



The Impact of Community Participation on Supporting Rehabilitation Plans for Heritage Buildings and Sites: A Case Study of Bab Zuweila and Nafisa Al-Bayda Sabil and Agency

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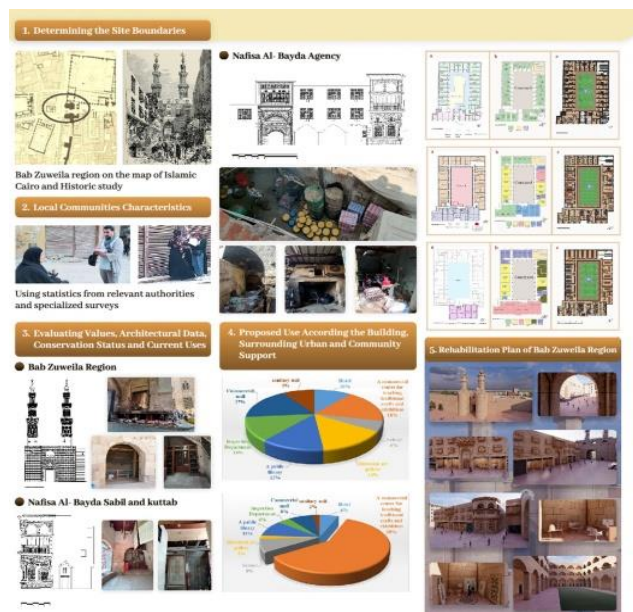
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HIGHLIGHTS

- The need for community participation to support rehabilitation plans of heritage buildings and sites.
- Evaluating the proposed use alternatives according to their suitability for the heritage building and its surrounding needs.
- Bab Zuweila's region faces challenges like groundwater issues, population density, and traffic congestion, necessitating urgent interventions for many buildings.
- Proposing solutions to Bab Zuweila region's problems, envisioning the area post-rehabilitation and suggesting archaeological vocabularies for use in modern construction.

GRAPHICAL ABSTRACT



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ABSTRACT

Many buildings and archaeological sites suffer from issues primarily caused by a lack of community awareness regarding their importance. Recently, all sustainable development plans aimed within their three axes (environmental, social and economic) and other axes that intersect with them, to achieve societal sustainability by providing the needs of society and improving their living conditions, environment and economic status. This improvement reflects positively on its surrounding environment including archaeological and heritage sites and buildings.

Therefore, the study came with the aim of clarifying the role of local communities in rehabilitation plans of archaeological and heritage buildings and sites, which were applied to Bab Zuweila and Nafisa Al-Bayda Sabil and Agency. To achieve this, the study relied on the applied methodology through field visits and monitoring the current state of preservation and the nature of current uses. This was followed by a proposal to overcome the problems negatively affecting the buildings and the heritage site and a proposal to rehabilitate each of them relying on the community inquiry and participation. The study revealed the positive impact of community participation in rehabilitation plans, showing community acceptance and support for the current uses of Bab Zuweila and Nafisa Al-Bayda's Sabil. However, the majority did not accept the current use of Nafisa Al-Bayda's Agency. Consequently, a proposal was developed with local community participation to reuse Nafisa Al-Bayda Agency as a craft and exhibition center. Besides a proposal to develop the surrounding urban area and overcome its problems.

1. Introduction

Rehabilitating archaeological or heritage buildings involves restoring and reusing them, either for their original purposes or new functions that respect the building's value and community needs [1]. Rehabilitation of archaeological or heritage sites involves preserving the buildings and the surrounding urban fabric, while providing necessary infrastructure and services to meet local community needs. The best approach for managing archaeological and heritage sites is comprehensive site management, which includes various preservation procedures and integrates local communities into the management plans to ensure sustainability [2]. Management plans should involve a partnership between the public sector, the private sector, and the local community, with potential participation from professional civil associations for heritage preservation [3].

Community participation and social partnership are essential for involving local communities in decentralized decision-making processes across various sectors, including service, cultural, economic, and social aspects [4]. While these concepts overlap, **participation** is specifically defined as "face-to-face interaction of individuals who share important common values," aiming to foster unity and enable freedom for all citizens. This serves as a tool for decision-making and promoting significant changes [5]. In developing countries, community participation supports local

communities in controlling the development process, enhancing project performance. However, some governments may view this as a threat to conservation projects [6].

The United Nations report emphasizes that participation entails creating opportunities for all societal members to engage actively in the development process, ensuring a fair and equitable distribution of benefits [7]. Achieving political, economic, and social development requires allowing all societal segments to voice their needs and formulate plans. This inclusive approach to participation leverages the energies and capabilities of community members to their fullest potential [4]. Participation is divided into five levels:

- A. Providing information: Informing the community about planned actions;
- B. Consultation: Presenting options to the community and gathering feedback;
- C. Collective decision-making: Discussing additional ideas with the community and making joint decisions;
- D. Working together: Forming a partnership with a specific structure to share the workload of joint decisions;
- E. Supporting independent community initiatives: Helping the community identify their needs, supporting their initiatives, and advising them on obtaining support [4].

It is crucial to consider the users and the local community in buildings and urban conservation projects. Their ambitions and priorities should not be neglected in favor of government policies or investor desires. Preserving traditional heritage involves dealing with a living environment to maximize cultural heritage sustainability and transmit it to future generations [8].

Partnership is an agreement among multiple parties to achieve a common goal through joint actions, considering each partner's interests. This cooperation is based on a contract and is essential for achieving goals that cannot be accomplished individually [4].

Community partnership involves the collaborative efforts of the government, private sector, civil society, and charitable organizations to address problems, update and develop expertise, and strengthen the roles of all participants. This is achieved through the exchange of opinions, ideas, and experiences, the integration of resources and capabilities, and compensating for deficiencies among partners [9].

Community partnership has two types:

- A. **Direct Partnership:** Involves active participation from various groups in development processes, including consultations, administrative decentralization, media, and public referendums [10,11];
- B. **Indirect Partnership:** Involves voluntary participation or efforts by individuals or groups commissioned or self-motivated by certain parties through providing some effort and volunteer time [10].

Community partnership focuses on organizing roles, responsibilities, and interests among different societal groups to achieve common goals and enhance coordination [12].

The relationship between community partnership and development: Community partnership is essential for societal development, impacting economic, social,

political, educational, and environmental progress [13]. The concept of sustainable development, introduced in 1950 by the International Union for Conservation of Nature, considers environmental, economic, and societal factors [14]. The Brundtland Report (1980) defined it as meeting present needs without compromising future generations [15], and the 1992 Earth Summit described it as developing while ensuring future needs are met [16]. Community participation is crucial for the sustainable development of archaeological sites [17] and has gained importance due to various socio-economic changes [18, 19]. Sustainability is measured by the ecological footprint and social development index, reflecting the need for a stable environment and minimum living standards [20, 21]. Without community involvement, management and rehabilitation plans often fail due to isolation and resistance to change.

Recent studies underscore the positive impact of community participation in rehabilitation plans for heritage sites. Engaging local communities not only fosters a sense of ownership and pride but also enhances the sustainability of preservation efforts. For instance, a study by Oladeji et al. [22] demonstrated that inclusive decision-making processes lead to more effective management strategies and increased community support, which are crucial for long-term success. Furthermore, research by Colding and Barthel [23] highlighted that active involvement of residents in restoration initiatives significantly improves cultural awareness and appreciation, which in turn can boost local economies through heritage tourism. These findings indicate that prioritizing community participation in rehabilitation plans can yield substantial benefits for both the cultural heritage and the communities involved.

2. Practical development

2.1. Studying the Characteristics of the Local Community

This study examines the demographic characteristics of the local population in Al

Darb Al-Ahmar area, focusing on age groups, social status, and educational background. This information, drawn from 2019 data by the Central Agency for Public Mobilization and Statistics and supported by a survey of 50 local residents conducted by

the research team (Fig. 1.) on March 13, 2022, is vital for developing a rehabilitation and management plan for the area's archaeological buildings and their surroundings [1, 20].



Fig.1. Researchers conducting surveys with local community in the surrounding urban.

2.2. Monitoring the Values of the Studied Archaeological Buildings and Evaluating their Current Uses

This aims to highlight the importance of the studied buildings and evaluating their current uses [24] to determine the suitable way for community engagement and formulate rehabilitation plans.

2.2.1. Monitoring the Values and Data of the Studied Buildings (Bab Zuweila, Sabil, Kuttab and Agency of Nafisa Al-Bayda):

A. Bab Zuweila (Monument No. 199): Situated on Al-Muizz Street in Cairo, Bab Zuweila was built by Badr Al-Din Al-Jamali in 485 AH / 1092 AD [25]. This unique monument (Fig. 2.) features distinctive architectural elements, such as a *meqaad* (*iwan*), two minarets, and a connection to a mosque. Initially it was a defensive gate, but its military function diminished with the unification of Islamic Cairo's capitals and the construction of the Citadel during Salah al-Din Al-Ayyubi's era. In 1415 AD, Sultan Al-Mu'ayyad Sheikh repurposed it, establishing a *meqaad* in the western tower, marking the gate's first reuse. Over time, additional structures were added, and the

meqaad was used as an oratory hall. Despite early restoration efforts by the Committee for the Conservation of Arab Antiquities in the 20th century, further deterioration occurred. Comprehensive restoration by the American Research Center in the early 21st century revitalized Bab Zuweila as a tourist attraction, preserving its historical significance and grandeur.

B. Sabil and Kutab Nafisa Al-Bayda (Monument No. 358): which is a unique Ottoman structure and the only example of a *sabil* integrated with an agency building is located at the southwestern corner of the Nafisa Al-Bayda agency on Atfa al-Hammam Street.

C. Nafisa Al-Bayda Agency (Sukkaria Agency) (Monument No. 395): Agencies are expansive commercial establishments owned and operated by a single merchant or family. These structures are characterized by large walled buildings with numerous rooms and smaller spaces for merchants' residences and goods storage [26]. The entrances are distinguished by their tall arches and precise decorations.

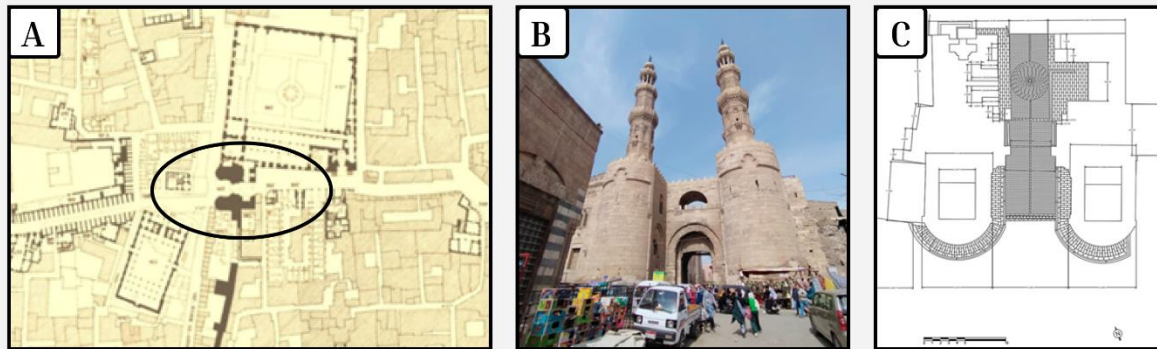


Fig.2. A) The general location of Bab Zuweila on the Islamic Cairo map; B) Photo of Bab Zuweila; C) Plan of the ground floor of Bab Zuweila (Researchers drawing after the American Research Center).

2.2.2. *Building's Data that Qualify it for Reuse*

A. Bab Zuweila: This historic gate features a pointed entrance 4.85 meters wide, flanked by two towers. The upper third of each tower houses a defense chamber, and the top of the towers includes three arrow slits and crests with semicircular sectors. The entrance corridor is covered with a vault leading to a space with a shallow dome supported by spherical triangles. Sultan Al-Mu'ayyad Sheikh added two of the most graceful, tall, and ornate Mamluk-era

minarets to his mosque above these towers [27].

B. Sabil and Kutab Nafisa Al-Bayda: This *sabil* (fig. 3) features three windows for distributing water, with a façade similar to that of the Ruqayya Dudu *sabil*. Due to street-level changes, the ground in front of the *sabil* has risen. The entrance is from Atfa, which includes a lane door with a segmental arch. Inside, the *sabil's* interior consists of an entrance, a *sabil* room, a lobby, stairs leading up to the *Kuttab*, and marble slabs in front of the *sabil's* window.

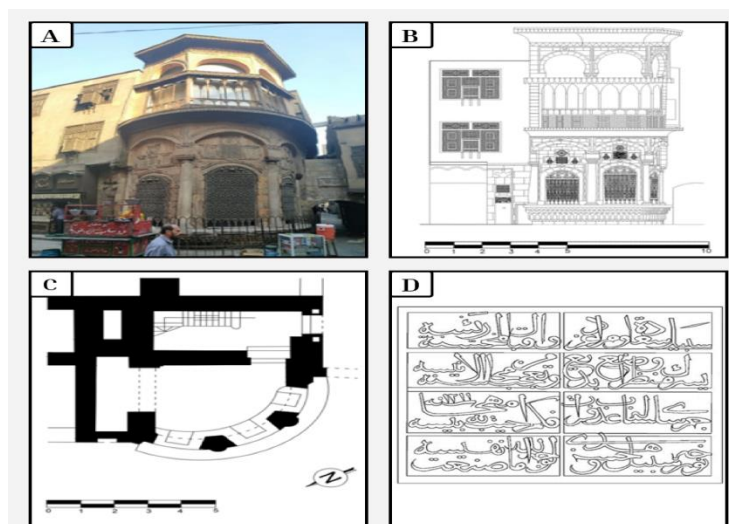


Fig. 3. A) Main elevation of Nafisa Al-Bayda sabil and kuttab; B) The western facade (Researchers drawing after the American Research Center); C) Plan of the first floor of the sabil (after the American Research Center) illustrates the façade of the sabil and kuttab and its connection to the agency; D) Some inscriptions on the façade of Sabil Nafisa al-Bayda (Researchers drawing).

C. Nafisa Al-Bayda Agency: The exterior architecture of this agency (Fig. 4.) features a main stone façade in the southwest that overlooks Al-Moez Street. The façade includes three floors with modern shops at the bottom, obscuring its archaeological features except for a simple, sunken stone entrance covered by a muqarnas semicircular arch. This main façade measures 36.97 meters in length and 11.97

meters in height. It can be divided into three parts:

- 1) The northern part with two floors and a length of 18.53 meters;
- 2) The southern part with three floors and a length of 12.56 meters;
- 3) The middle section with an ornate limestone façade, containing the agency's main gate and a width of 5.88 meters.

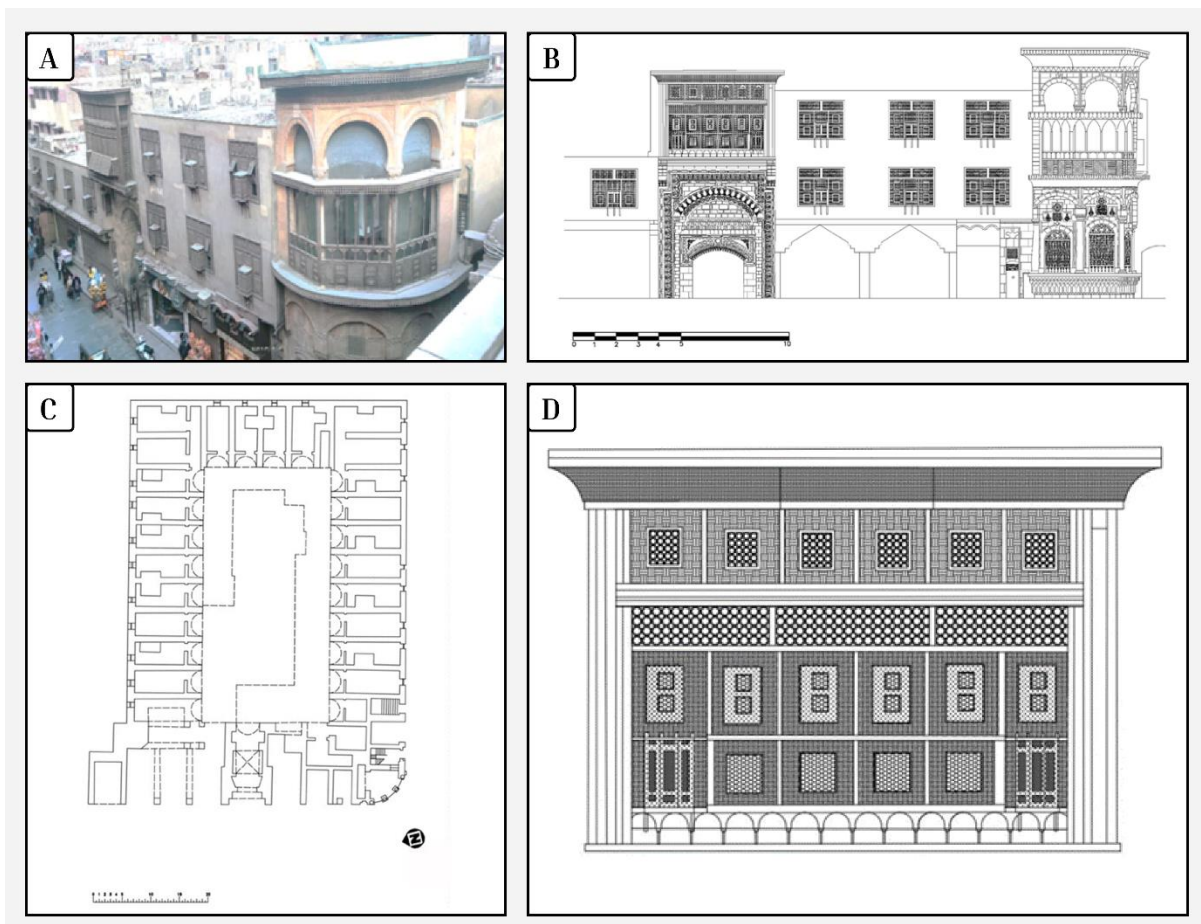


Fig.4. A) The façade of Nafisa Al-Bayda agency from the top of Bab Zuweila; B) The front elevation of Nafisa Al-Bayda Agency (researchers drawing after the American Research Center); C) Plan of the ground floor of Nafisa Al-Bayda Agency (researchers drawing after the American Research Center); D) Detail of the wooden mashrabiya in the agency (researchers drawing).

2.2.3. Evaluation of the Current Uses of the Studied Archaeological Buildings:

This part includes the evaluation of current uses in the light of considerations regulating reuse projects and the effect on

the conservation status of the studied buildings:

A. Bab Zuweila: The current utilization of the building in Fatimid Cairo as a transition element between indoor and outdoor spaces,

as well as a tourist attraction, is appropriate for its original purpose. Its adaptation for museum display (Fig. 5.) maintains the building's historical values over 20 years after rehabilitation. Few modifications were necessary such as essential modern updates included installing a rainwater drainage system and updating old electrical networks.

Feeding networks were not introduced, adhering to regulations and preserving the building's integrity. Some spaces were exploited in the museum display so that the artifacts found during the excavations that took place during the restoration project are displayed.



Fig.5. A) Exploitation of the arched openings in the museum display; B,C) The shape of the used display units and the nature of the exhibits; D) Panoramic picture showing the reuse of the shops in the same original uses; E) Panoramic picture showing the addition of some small modern non-permanent stores.

B. Sabil Nafisa Al-Bayda: The current use (fig. 6) of this site as a tourist attraction and for museum displays is suitable and has preserved the building since its rehabilitation 25 years ago. The new function did not require mechanical elements, only updating the old electrical

networks. Given the building's effective ventilation system, there was no need for air conditioning or additional ventilation. To ensure the building's longevity, feeding networks were not introduced, reflecting careful consideration of the building's needs.



Fig.6. A) Current use of Sabil Nafisa Al-Bayda as a tourist attraction with a museum; B) Exploitation of the arched openings in the Sabil room for museum display; C,D) Museum display in the Kuttab room.

C. Nafisa Al-Bayda Agency: The front part of the agency (Fig. 7) consists of 12 habitable rooms. Currently, one room functions as a workshop, two are used as

storerooms, two are vacant, and seven are inhabited with electricity. Only three rooms (one in the north and two in the south) have water and sewage installations.



Fig.7. Current status of Nafisa Al-Bayda Agency's spaces and their infringement by inappropriate uses.

2.3. Problems in the Surrounding Urban that Threaten the Archaeological Buildings and their Sustainability

Old Cairo and its archaeological and heritage areas face many problems (Fig. 8)

that are the product of various factors, and these problems have negatively affected the buildings and threaten their sustainability, directly or indirectly, and the following is a review of the most important problems:



Fig.8. Diagram showing the most important problems in the surrounding (by researchers).

A. Encroachments and Unsuitable Uses: occur due to population pressures and increased crowding, as well as the deterioration of the environment surrounding archaeological buildings, posing a significant threat to them, with Darb Al-Ahmar experiencing a high population density of 32,223 people per square kilometer [28];

B. Slums: Unregulated markets around archaeological sites cause pollution and damage, attracting insects and stray animals with their waste and contributing to potential fires through waste burning [29];

C. Occupancy: The region's high population density has led to commercial and industrial occupancies (Fig. 9), where traditional industries are mixed with non-traditional activities. This includes inappropriate uses of archaeological buildings, and industrial activities that introduce pollutants and excessive heat, damaging the historical integrity of the area [30];

D. Transportation: Increased traffic and the use of heavy machinery in historical areas (Fig. 10) cause air pollution, noise pollution,

and vibrations, which affect the structural integrity of archaeological buildings [31], [29];

E. Public Utilities Projects: Poorly maintained water supply and sewage systems, along with the mixing of clean and polluted groundwater, lead to seepage under the foundations of archaeological buildings, raising groundwater levels and threatening the structural stability of these sites [32]. Many Islamic monuments, including those in the Bab Zuweila area like Al-Saleh Tala'i Mosque (Fig. 11A), are particularly affected by wastewater issues [33];

F. Weak Historical and Archaeological Awareness: A lack of awareness among residents, compounded by economic difficulties and low education levels, leads to neglect and inappropriate reuse of archaeological buildings, hindering preservation efforts [30];

G. Deficiencies in the Restoration and Preservation: Restoration practices often ignore scientific principles, with work carried out by inexperienced contractors, leading to the use of inappropriate

techniques and materials that compromise the monuments' integrity [34];

H. Non-Applicable Laws: The ineffective enforcement of existing laws, particularly by the Ministry of *Awqaf*, leads to the continued renting of shops and houses under outdated agreements, requiring legal reforms to ensure compliance and to protect heritage (Fig. 11B.);

I. Means of Renewal and Modernization:

Modern interventions such as using non-traditional materials, increased traffic, lifestyle changes, and population dynamics contribute to the degradation of old cities and their archaeological sites, causing structural damage and altering their original layouts [35].



Fig.9. Commercial occupancies on Ahmed Maher Street, candle making workshops in archaeological buildings.

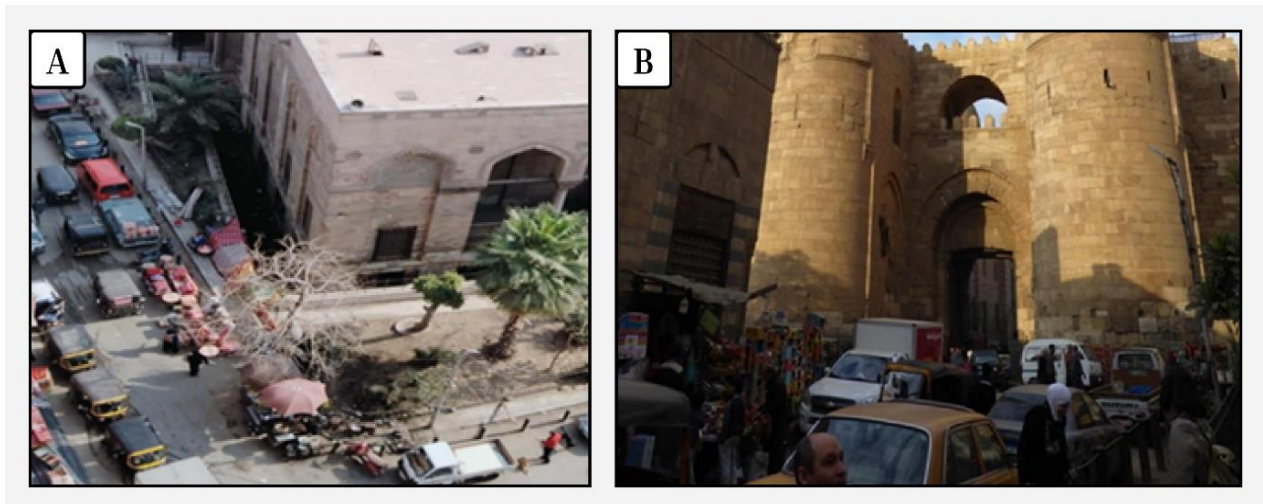


Fig.10. A) Traffic congestion in front of archaeological buildings; B) In the streets of the historic city.



Fig.11. A) The problem of rising ground water level in Al-Saleh Tala'i Mosque; B) Al-Alili's house was not evacuated despite a decision to evacuate it.

3. Results and discussion

3.1. Characteristics of the Local Community

According to the Central Agency for Public Mobilization and Statistics in the Darb al-Ahmar region in 2019, it was found that: The total population is 58,489 (30,307 males and 28,182 females) and the total number of households is 16,807 and there is no public housing in the area. The age group of young people (20-45 years) is the dominant group, while the category of children (less than one year to 20 years) is close to the elderly group (45-90 years).

The predominant percentage of the educational status is (intermediate technical qualification), followed by the convergence of the percentage of (illiterates with those with university qualifications) then the percentage of those who have high school (who read and write without qualification) then those (who have a higher intermediate qualification), while those who have higher diplomas, masters, PhD, their percentage does not exceed 600 individuals out of a total of 49032.

Through the questionnaires carried out by the work team on 13/3/2022 for the local community in the urban of the archaeological buildings, the following was shown (Fig. 12):

The age group of 20-30 years is the most common age group, and the proportion of females in the area is higher than that of males.

- The area has a high percentage of young people and a high percentage of them are unemployed.
- Low educational level of the people of the area with a percentage of 18% without education.
- The presence of a large percentage of young people reached the age of maturity and did not get married.
- High percentage of unemployed youth.
- Low monthly income with a percentage without income.
- Increasing the number of children due to lack of awareness in society.
- Many visitors in the area, which relies heavily on tourism.
- The community's lack of awareness of Bab Zuweila, with no knowledge of its history.
- Completely unaware of Nafisa Al-Bayda Agency, all which is known to them is that it is an agency for the wax industry only.
- Many residents and visitors are dissatisfied with the current situation of the area.
- Local community support to rehabilitation works of the site and acceptance of participation in it.

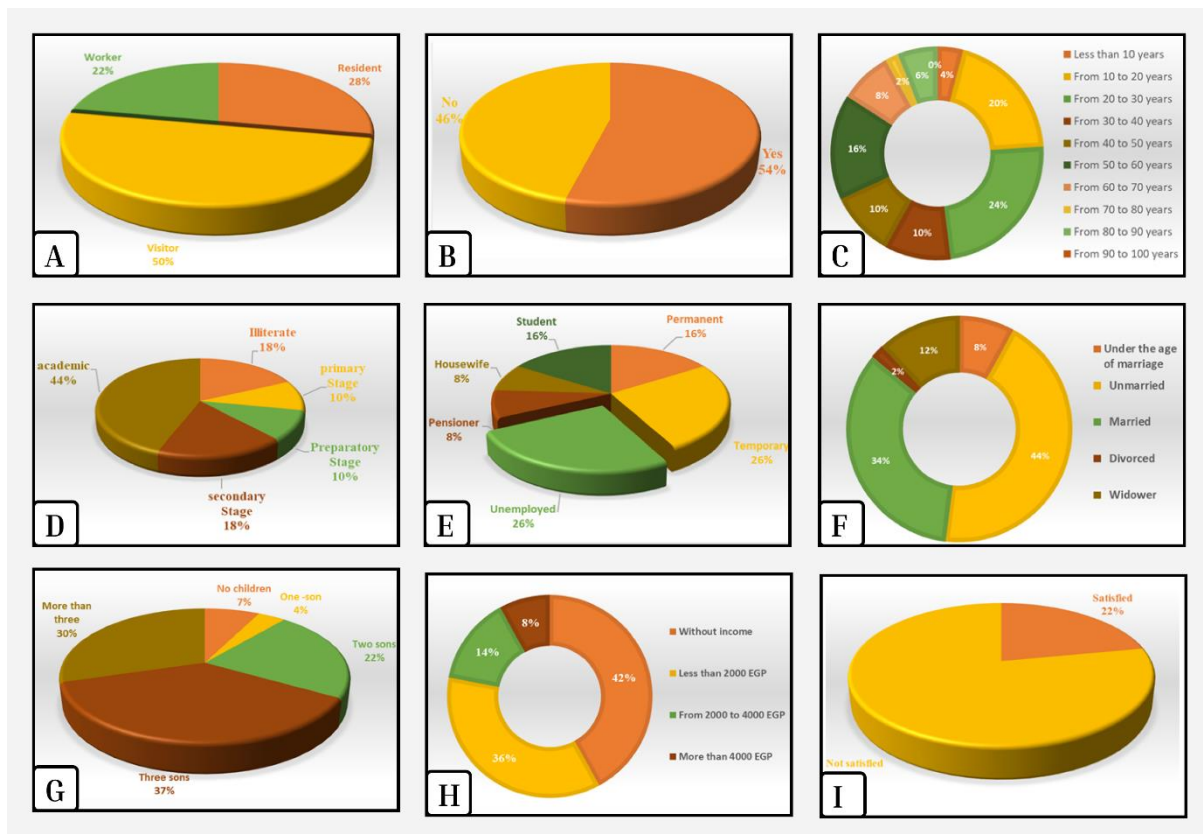


Fig.12. Characteristics of the local community in the closest zone of the studied archaeological buildings; A) The nature of the local community; B) The ratio of males to females; C) Age groups; D) Cultural level; E) Jobs of the local community; F) Marital status; G) Number of children in each family in the area; H) Average per capita income; I) The average of satisfaction with the current uses of the archaeological buildings in the region.

3.2. Community Engagement to Evaluate Current Use of the Studied Buildings:

According to the directions of preserving the archaeological buildings [1, 20], the current use of Bab Zuweila is an appropriate use. This is because it preserved the value of the archaeological building and preserved its structural and architecture. The new use required a minimum of additions and modifications but according to sustainability trends, the community should be involved to evaluate the current use and determine the extent of its interaction with the monument. This was done through a survey of the local community (the people of the area living in it), visitors (site pioneers), and workers in

the archaeological building (the number of questionnaires is 50 in the urban of Bab Zuweila and Al-Moayyad Sheikh Mosque + 50 in the urban of *sabil* and agency of Nafisa Al-Bayda). Community points of view were positive and support the current use of Bab Zuweila and Sabil Nafisa Al-Bayda (Fig. 13 A, B), while surveying the views of the local community through questionnaires shows that the majority of them reject the current use of Nafisa Al-Bayda Agency (Fig. 13C.) and want to develop a more appropriate use suitable for the building, its archaeological surroundings and benefit for the local community.

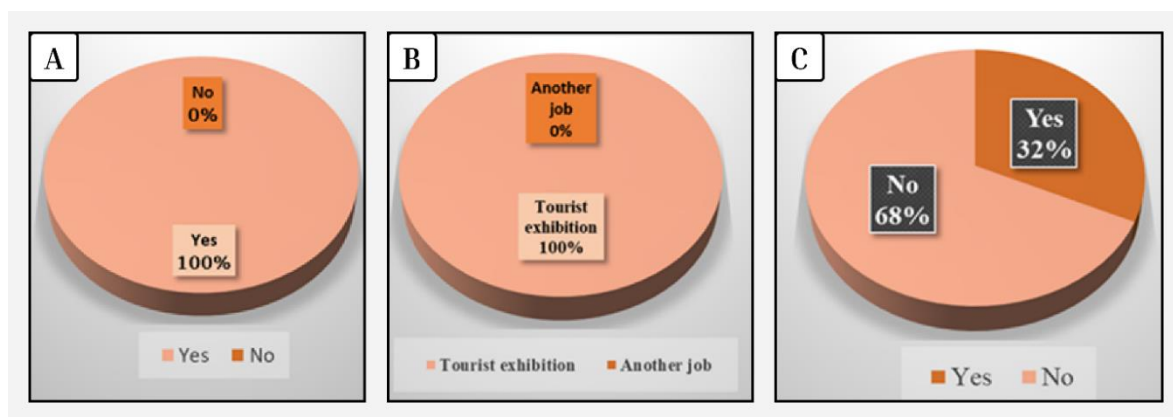


Fig.13. A) Chart showing the approval of the residents of the area for the current use of Bab Zuweila; B) Chart illustrating the local community's support for the current use of Bab Zuweila; C) Chart showing community dissatisfaction with the current use of Nafisa Al Bayda agency.

3.3. Proposed Assessment Works Based on the Current Situation and Community Participation

Based on the current situation and community participation, the current use of Bab Zuweila and Sabil Nafisa Al-Bayda turned out to be positive, but on the contrary, the current use of Nafisa al-Bayda agency is disproportionate to its archaeological, historical, and architectural values and this use is not accepted and supported by the local community as well.

Due to the inappropriateness of the current use of the agency, it was decided to conduct a study to determine the best use. The proposed use of the agency will be evaluated based on three main criteria: a. the appropriateness of the proposed use of agency building data, b. the appropriateness of the proposed use of the agency's surrounding urban, c. the extent to which the community accepts and supports the proposed use, and therefore it is possible to reach a result with the best proposed uses of Nafisa Al-Bayda agency.

3.3.1. Proposed Uses for Nafisa Al-Bayda Agency

Based on the building data, several suitable uses have been proposed for the archaeological building, considering its historical and architectural value [1]. These uses include a hotel with a special character,

workshops for teaching traditional industries and exhibitions, a school, an exhibition of historical art, a public library and seminar halls, a department of monuments inspection, a commercial mall, and a sanitary unit. A questionnaire involving 50 local community members and visitors was conducted to choose the most suitable use for the Nafisa Al-Bayda agency.

The assessment of the proposed uses was based on criteria such as suitability for the building's value and location, internal spaces, structural and functional elements, financial profit for conservation, contribution to the development of the surrounding urban area, improvement of the local community's economic situation, need for transportation, community values, and competitive activities in Cairo. The evaluation process (Table 1.), conducted through brainstorming sessions and in line with international charters, conferences, and local laws, prioritized uses requiring minimal intervention and modifications. The results were as follows:

A. By evaluating the proposed functions in the light of their suitability for the agency, it turned out that the most suitable use for the building is workshops for teaching traditional industries and exhibiting them;

B. By evaluating the proposed functions in light of their suitability for the agency's surrounding urban, it turned out that the commercial mall function is the most appropriate use for the surrounding urban;

C. By evaluating the proposed jobs in light of the acceptance and support of the local community for the proposed use (Fig. 14.), it was found that more than 50% support the reuse of the agency as a centre for handicraft industries.

Table 1. Evaluating the Proposed Use Alternatives According to their Suitability for Nafisa Al-Bayda agency and its surrounding urban.

Suggested Uses	Suitability according to the building only				Suitability according to the surrounding urban only					Community support rate	Suitability according to the building, the need of its surroundings urban and the community support	Order
	Provide a financial return for conservation	Structural and functional elements	Suitability for interior spaces	Relevance to the value and location of the building	The presence of competitive activities within the city of Cairo	Appropriate to societal values	The need to use transportation	contribute to improving the economic situation of the local community	Appropriate to planning needs			
Hotel	50%				26.6%					6%	27.5%	8 th
A commercial center for teaching traditional crafts and exhibitions	86.6%				83.3%					60%	76.6%	1 st
School	26.6%				60%					8%	31.5%	6 th
Historical art gallery	66.6%				70%					2%	46.2%	3 rd
Monuments inspection department	60%				33.3%					4%	32.4%	5 th
Public library	60%				46.6%					10%	38.3%	4 th
Commercial mall	83.3%				86.6%					8%	59.3%	2 nd
Sanitary unit	43.3%				40%					2%	28.4%	7 th

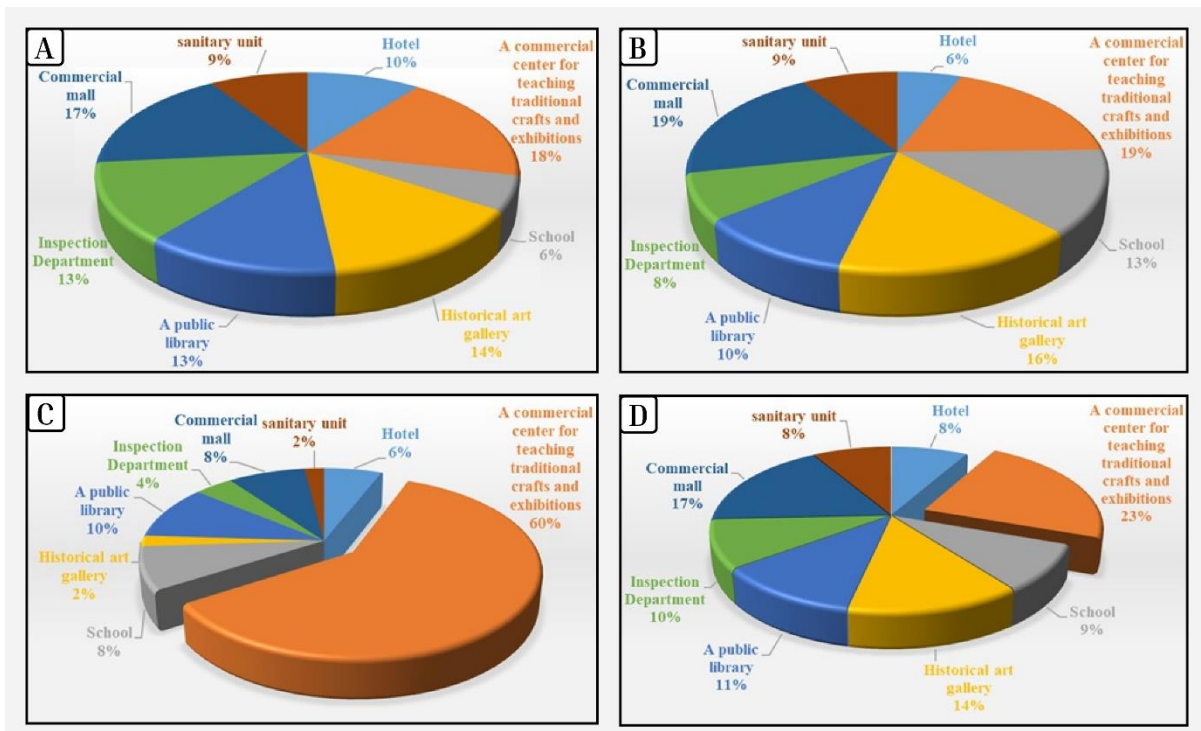


Fig.14. A) Evaluation of the proposed reuse encompasses assessing the building's suitability; B) Its integration with the surrounding urban area; C) The level of community participation; D) The suitability for the building and its surroundings urban and community participation.

3.3.2. Suggested Usage Requirements

The evaluation identified two suitable uses for the building: workshops for teaching traditional industries with exhibitions for selling their products and a commercial mall. These uses must meet specific requirements:

A. Historical Needs: Any new use should maintain harmony with the building's historical and architectural character. Additions should be minimal, removable, and not affect the building's core spaces or authenticity;

B. Architectural Needs: The building's layout is suitable for the proposed uses, and no significant spatial modifications are required;

C. Interior Architecture Needs: Interior elements such as walls, floors, and

decorations should align with the building's historical period. Modern, moisture-resistant materials should be used in functional areas like bathrooms and exhibition spaces. Additionally, new vertical communication elements (stairs) are needed to improve access between different levels of the building.

3.3.3. Distribution of Suggested Usage Items

A. Proposal to Reuse the Ground Floor: The plan includes adding bathrooms at the end of the agency to support its new role as a center for the sale and manufacture of traditional crafts. The ground floor will be repurposed to include stores and shops that will serve as exhibition spaces for selling traditional crafts products (Fig. 15.).

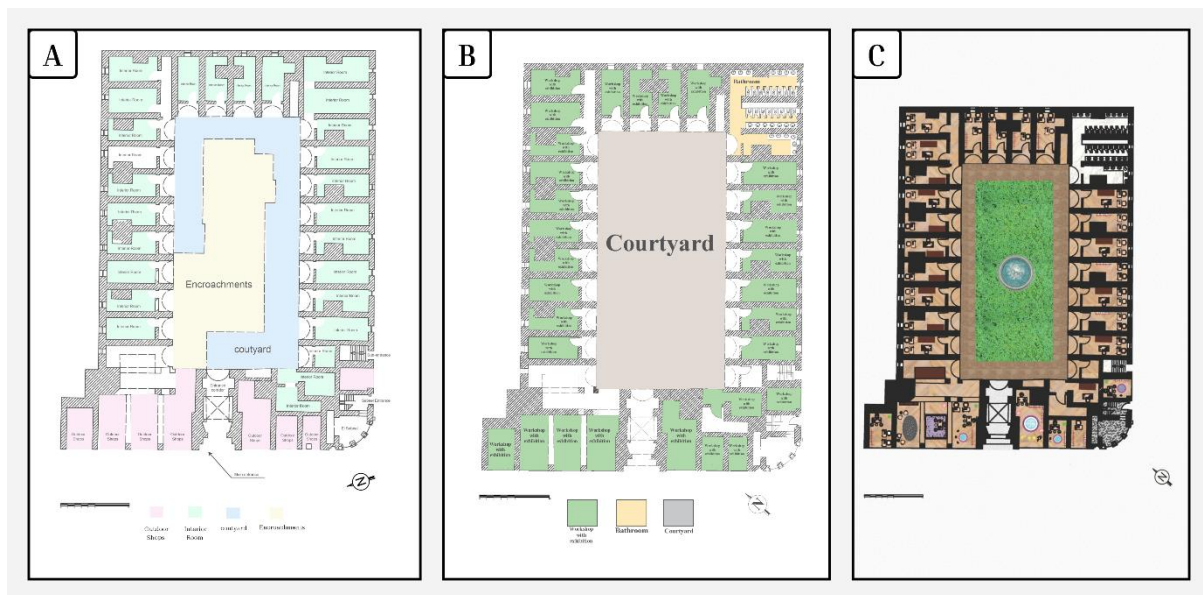


Fig.15. Ground floor plans of Nafisa Al-Bayda Agency illustrate; A) Its current state with encroachments inside the courtyard; B) Proposed rehabilitation plan to remove these encroachments and add necessary facilities; C) Final plan for its conversion into a center for traditional crafts.

B. Proposal to Reuse the First Floor: The plan suggests adding bathrooms to the first floor and removing recent encroachments to restore the agency’s original layout. The space would be repurposed as follows: workshops for traditional crafts, educational rooms for theoretical instruction, a management room for the center, and a rest room for workers (Fig. 16.).

C. Proposal to Reuse the Second Floor: The Nafisa Al-Bayda agency has significantly lost parts of its structure. Originally consisting of two floors above the ground floor, the building now has only one upper floor, with some remnants of the second floor visible on the western façade. Evidence supporting the existence of the second floor includes cantilevers along the side façade, dilapidated columns that once extended to the second floor, and travelers’

drawings that depict the original two upper floors (Fig. 17.).

It is proposed to rebuild the second floor according to the existing indicators that show its boundaries and design provided that a stop is made in any part when the estimation begins with the suggestion of adding some stores on the last floor, in addition to the workshops and educational rooms (Fig. 18.).

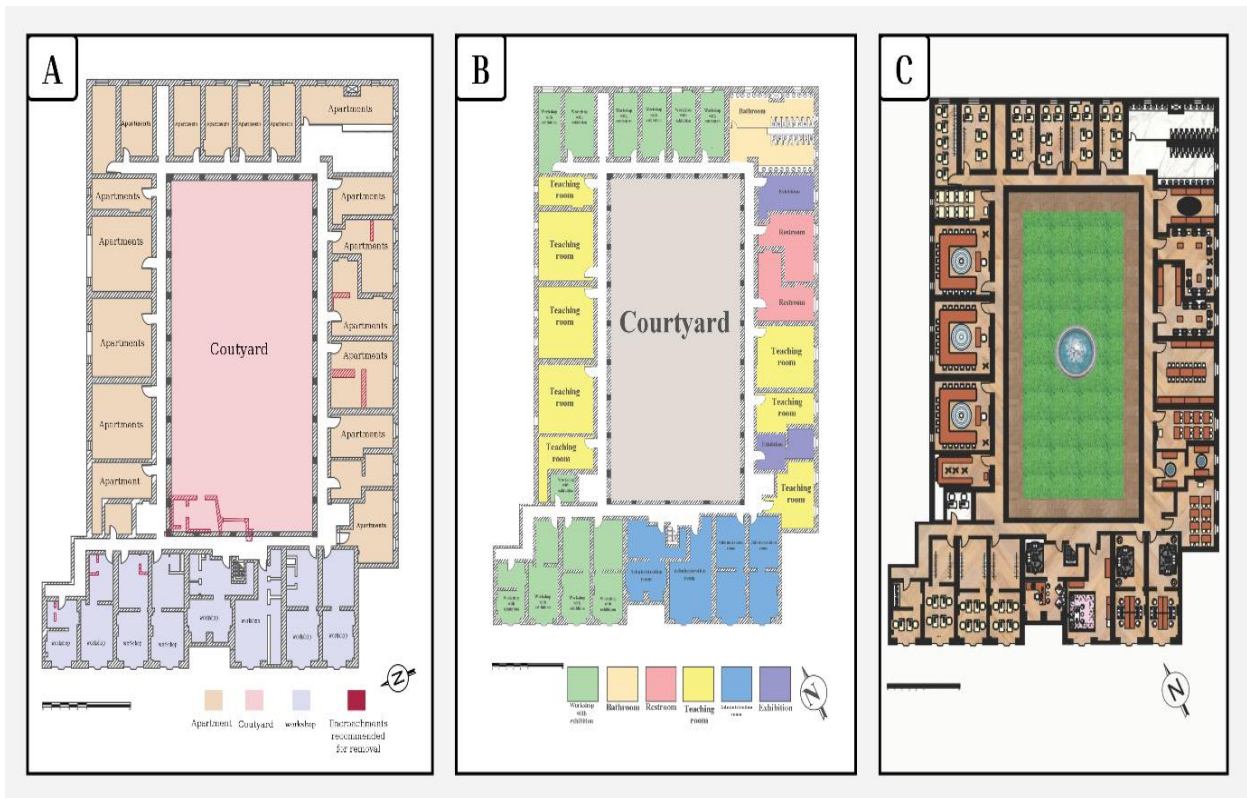


Fig.16. First floor plans of Nafisa Al-Bayda Agency; A) Its current state with encroachments inside the courtyard and some spaces; B) Rehabilitation proposal to remove these encroachments, add bathrooms, and repurpose spaces for workshops and administrative functions; C) Final layout for its new use as a center for traditional crafts.

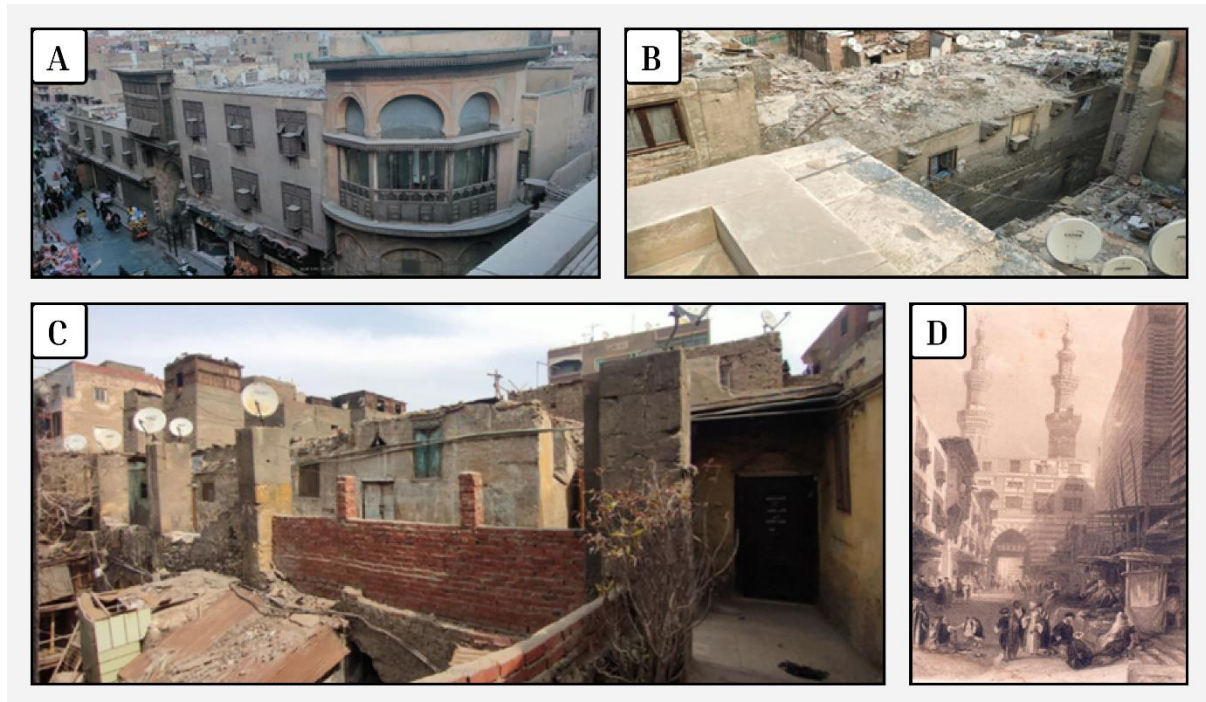


Fig.17. Evidence of two floors above the ground floor of the agency; A) Remnants of the second floor; B) Visible cables along the side façade; C) Dilapidated columns extending to the second floor; D) Historic drawings by artists such as David Roberts showing the second floor [36].

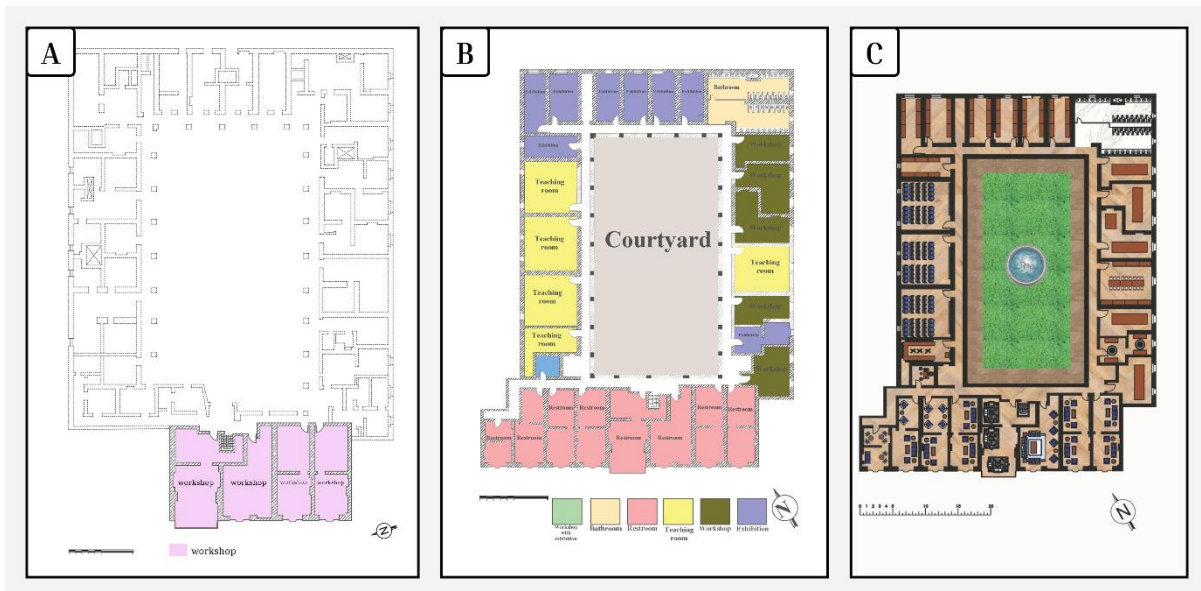


Fig.18. Second floor plans of Nafisa Al-Bayda Agency; A) Current state with mostly demolished areas and existing workshops; B) Proposal for rehabilitation by rebuilding demolished parts according to regulating rules and adding bathrooms; C) Proposal after preparing second floor for its new use as a center for traditional crafts.

3.3.4. *The proposed Restoration Plan in Accordance with the Proposal to Reuse the Nafisa Al-Bayda Agency*

Field studies have revealed remnants of the second floor on the facade of the agency, supported by several indicators such as travelers' drawings, existing cantilevers, and dilapidated columns. To restore the building to its original state and preserve its historical, artistic, and functional value, it is proposed to rebuild the missing section of the agency. This will help maintain the structural and architectural integrity and address deterioration caused by the demolished part, including the building's weakened facade.

The reconstruction of the second floor will also accommodate the proposed new uses. Additional stores, workshops, and educational rooms are suggested for the top floor. It is important to mark the renewal date on a suitable part of the rebuilt section, similar to the practices of the Committee for the Preservation of Arab Antiquities, which has historically placed plaques on restored parts of ancient buildings in Cairo, detailing the restoration dates and the personnel involved (as seen with Bab Zuweila) [37]. This approach ensures transparency about the building's modifications and continued preservation efforts. To reuse the Nafisa Al-Bayda Agency the following requirements need to be provided (Fig. 19.):

A. Mechanical Needs: Water and Sewage: Ensure secure connections to prevent leakage, Security and Fire Systems: Install alarms, electronic monitoring, and fire extinguishing units, Electricity: Update and conceal electrical systems to fit new uses, Air Conditioning: Use non-fixed units to preserve the building's integrity, Lighting: Harmonizing artificial lighting with the building's architectural and natural lighting elements, strategically placing lighting fixtures with appropriate design to enhance the building's aesthetics and functionality;

B. Administrative Needs: A dedicated authority under the Ministry of Antiquities will be proposed to oversee the agency's restoration and reuse, with full regulatory and enforcement powers;

C. Environmental Needs: Services and Infrastructure: Improve utilities and remove encroachment, Rehabilitation: Restore key archaeological sites and improve accessibility with pedestrian paths and parking, Lighting: Enhance site lighting for a museum-like atmosphere, Restoration and Reconstruction: Follow international and local guidelines for rebuilding and conservation, Integration of Uses: Proposed uses for the area's monuments should be integrated with the new proposed use of the Agency, ensuring a cohesive development strategy, Community Education: Educate the public on the value and proper care of the area's heritage.

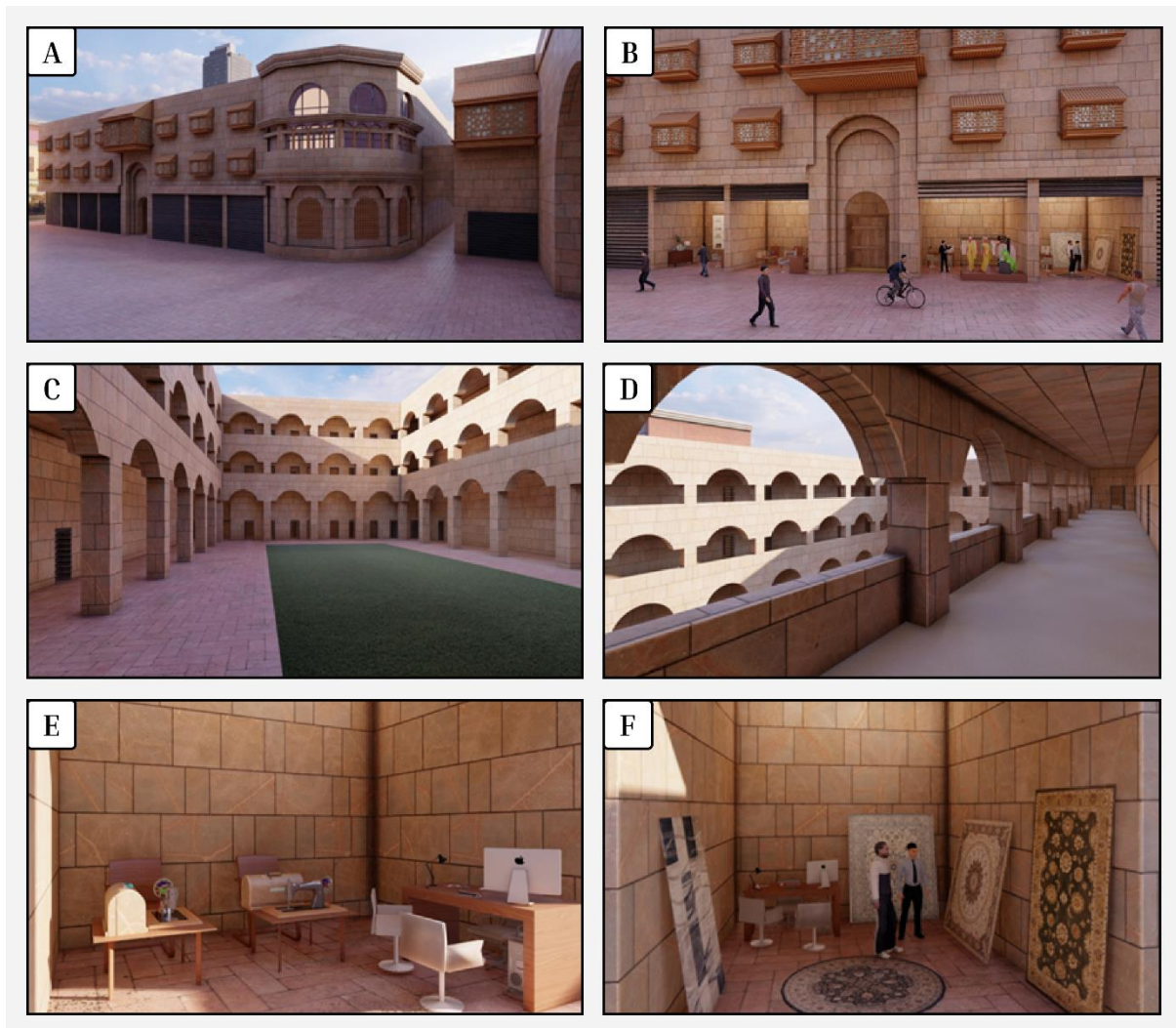


Fig.19. An imaginary picture of the Nafisa Al-Bayda agency after its rehabilitation; A, B) Reconstruction of the last floor; C) The courtyard of Nafisa Al-Bayda Agency after the rehabilitation and the removal of encroachments in the courtyard; D) Upper corridors in the Agency; E) Sewing workshops; F) Exhibition to display handmade carpet products (researchers drawing by 3d Max and Lumion programs).

3.4. Proposed Solutions to Solve the Problems and Dangers Threatening the Bab-Zuwiela Region

Addressing challenges facing archaeological buildings involves several key actions as follows: Encroachments and Building Use: Provide alternative housing, Prevent additional population increases, Curb rural-to-urban migration; Slums: Enforce strict building regulations and penalties, Implement technical standards guidelines that prioritize the sustainability and integrity of heritage sites during construction;

Commercial, Industrial, and Educational Activities: Relocate industrial activities and redesign vendor carts, Display products inside stores and restore streets, Coordinate signage and storefronts to match the archaeological area, Encourage craft owners to align for appropriate use or transition to crafts that align with the archaeological area's character; Transportation: Install traffic barriers and expand green spaces, Use vibration-absorbing paving materials, Develop parking facilities away from historic sites, Regulate vehicle access to

protect archaeological buildings; Historical Awareness: Implement community education programs, Use engaging content for children and promote sites via media, Broadcast festivals and provide accessible information; Sustainability: Transformation to green cities that aim to sustain buildings

and preserve the environment through adaptation and mitigation of climate change [32], Identify heritage values and update laws, Encourage community involvement and raise awareness, Develop plans integrating heritage values into new projects (Figs. 20,21.).

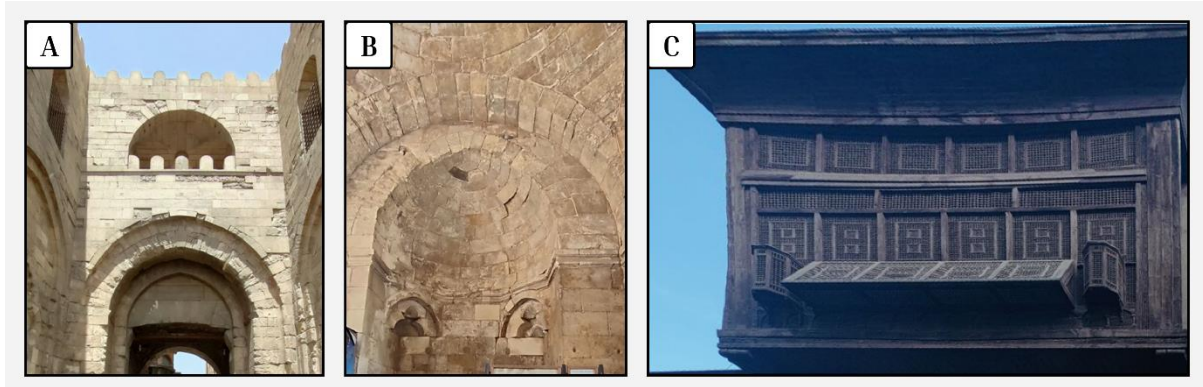


Fig.20. A, B) Arches; C) Mashrabiyas in archaeological buildings which are proposed to be reused in modern projects.

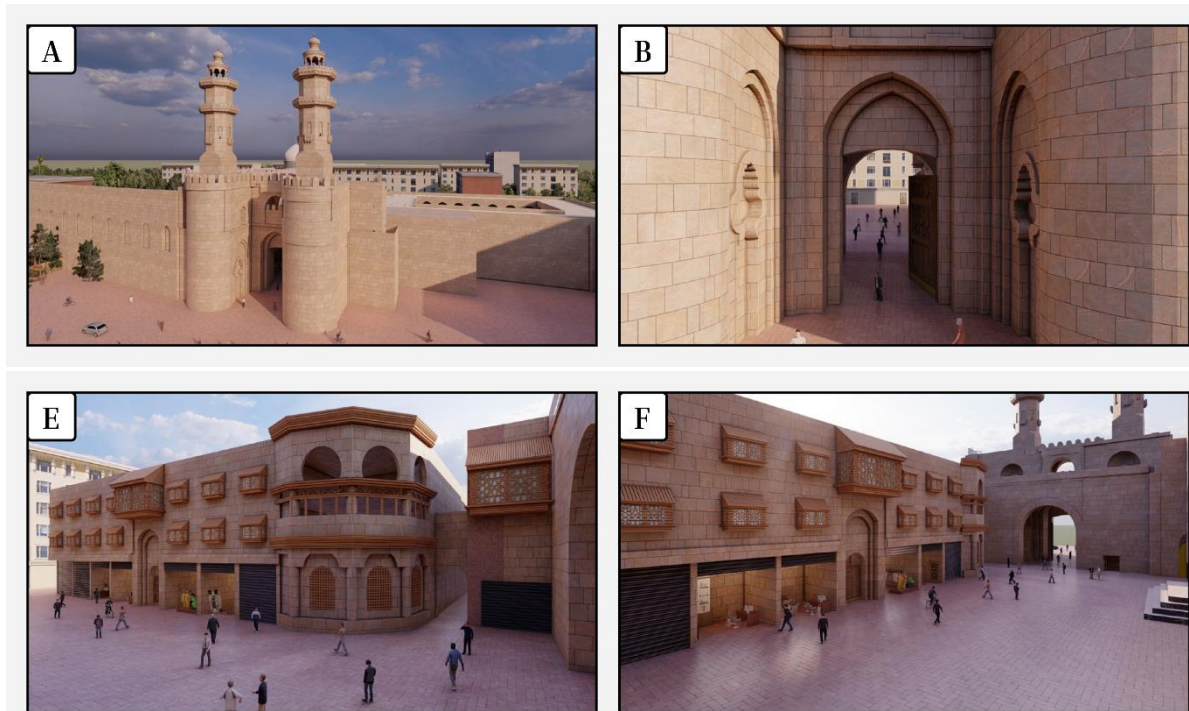


Fig.21. An imaginary drawing for the rehabilitation of Bab Zuweila, Nafisa Al-Bayda Sabil and Agency and their surroundings; A,B) Bab Zuweila after rehabilitation and the improvement of its surrounding urban; (C,D) Rehabilitation of Sabil, and Nafisa Al-Bayda Agency (drawing by 3d Max and Lumion programs).

4. Conclusions

The study highlighted the importance of community participation in the rehabilitation plans of archaeological and heritage buildings and sites, distinguishing between participation and partnership. Participation involves direct interaction among individuals who share common values and aim to collaborate, while partnership refers to cooperation with various parties to achieve goals that one entity cannot accomplish alone. Community partnership entails coordinated efforts among government, private, civil, and charitable sectors to address issues, enhance expertise, and strengthen the roles of all involved. The research assessed the role of community involvement in rehabilitation plans for archaeological buildings by surveying local community and stakeholder satisfaction with the current and proposed uses of these buildings. It emphasized the need to leverage the area's tangible resources and the community's cultural, social, and economic characteristics to ensure sustainable rehabilitation.

One key proposal from the study is to reuse the Nafisa Al-Bayda agency as a center for the sale and production of traditional crafts, aligning with both the building's requirements and the needs of the surrounding community. Community input was gathered through questionnaires to gauge awareness of archaeological buildings and their value, as well as satisfaction with current uses. Results indicated that the community does not support the current use of the Nafisa Al-Bayda agency, a view echoed by the research team. The existing use diminishes the agency's values and status and poses a risk of demolition. Community members participated in evaluating new uses that would be more suitable for the agency and comply with established guidelines for rehabilitating archaeological buildings.

The region's demographics reveal a large youth population with low education levels and limited employment opportunities,

resulting in low income. Engaging the local community in rehabilitation projects that match their skills could address these issues while increasing local incomes. Awareness of archaeological buildings and their value is low among locals and visitors. Educating the area's youth about these structures could help foster a generation that values and preserves archaeological sites.

Bab Zuweila area faces several challenges that impede rehabilitation efforts, including groundwater issues, population density, and traffic congestion. Many archaeological buildings require immediate intervention due to their deteriorating structural and architectural conditions, particularly the Nafisa Al-Bayda agency, which needs urgent restoration and removal of encroachments to restore it to a stable state. Conversely, Bab Zuweila is in good condition post-restoration, with community satisfaction supporting its ongoing sustainability and preservation.

The study proposed solutions to Bab Zuweila's problems, envisioning the area post-rehabilitation and suggesting archaeological vocabularies for use in modern construction to ensure their sustainability. The researchers emphasize the importance of conducting a follow-up structural study to investigate soil characteristics, evaluate the current structural stability of the buildings, identify their structural restoration and conservation needs and assess the structural implications of the proposed new functions.

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