particular, to encourage an active and healthy lifestyle.

Visitors can consider relying on bicycles. This event includes establishing bicycle rental stations in designated locations and providing safe bicycle parking areas to activate environmentally friendly means of transportation. Safe paths and wide sidewalks can also be designed to encourage walking. Among the measures to improve safety are working on lighting and fully furnishing the streets, in addition to working to reduce vehicular traffic. Emphasis is also placed on organizing sustainability awareness campaigns for residents and visitors and educating on its environmental and health benefits. Sustainable urban design priorities can be reviewed between the centre of the holy city of Najaf and the centre of the holy city of Karbala through the following:

− *Roads and paths:* Emphasis can be placed on the effectiveness of urban design in creating pedestrian paths and cycling paths, while emphasizing the importance of sidewalks to provide pedestrian areas. The percentages were (34%) for the centre of the holy city of Najaf, and (47%) for the centre of the holy city of Karbala.
− *Entertainment and sports areas:* The process of interest in establishing sports and entertainment areas varies between the two cities. The percentages were 35% for the centre of the holy city of Najaf, and 55% for the centre of the holy city of Karbala.

- *Public transportation efficiency:* Strengthening public transportation systems in historical centres is very important to maintain and control communication between different regions. The percentages were (76%) for the centre of the holy city of Najaf, and (34%) for the centre of the holy city of Karbala.
- *Cycling: Improving public transport systems,* with an emphasis on buses and trains, to support environmentally friendly travel in historic areas. The percentages were 67% for the centre of the holy city of Najaf, and 34% for the centre of the holy city of Karbala.
- *Promoting walking:* designing wide and safe corridors and sidewalks, and giving priority to short distances to encourage pedestrian movement. The percentages were 45% for the centre of the holy city of Najaf, and 56% for the centre of the holy city of Karbala.
- *Enhance security:* improve street lighting, create safe zones and create car-free zones to reduce traffic. The percentages were 56% for the centre of the holy city of Najaf, and 87% for the centre of the holy city of Karbala.
- *Education and Awareness:* The importance of creating awareness campaigns and educating residents and visitors alike is very important, especially with regard to the importance of sustainable mobility and its positive effects on the environment and health, which can be used by visitors in particular to stay away from the effects of traffic congestion on the one hand and reduce the requirements for garages and parking areas. . Here, it can be said that the percentages that were studied indicate a weakness in this aspect, as the percentage reached 14% in the centre of the holy city of Najaf, while the percentage in the centre of the holy city of Karbala reached 21%, compared to other design elements.

These ratios provide insight into the perceived priorities assigned to each design element in the context of sustainable mobility in historic areas. The results of Najaf suggest (Sustainable mobility) a varying emphasis on different design elements related to sustainable mobility. There is a high commitment to providing efficient public transportation (0.76), emphasizing its significance. Improving security (0.56) and stimulating walking (0.45) also receive considerable attention. However, awareness and education (0.14) seem to have a lower priority. The design of roads and corridors (0.34), recreational sports areas (0.35), and providing facilities for bicycle riders (0.22) demonstrates moderate emphasis, highlighting room for improvement in these aspects. Overall, these findings indicate a comprehensive approach to sustainable mobility, with potential for increased focus on specific elements.

6. CONCLUSIONS

1. From these results of Najaf, (Preserving heritage) it can be concluded that there is a strong commitment to heritage preservation, especially regarding restoration and maintenance aspects. However, there is a need to enhance the focus on documenting historical aspects and utilizing modern technology in preservation processes. The use of traditional materials and community interaction seems reasonable but can be improved. Guiding new uses shows a good balance, and efforts in education and awareness appear effective.
2. The conclusions from the results of Karbala (Preserving heritage) indicate a strong commitment to heritage preservation, particularly in assessment, restoration, community engagement, and education. The emphasis on restoration and maintenance is notable, demonstrating a priority in retaining historical character. However, there is room for improvement in leveraging modern technology for preservation purposes. A balanced approach between traditional materials and technology is recommended for a more comprehensive and sustainable urban renewal strategy.
3. When looking at the difference in results related to the element (design of public places), we find that there are differences in performance across design elements between the two city centres. Najaf City Centre has emphasized the issue of enhancing the environment, safety and security by creating well-designed and safe public spaces that at the same time give privacy and appropriate partnership to the city's residents. While the centre of the holy city of Karbala shows a lack of clarity of vision and a loss of control over some of the city's borders. It can be noted here that both cities emphasize the concept of continuous improvement and full preparation for the times when the city receives visitors by enhancing public places with protection personnel and private police to provide security.
4. The results of the Najaf City Centre related to the topic (sustainable transportation) indicate a commitment to sustainable transportation within the boundaries of the old city, including not entering cars in the streets near the shrine, and providing transportation for the elderly and people with special needs. People with special needs, improving security, stimulating walking. Therefore, there is a need for a more balanced and

comprehensive approach to address the various design elements that relate to providing spaces appropriate to the nature of movement in the rest of the historic centre facilities.

5. The results of the Centre of the Holy City of Karbala, which is linked to (sustainable mobility), highlight the prioritization of security in sustainable mobility initiatives due to the great pressure it suffers during seasonal visits, as evidenced by the high score (87%). This reflects the need to pay attention to areas of improvement, including the design of roads, paths, trails and cycle paths, as well as people with special needs, and thus the need for a balanced and comprehensive approach to sustainable mobility and the provision of amenities. Related soft spaces.

7. RECOMMENDATIONS

1. Focus on restoration and documentation work, pay attention to the technological aspect, and work effectively to introduce community participation as an integral part of the process. Prioritize modern tech integration and optimize traditional material use for a balanced, sustainable strategy.
2. Karbala: Sustain commitment to traditional materials, address tech gap, and enhance community involvement. Strengthen community engagement to ensure preservation efforts align with cultural authenticity.
3. Public Spaces:
4. Najaf: Strengthen well-rated aspects - design, environment, infrastructure, community, and safety. Maintain and enhance infrastructure, community participation, and safety in public spaces.
5. Karbala: Bolster infrastructure, community engagement, and safety. Address environmental aspects for sustained improvement. Regular evaluations and community feedback ensure a well-balanced and effective approach to continual improvement.
6. 5. Najaf: Enhance awareness, road design, bicycle facilities, public transportation, security, and walking. Addressing awareness campaigns enhances the overall success and acceptance of sustainable mobility initiatives.
7. 6. Karbala: Improve Road design, bicycle facilities, and awareness, collaborating for a comprehensive sustainable plan. Achieve sustainable mobility goals through a context-driven, balanced approach considering specific objectives and priorities.

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