

The Dialectic of the Relationship Between Urban Conservation and Sustainability – A Practical Study of Al-Saray Market in Baghdad



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ABSTRACT

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Urban conservation strives to maintain continuity and preserve cultural heritage. However, a clear understanding of the impact of sustainability strategies on urban conservation within the context of urban heritage environments is lacking. This research aims to develop a comprehensive understanding of how sustainability strategies can influence urban conservation within urban heritage contexts. The study was conducted in Al-Saray Heritage Market in Baghdad. The current status of the market was evaluated through field research, including questionnaires, site visits, and personal observations. The study found that traditional markets continue to hold a unique allure, but they also face numerous urban challenges. To address these challenges, strategies aimed at conserving the urban heritage of the market and ensuring its ongoing relevance and use were devised, aligning with the research hypothesis that urban conservation in heritage urban environments heavily relies on the implementation of sustainability strategies. The research thus proposes a mechanism for achieving urban conservation in heritage urban environments, providing valuable insights for future urban planning and conservation efforts.

1. INTRODUCTION

1.1 Literature review

In previous research, Al-Ahbab [1] underscored the importance of integrating urban conservation principles with sustainability data. The aim is to achieve sustainable urban conservation in heritage areas, placing emphasis not only on the historical significance of heritage elements but also on maintaining the visual environment. This aspect is crucial for the conservation of buildings and their cultural importance. To accomplish this integration, mechanisms for maintaining and conserving historic buildings need to be developed. This process should protect the urban scene, restore the distinctive visual character of the place (through the regulation of features like billboards, electrical cables, and lighting methods), and stipulate appropriate structural and planning conditions. These conditions should highlight the heritage dimension in modern facilities within the region. Additionally, awareness programs about cultural and environmental priorities in the region should be developed, along with promoting the use of local materials and traditional techniques in the maintenance of traditional buildings.

Al-Maliki and Qabila [2] outlined the standards for conservation aimed at achieving urban sustainability in preserved environments. These standards consider the age and significance of urban heritage, its link to national, historical, or social events, and its harmony with the city's overall urban environment. The authors asserted that the preservation process should not be an economic burden for those implementing it. In addition, they emphasized the need to

provide necessary services like healthcare and electricity without negatively impacting the historical, architectural, and aesthetic value of the heritage.

Sweilem [3], on the other hand, focused on the conservation of traditional markets with the aim of reviving them and restoring their buildings for future generations. The goal is to maintain their sustainability and transform them into economic, cultural, and tourist destinations. Sweilem found that many people are unaware of the archaeological value of their locations and that individualistic behaviors often lead to unauthorized additions and repairs.

Lastly, Abdulameer and Sati'Abbas [4] discussed the approach to dealing with areas of historical value. They advocated for an integration between traditional methods of conservation and modern concepts, arguing that this approach would best preserve these areas for future generations. The goal is to maintain the continuity of valuable environmental and structural elements, prevent damage and deterioration, eliminate signs of decay, and conserve our human heritage for future generations.

The study by Abulilah [5] explored various methodologies and experiences related to the conservation of urban and architectural heritage in Arab countries. By examining the most significant urban issues affecting historical buildings, the study noted a clear classification system for heritage buildings that aids their conservation. It also highlighted successful examples of historical area redevelopment in terms of heritage, characterized by repurposing heritage buildings for community-serving purposes. The study concluded that the sustainability of heritage sites is a critical step towards their future conservation and investment.

Elborombaly's study [6] emphasized that areas with cultural heritage hold significant value within modern cities, as they often constitute the original historical sections. The preservation methods for these areas are usually tailored to the location, quality, function, historical value, and architectural elements of the monument. The study underscored a range of conservation approaches, including modern, innovative, and adaptive methods, based on the site's specific needs and preservation requirements.

Al-Jassem and Abdullah [7] discussed the conservation and upgrade policies for heritage areas in their study. These areas face numerous external influences, some of which add value, while others lead to damage. The need to address these influences is crucial to protect heritage sites, conserve them, and ensure their enjoyment by future generations.

Bernard [8] argued that historical conservation seeks to maintain societal continuity and the integrity of the archaeological image. He identified two types of conservation: external and deep. External conservation focuses on preserving the outward character and appearance of archaeological areas, whereas deep conservation aims to conserve the structures and components of archaeological buildings, while also improving, upgrading, and developing the overall environment.

Micheal [9] noted that conservation work encompasses all activities necessary for the protection and preservation of archaeological resources. These include the maintenance, protection, development, management, and repair of historical and archaeological resources, as well as understanding their significance, whether they are represented by objects, buildings, facilities, or environments.

Filho [10] defined urban conservation as the necessary procedures and actions to prevent damage and extend the life of architectural heritage. These procedures must be carried out without damaging, destroying, or distorting the historical value of the building. Urban conservation is a multidisciplinary process involving architects, archaeologists, economists, engineers, historians, surveyors, builders, planners, and specialist consultants.

Al Dabbas [11] stressed in her study that heritage protection is a human responsibility, not just the duty of the nations that house heritage sites. Often, these nations lack the resources to restore, maintain, and conserve their landmarks. Therefore, preserving heritage monuments is crucial for maintaining the unique identity and character of communities.

Most previous studies have focused on specific aspects related to their interests, often in great detail, but have failed to fully address the relationship between urban conservation and sustainability. Given the diversity of previous approaches, it is not advisable to rely solely on any one of them to construct a theoretical framework that fulfills the research purpose. Consequently, the research problem is identified as the lack of a clear understanding of the impact of sustainability strategies on urban conservation in the urban heritage environment. The research objective is to develop a clear understanding of the impact of sustainability strategies on urban conservation in the urban heritage environment. The research hypothesis is that successful urban conservation in the urban heritage environment largely depends on the implementation of sustainability strategies. To achieve the research goal and verify its hypothesis, the research will adopt an analytical method, by establishing a necessary theoretical basis and defining a scale to measure the impact of sustainability strategies on urban conservation in the urban heritage

environment. The theoretical framework will then be applied to a specific case study: one of the heritage markets in Baghdad.

1.2 Heritage and conservation

Heritage is a holistic concept encompassing both the natural and cultural environment, including landscapes, places, sites, built environments, and biodiversity. It symbolizes the historical processes and developments that form the essence of diverse local, national, and regional identities. As such, heritage, which includes cities, villages, neighborhoods, buildings, and gardens of archaeological, architectural, urban, economic, scientific, cultural, or functional value [5], becomes an integral part of modern life. Heritage can be categorized into urban, architectural, archaeological, cultural, and natural heritage.

Heritage sites are important economic resources, and when documenting these sites for investment, it's necessary to have clear and comprehensive visions that guide the sustainable documentation processes. This approach ensures maximum benefit from these heritage sites because the sustainability of heritage sites includes their conservation, serving as a stepping stone to their future investment. In this context, heritage sustainability means preserving sites to meet the future needs of upcoming generations.

Conservation, in its broadest sense, is an effort to ensure continuity and survival using the best available means [12]. Defined linguistically, it involves preventing something from being lost or damaged [4]. Hence, conservation is a process encompassing all procedures and methods that enable heritage to survive for the longest possible period, playing a role in societal life.

Conservation levels can vary according to the type, size, and importance of urban heritage. It can be classified into heritage elements, individual buildings, groups of buildings, heritage corridors, entire heritage areas, regional levels, and international levels. The latter often involves global organizations such as UNESCO [5]. Consequently, the management of heritage sites should be well-versed in the policies related to the conservation and upgrading of heritage sites (Figure 1).

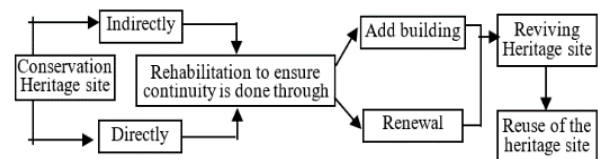


Figure 1. Mechanisms for preserving heritage sites (Authors)

1.3 Sustainable development

Sustainable development involves the optimal use of available resources in development projects without depleting other resources. It is a precondition for the continuity of these projects, which means meeting the needs of the present society without compromising the ability of future generations to fulfill their needs. In this context, sustainable urban development should be prioritized, introducing a set of physical improvements to the local environment. This is exhibited in the enhancement and development of buildings, paving and landscaping streets, infrastructure (like drinking water and sanitation), lighting, and landscaping urban spaces

[13].

To understand how to apply sustainability strategies to conserve urban areas, studying historical areas is necessary. Urban heritage serves as a tool and a catalyst for achieving sustainability in human societies. Heritage sites, particularly traditional markets, are important economic resources because their relevance to city dwellers is not significantly affected by the personal legacies left by rulers. Traditional markets are characterized by continuity, organic growth, and their strategic locations at the intersections of land or river transport routes. Often named after the goods sold within them, these markets play a crucial role in commercial area planning and serve as a distinctive link between the city and its cultural heritage [14].

1.4 Market architect

Dealing with commercial uses requires an understanding of the shopping process, which is distinct from the purchasing process. The decision to purchase a specific need directs a person to a specific store or a section within it to execute their buying decision. However, shopping often occurs without a specific objective and may consume a considerable amount of time. Shopping is not merely a transactional activity; it satisfies psychological needs, such as social interaction and the pursuit of new experiences [15].

Therefore, market architecture, in its broadest sense, is associated with various human activities such as shopping, buying, resting, and more. The market, in its general conception, represents an urban space enclosed by buildings in cities. Its form, size, and visual and psychological impacts depend on the nature of the surrounding buildings. The clarity of the architectural and aesthetic characteristics of the space helps individuals to comprehend it [16].

The historical dimension of the market significantly impacts its identity. The arrangement of the architectural and urban environment of markets can be classified as urban spaces through spatial organization—the basic idea of the designed environment. The organization of meanings, which relates the environment with materials and forms, and spatial organization, conveys meaning and embodies communication and symbolism. Meanings are expressed in signs, materials, colors, shapes, and surroundings. The meaning can coincide with spatial organization to form a symbolic system, revealing the community's identity and unique personality [17].

2. METHOD

A field survey was conducted, and a questionnaire was distributed to shop owners to gather data on the fundamental aspects of sustainability strategies in traditional markets. Five key items representing these strategies were identified. These items were defined as variables, and their values were determined based on their potential qualitative values and

previous studies. Numeric values were assigned to these variables in descending order, with the highest value (the largest number) indicating the highest degree of urban conservation, and the smallest number indicating the lowest degree of preservation (Table 1).

To test the research hypothesis, the Al-Saray Heritage Market in Baghdad was selected as the study area. A questionnaire form was prepared, featuring information on the strategies for sustaining heritage markets and was distributed to a random sample of shop owners (90% of the total number of shops) in the market. The collected data was then mathematically processed using the Excel program to measure the frequency strength of the urban conservation achieved in the heritage market for each of the sustainability variables.

The Al-Saray market is one of the old markets in Baghdad, dating back to the Ottoman Empire era, coinciding with the construction of the Minister Hassan Pasha's mosque in 1660 AD [18]. Located within the Al-Rasheed neighborhood in old Baghdad, the market is close to Al-Rasheed Street and the Tigris River, extending from the head of Al-Shuhada'a bridge near Al-Mustansiriyah School to Al-Mutanabi Street. The market's name is associated with its proximity to the Al-Saray Government Building in Al-Qashla.

The market has undergone several morphological stages and consists of two branches. The first branch, located on the side of the Tigris River and adjacent to the Al-Wazir Mosque, comprises two floors. At the end of the Ottoman era, the ground floor was a stable for horses, and the first floor contained rooms for travelers from different cities of Iraq to rest and sleep. These rooms were later turned into housing for students studying at Al-Mustansiriya School over a hundred years ago. This branch is characterized by its brick ceiling and still has shops for bookbinding, simple leather industries, and stationery sales [19].

The second branch, not exceeding 300 meters in length and with a pedestrian corridor wider than 3 meters, is longer than the first branch and is bound by a smaller corridor (4M). At the end of the Ottoman era, it evolved to sell tobacco, and gradually its trades shifted to selling books and stationery [20]. These trades continue to the present time (Figure 2).

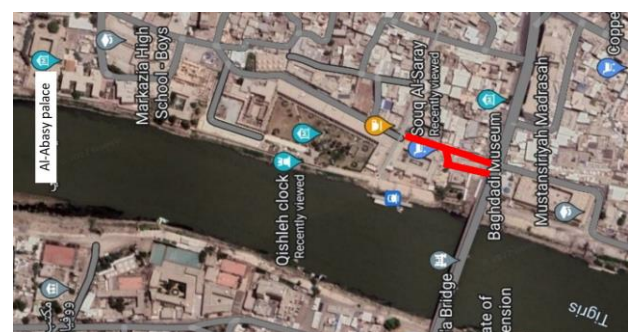


Figure 2. Al-Saray market site

Table 1. Variables of the measurement process, their values, and their notation

Key Elements	Variable Name	Variable Value	The Numeric Value of the Variable
Information about the shop	Ownership of the shop	Few of the shops are owned by their occupant	3
		An average number of shops are owned by the occupant	2
	Shop area	Most of the shops are leased to their occupants	1
		Most of them have a large area (greater than 50m ²)	3

		Most of them have an average area (from 25 - 50 m ²)	2
		Most of them have a small area (smaller than 25m ²)	1
		It harmony well with the booths of the other shops	3
	Booth Type	It harmony moderately with the booths of the other shops	2
		Poorly harmony with the booths of the other shops	1
		The same kind of shop goods	3
	Booth goods	It's mixed (i.e., a part of it is of the same type as the shop goods and the others are not)	2
		Not of the same kind of shop goods	1
		Their shapes are high harmony	3
	Signboard shape of the shop	Their shapes are of medium harmony	2
		Random shapes	1
		Not present	3
	Cracks	Weakly present	2
		Highly present	1
		Not present	3
	Humidity	Weakly present	2
		Highly present	1
		Not present	3
	Roof erosion	Weakly present	2
		Highly present	1
		Not present	3
	Floor erosion	Weakly present	2
		Highly present	1
	Equipping drinking water supply, stormwater drainage & wastewater drainage services (infrastructure)	Highly available	3
		Available in medium level	2
		Available in weak level	1
		Highly available	3
	Electrical services	Available in medium level	2
		Available in weak level	1
		Available at any time	3
	Reach cleaning services to the shop	Available sometimes	2
		Not Available	1
		Good satisfaction rate	3
	The shop owners' satisfaction with their location	Medium satisfaction rate	2
		Low satisfaction rate	1
		Good satisfaction rate	3
	Shop's location	How to deliver the goods to the shop	2
		Low satisfaction rate	1
		Availability of planned parking	3
	Parking space	Availability of non-planned parking	2
		No parking lot	1
		Too overcrowded	3
	Overcrowding in the market	Average overcrowding	2
		Not crowded	1
		Many roads to access the market	3
	Roads to access the market	Not many roads to access the market	2
		Hardly to find a road to access the market	1
		Excellent ventilation	3
	Market ventilation	Good ventilation	2
		Bad ventilation	1
		Excellent furnishing	3
	Market's furnishing, such as terraces, monuments, plants, and fountains	Good furnishing	2
		Weak furnishing	1
		Entrances and exits are free from optical distortions	3
	Clarity of market entrances and exits.	Entrances and exits have minimal visual distortions	2
		Entrances and exits contain significant visual distortions	1
		It has consistency with the architecture of the market	3
	Market ceiling	It has poor consistency with the architecture of the market.	2
		It has zero consistency with the architecture of the market	1
		Its finishing is very consistent with the market architecture.	3
	Architectural joints in the market	Its finishing is poorly consistent with the market architecture.	2
		Market floor	2
		With packaging inconsistent with the architecture of the market	1
		Highly consistent with the architecture type of the market	3
	Shops facade	Poorly consistent with the architecture type of the market	2
		Inconsistent with the architecture type of the market	1

3. RESULTS AND DISCUSSION

3.1 Information about the shop

3.1.1 Ownership of the shops

The study showed that a large number of shops are leased to their occupants (Figure 3). Here, the conservation process is weak for most of the shops, because few tenants are interested in maintaining the shop, so it is the role of specialists to adopt

the conservation of the shops.

3.1.2 The area of the shop

The study found that most of the shops have a small area (their area is less than 25m² (Figure 3)). Therefore, the shop owners are forced to display their goods outside. To solve this problem, the booth area must be determined by a certain percentage and according to the shop area.

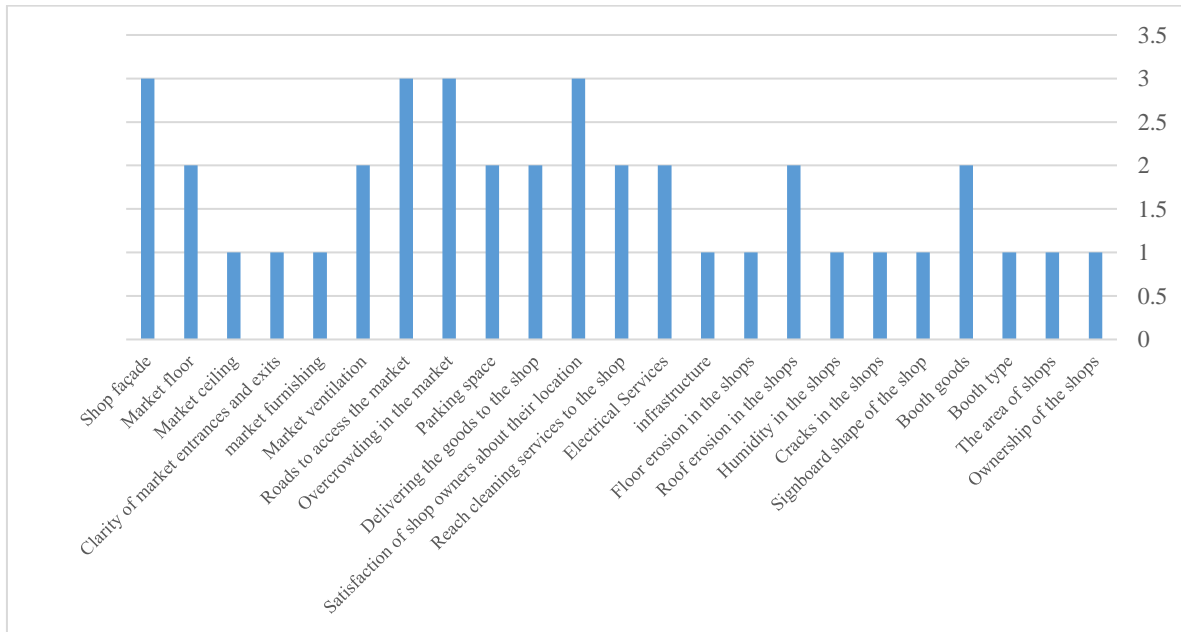


Figure 3. Frequencies of the measurement process variables

3.1.3 The type of the shop's booth

The results showed that the booth type outside the shops has poor consistency between them (Figures 3, 4). This can be solved by unifying booth shape and dimensions. At the same time, obligate the shop owners to use them to reduce the visual distortion inside the market. This smooths the movement between the shops within the market.

3.1.4 The kind of booth goods

The results showed that the kind of the booths goods is mixed. It varies between the same kind of shop's goods, and other separate kinds (Figures 3, 5). It can be dealt with this problem by controlling the kind of exhibits so that there becomes a kind of specialization in the goods of the shops.

3.1.5 Signboard shape of the shop

The results showed that the shapes of the nameplates of the shops are inharmonious (Figure 3). The problem is being addressed by putting several laws that oblige shop owners to set limits on the area of the nameplate, its type of material, and other specifications, as well as specifying its placement on the shop's elevation.



Figure 5. The mixed kinds of goods



Figure 4. The poor consistency of the booth shapes

3.2 Problems inside the shop

3.2.1 Cracks

According to the results, the cracks are widely present in most of the shops' walls and ceilings (Figure 3). The shop owners neglect to maintain them because most of the shops are not the property of the occupant. Here comes the role of specialists in solving this problem by adopting the process of conservation of the shops.

3.2.2 Humidity

The study found that humidity is a problem that most shops suffer from, due to their small size and the lack of internal windows for ventilation purposes (Figure 3). Here comes the role of specialists in dealing with this problem.

3.2.3 Roof erosion

The results showed that there are cases of corrosion in the ceiling of most of the shops, and for treatment (Figure 3). It can be covered with materials that have high resistance to erosion, as well as using secondary ceilings, where the ceilings' height allows this (approximately 4.5m).

3.2.4 Floor erosion

The study concluded that there is significant erosion in the floors of most of the shops (Figure 3), and solving this problem requires the intervention of the responsible authorities and specialists.

3.2.5 Equipping drinking water supply, storm water drainage and wastewater drainage services (Infrastructure)

The study showed these services are weak in most shops (Figure 3). Especially the sewage network in the market, as it does not meet its purpose, it always overflows, causing many problems for shop owners and market patrons. Here must the authorities be responsible to solve this problem.

3.2.6 Electrical services

The study found a medium level of electrical services in most shops (Figures 3, 6). To solve this problem through the regular supply of electricity by establishing electrical wires in a way that does not affect the visual value of the shop facade , which affects the interface of the heritage market.



Figure 6. The presence of irregular electrical wires

3.2.7 Reach cleaning services to the shop

The results of the study showed that cleaning services sometimes reach the shop (Figure 3), and here comes the role of the responsible authorities' efforts to secure the municipality service and cleaning workers in the Al-Saray market.

3.3 The location of the shop

3.3.1 The shop owners' satisfaction with their location

The study showed satisfaction with the location of the shops by the owners (Figure 3) because when the shop owners were asked about their future perceptions of the shop, the answers were recorded with the desire to keep the situation as it is, and this indicates the extent of the shop owners' satisfaction and satisfaction with the locations of their shops.

3.3.2 Delivering the goods to the shop

The study showed that there is a kind of difficulty in delivering the goods to the shops, and there was a medium satisfaction rate for this variable, (Figure 3), and the reason for

this is that the shop owners are completely convinced of the existing means of transport, which is the cart that transports the goods, and that a large percentage of them are not satisfied with their use of this means despite the availability, in addition to the human overcrowding in the market, especially in times of seasons and holidays. To solve this problem, it is preferable to transport goods more freely at times that are almost devoid of shoppers and not during the time of purchase that is limited to the middle of the day.

3.3.3 Parking space

The study showed that there are irregular car parks near the market (Figure 3), to solve this problem, it is done by creating regular car parks for shop owners as well as for those who go to this market.

3.4 Information about the market

3.4.1 Overcrowding in the market

The study showed the severe overcrowding in the market, especially during the seasons and holidays (Figure 3, 7), and this shows the importance of the market and its possession of multiple elements of strength such as historical value and functional value due to the continuity of work life in it at present, as well as its proximity to several historical attractions such as Al-Mutanabi Street, Al-Qishla and the Tigris River and the Al-Mustansiriya School, which made the market a high attraction for shoppers from inside and outside Baghdad and also became an important destination for tourists coming from outside the country.



Figure 7. Overcrowding inside the market during day hours

3.4.2 Roads to access the market

The study showed easy access to the market due to multiple ways to reach it (Figure 3) and the market's proximity to a residential area, which is an important factor of the basic sustainability factors to conserve the environment.

3.4.3 Market ventilation

The study found good ventilation in the market (Figure 3), so it is necessary to find mechanical alternatives to reach excellent ventilation inside the market because it plays an important role in achieving comfort for market users.

3.4.4 Market furnishing

The study showed the weak presence of the furnishing elements (Figure 3), and here comes the role of the specialists and the responsible authorities in preparing the necessary studies and designs on the quality of the furnishing elements, both natural and artificial, such as terraces, fountains, monuments, plants, etc. In turn, it achieves the highest degree of compatibility and harmony in the urban environment of the market.

3.5 Architectural joints in the market

3.5.1 Clarity of entrances and exits in the market

The study showed that the entrances and exits of the market contain large visual distortions (Figures 3 and 8), due to the concealment of their facades with goods, electrical wires, iron or wooden pieces used as display tools for goods, as well as the presence of various display tools such as booths, glass cabinets, and limited advertising boards that negatively affect visual vision.



Figure 8. Entrances outside the market and the visual distortions affecting it

3.5.2 Market ceiling

The study showed that the method of building the market roof has no consistency with the heritage style of the market (Figures 3, 9). The roof was built unscientific and unstudied, as it was covered with a plastic roof supported by iron and wood, which does not fit with the traditional market architecture and the history of the market. Here it is necessary to take a serious stand by the specialists and the responsible authorities in addressing this problem by roofing the second long branch, such as the roof of the short branch, distinguished by its brick roof (brick arch roof).



Figure 9. The ceiling of the market's branches

3.5.3 Market floor

The study showed that the market floor covering is weakly consistent with the traditional style of market architecture (Figures 3, 10), because the floor of the market was covered with cement bricks, and it was better to wrap it with brick tiles, which was used to cover the floors and roofs of traditional houses.



Figure 10. Using cement brick in finishing the market floor

3.5.4 Shop facade

The study showed the great consistency between the shop facade with the traditional style of the market, (Figure 3, 11) because the shop facade was rehabilitated and covered with bricks in a beautiful appearance that fits with the architecture and history of the market, but the random method of displaying goods in front of the shops negatively affected the shopfront of historical value.



Figure 11. Using brick in facade finishing

4. CONCLUSIONS

(1) The research showed that the process of maintaining the shops is weak because most of them are rented to their occupants and the tenant rarely cares about maintaining and maintaining the shop.

(2) Because of the small area of most shops, where most of them have an area of less than (25 m²), forces shop owners to display their goods outside the shop on stands, and this in turn generated the problem of poor consistency between these stands, which in turn affected the visual value of the market and made the movement of pedestrians not easy. It is not clear during the transition between shops.

(3) The research found that the type of merchandise in most of the shops' booths is mixed, any part of it is of the type of the shop merchandise and the other part is not of the type of the shop merchandise, and this generated the problem of lack of specialization in the merchandise of shops, which negatively affects the patrons of this market.

(4) The study showed the randomness of the forms of billboards that show the name of the shops, and this negatively affects the visual vision because it generates a kind of visual distortion inside the market.

(5) The study found that there are problems inside the shop due to the large presence of cracks and dampness in the walls and ceilings of the shops. As for the erosion of the roof, its presence was weak, while there is a large presence of erosion of floors. As for the clean water supply services and the drainage of heavy water and rainwater, they are weakly present, while the presence of Electrical services is on average while cleaning services may reach sometimes and may not reach the shop at other times, and here comes the role of the responsible authorities and the specialists in dealing with these problems.

(6) The study showed the importance of the market and its possession of multiple elements of strength, especially the historical, as well as its proximity to several historical attractions such as Al-Mutanabi Street, Al-Qishla, Tigris River, and Al-Mustansiriya School, in addition to the ease of access to the market due to the presence of multiple ways to reach it and an indicator of this is the severe human overcrowding in the market throughout the days of the year. It

increases more in seasons and holidays.

(7) The study found good ventilation in the market, while there is a weak presence of the furnishing elements in the market, represented by the plant element, fountains, seating benches, waste collection containers, and others, which are considered as complements to the outdoor spaces and provide comfort to their users.

(8) The study found that there are multiple problems in the architectural joints of the market, including:

- The presence of significant visual distortions at the entrances and exits of the market.
- The inconsistency of the method of building the market roof with the traditional style of market architecture.
- The weak consistency between the market floor covering and the traditional style of market architecture.
- The great consistency between the shopfronts and the traditional style of market architecture.

From the foregoing, and after analyzing the results of the study and giving solutions and proposals for the criteria of sustainability strategies in the Al-Saray market during the implementation phase in order to achieve urban conservation as it is a heritage area, it is a non-renewable source that invites us to conserve it and confirm that it is managed in a way that shows appreciation for those who lived in it and care for it for those who will come after us. And the level of preservation in this study is to conserve a heritage corridor, which is represented by a traditional commercial street in Baghdad and the buildings and shops located on its sides in order for the heritage to play its active role in activating the tourism, cultural and economic dimension of the study area by upgrading the old buildings and improving their conditions to be attractive to the generations. This is achieved through the application and achievement of sustainability strategies, which were summarized in the measurement process variables (Table 1), which can be applied, in the future, to any heritage urban environment, especially our country enriched with it, to achieve urban conservation in it, and this is consistent with the research hypothesis.

5. RECOMMENDATIONS

(1) The possibility of applying the research to other heritage markets.

(2) Cleaning heritage markets' external and internal facades from visual pollutants such as electrical wires, billboards, pictures, added structures, and others.

(3) Re-maintenance of the facades, floors, and ceilings in a manner consistent with the heritage style of market architecture, along with preparing a study to start and restore the parts threatened with demolition, under the supervision of a cadre of experts and constructors, provided that the restoration does not affect the heritage and architectural value of the market.

(4) Exclusion of extraneous professions that harm the traditional function of the market.

(5) Determining the booth area in front of each shop that the shop owner is obligated to adhere to, along with specifying the booth's location, size, shape, and material.

(6) Work to highlight the entrances and exits of the market by removing what is tainted with it, and work on beautifying it and not using it as a display area for goods that

erase its feature.

(7) Work to improve the infrastructure networks within the heritage area.

(8) Work to raise the level of archaeological awareness of the citizen as heritage is part of its history.

(9) Employing heritage by making it an economic resource within sustainable development plans, by reusing heritage buildings for community purposes.

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REFERENCES

- [1] Al-ahbabi, S.H.H. (2014). Sustainable urban conservation in the heritage areas. *Al-Nahrain Journal for Engineering Sciences*, 17(2): 14-25.
- [2] Al-Maliki, Qabila, F. (2010). Arab architectural and urban creations-conservation, maintenance, rehabilitation. Al-Warraq for Publishing and Distribution, Amman, Jordan. https://koha.birzeit.edu/cgi-bin/koha/opac-detail.pl?biblionumber=32244&shelfbrowse_itemnumber=49176.
- [3] Swilem, S.I.I. (2008). Strategies of the sustainable of that traditional commercial street-it's study case Khan Al Tujar. MSc. Thesis. Faculty of Graduate Studies, An-Najah National University, Nablus, Palestine.
- [4] Abdulameer, Z.A., Sati' Abbas, S. (2020). Adaptive reuse as an approach to sustainability. In *IOP Conference Series: Materials Science and Engineering*, 881(1): 012010. <https://doi.org/10.1088/1757-899X/881/1/012010>
- [5] Abulilah, M.M.S. (2019). Methodologies of the preservation of urban and architectural heritage in the Arab countries. First International Conference on Sustainability: Environmental Efficiency for Human Well Being (EBQL), IEREK Press-Academic Research Community. <https://doi.org/10.21625/baheth.v2i1.422>
- [6] Elborombaly, H.H. (2016). Architecture and urban conservation methodology for meddle east heritage areas. In *Fourth International Architectural Conservation Conference and Exhibition*. <https://doi.org/10.13140/RG.2.1.2823.1128>
- [7] Al-Jassem, Abdullah M. (2018). Strategies for preserving and upgrading archaeological sites. *Arab Journal for Scientific Publishing*, 3: 1. https://www.ajsp.net/volume/%D8%A7%D9%84%D8%A7%D8%B5%D8%AF%D8%A7%D8%B1_%D8%A7%D9%84%D8%AB%D8%A7%D9%84%D8%AB/.
- [8] Bernard, F. (1982). *Conservation of Historic Building*. Butterworth and Co., England.
- [9] Micheal, F. (2013). *Understanding historic building conservation*. Blackwell Publishing Ltd.
- [10] Filho, W.L. (2005). *Tools for heritage conservation handbook*. Tuteck Innovation, Hamburg.
- [11] Al Dabbas, H.M. (1999). Development of a grading system for historical and cultural resources in Jordan.

- MSc. thesis, Faculty of graduate studies, University of Jordan, Jordan.
- [12] Ricca, S. (2018). Urban heritage in the Arabian Peninsula, the experiences of Jeddah and Dubai. *Built Heritage*, 2(3): 108-122. <https://doi.org/10.1186/BF03545713>
- [13] The international committee for the management of archaeological Heritage (ICAHM). (1990). Charter for the protection and management of Archaeological Heritage, international council on monuments and sites (ICOMOS). <https://www.icomos.org/en/resources/charters-and-texts>.
- [14] R.Diti, R., Bharoto, A.M. (2013). Cycle of informal traders, a traditional that does not require a building from practice- Research- to practice. *Procedia-Social and Behavioral Sciences*, 105: 122-127. <https://doi.org/10.1016/j.sbspro.2013.11.014>
- [15] Gruen, V. (1973). *Centers for the urban environment: Survival of the cities*. Van Nostrand Reinhold, New York.
- [16] Krier, R., Rowe, C. (1993). *Urban Space*. Academy Editions, Rizzoli International Publications, Incorporated.
- [17] Rapoport, A. (1977). *Human aspects of urban form: towards a man-environment approach to urban form and design*. Pergamon Press Ltd., Headington Hill Hall, Oxford, England.
- [18] Jabra, Ibrahim, J., Ihsan, F. (1987). *Baghdad yesterday and today*. Mayoralty of Baghdad, Baghdad.
- [19] Alwan, O. (2009). Preservation of heritage markets within an integrated framework to preserve the urban heritage in the historical centers of cities (selected models and experiments). *Journal of the Planner and Development, Baghdad University*, 14(2): 105-123. <https://jpd.uobaghdad.edu.iq/index.php/jpd/article/view/173>.
- [20] Qassab, Fakhri, H. (1988). Traditional markets of Rasheed Street. *Al-Turath Al-Sh'abi-Quarterly Journal of Folklore, The Ministry of Culture and Information, Baghdad, Iraq*, 2: 41. <https://drive.google.com/drive/folders/1j6kB9KXltPMkUJ37C0SIEFOBXI2isrAl>.