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Architectural Environmental Compatibility as an Approach to Conserve the Identity of Heritage Cities in Egypt Case Study: Rosetta City

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Abstract

Heritage is considered to be cultural wealth representing people's values, ideas, beliefs, customs, and traditions, and since heritage represents the nation's identity, it has its originality and maintains it.

Egypt is one of the riches countries with the cities of cultural value. This abundance has created the problem of Conservation that wealth and highlighting the artistic and historical aspects of the cities that face a lot of neglecting and abusing. At the same time reforming and conservation, this wealth requires very high significant potential.

The Egyptian heritage suffers from many problems such as economic, political, cultural and social reality, including the associated concepts of conservation operations.

This research aims to study the effect of environmental compatibility on conservation of the identity and the sustainability of the heritage cities through:

- Monitoring the value and importance of heritage cities in Egypt.

- Reviewing the environmental directions and various approaches to dealing with architectural heritage and emphasizing the importance of improving the environmental effect in order to conserve the identity and sustainability of heritage cities.

- This research focuses on studying the identity of Rosetta city and its urban and architectural development through history, and studying the strategies in the process of rehabilitation and reuse of its buildings, taking in mind the environmental influence of the buildings of heritage value.

- Studying the environmental compliance of the rehabilitated buildings of heritage value in terms of the efficiency of internal environment and the efficiency of environmental suitability.

The conclusion drawn from this research suggests an important relationship between heritage cities identity and sustainability behavior that is suggested for future research.

Keywords

Environmental Compatibility; Heritage Cities; City Identity; Sustainability

1. Introduction

Natural and cultural heritage are main sources that identify community's identity all over the world. Heritage is the true mirror of any civilization it is considered as the cultural wealth, which represents people's ideas, beliefs, values, and traditions. It reflects man's identity through his religious, social, cultural and political aspects. It is the richness and diversity of the past.

Heritage buildings are the spaces that our ancestors lived and worked in. They tell the story of their lifestyle patterns and events. Adaptive reuse of buildings is the way to save the historic and aesthetic values ("Heritage Department", 2012).

The built heritage consists of craftsmen hard artistic works. Nowadays, these artistic achievements may be recognized only when threatened and lost.

Sympathetic maintenance, adaptation, and re-use can allow the architectural heritage to yield aesthetic, environmental and economic benefits. The conservation of any built environment contributes to the attractiveness of its country that others always enjoy visiting it.

Egypt as the main old civilization of the world, it has a unique historical treasure of heritage buildings and sites that need to be conserved. Egypt is also one of the countries rich with cities of cultural value and has problems of building conservation that faces a lot of neglecting and abusing.

Egyptian heritage suffers from many problems associated with economic, political, cultural and social reality, including the associated concepts of conservation operations. Some people treat valuable buildings as ordinary and restore their architectural and decorative aspects, and some people reuse buildings to meet the requirements of their new function without paying any attention to its historical and heritage significance.

2. Research Objective

This research aims to study the effect of environmental compatibility on conservation of the identity and the sustainability of the heritage cities through:

- Monitoring the value and importance of heritage cities in Egypt.
- Reviewing the environmental directions and various approaches to dealing with architectural heritage and emphasizing the importance of improving the environmental effect to conserve heritage cities.
- This research focuses on studying Rosetta city identity and its urban and architectural development through history and studying the strategies in the process of rehabilitation and reuse of its buildings, taking in mind the environmental influence of the buildings of heritage value.
- Studying the environmental compliance of the rehabilitated buildings of heritage value in terms of the efficiency of internal environment and the efficiency of environmental suitability.

3. Research Hypothesis

One of the most important methods of conservation buildings of heritage value is their rehabilitation and using them to perform a new function appropriate to their facilities and age, as well as being compatible with environmental sustainability in order to keep their historical, cultural and artistic value.

4. Historical Conservation

Historical conservation preserves conserve and protect buildings, monuments, landscapes, and other artifacts that have any historical significance.

5. Architectural Conservation

According to Australia ICOMOS Incorporated (2000), conservation is all the processes of looking after a place to retain its cultural and natural significance**.** It describes mankind's built heritage through the material historically and deals with architectural character and integrity.

6. Preservation and Rehabilitation of Historic Districts

Preservation is defined as place's fabric maintaining in its existing state. Preservation is set to be one of heritage conservation. Thus, the term 'conservation' holds a wider notion than 'preservation', as it just not means to maintain and freeze the existing state of a place, but also to take the necessary measures to sustain its value and the cultural messages it beholds.

It has great architectural, planning, economic, and social effects. The building can be registered as a historical monument when its rehabilitation preserves its architectural and functional use in its site regarding contemporary technologies and renewable social uses

The importance of rehabilitation problem is stated by its majority to governments that are trying to save the historical heritage of its country and to preserve and rehabilitate it's architectural.

7. Sustainability in Historical Context

Heritage manifests human ingenuity and history. Heritage buildings cannot be reconstituted once they have been destroyed.

Unfortunately, sustainable heritage conservation is widely ignored all over the world. Heritage conservation has a great importance to improve the quality of communities' life, improve and understand our past and its contribution to our culture (Coleman, 2004).

The concept of sustainability is always associated with new buildings. Conservation and sustainability share the same generative basics. The first and basic concept of sustainability is to use what already exists. Similarly, the basic concept of conservation is to protect what we already have. From the conceptual point of view, there is neither conflict nor contradiction between conservation and sustainability (Rodwell, 2007).

Conservation, as a tool for heritage management, is a key to sustainability. The principles of sustainable heritage development are very important to deal with heritage conservation and management (Coleman, 2004).

Sustainability of heritage sites is maintaining them to meet the current and future needs. That means the maximum economic and social utilization of the cultural heritage resources, without the deterioration and destruction of these resources or their environmental system.

The city is as an active and changeable organism, that its buildings need maintenance to respond to the increased needs and the changeable requirements. It also reflects the present features, that respect cities heritage fabric that had been formed through history. The sustainable development strategy for heritage sites includes its (buildings, spaces, squares, pathways, etc.) (Williamson, Radford, & Bennetts, 2003).

Conservation core concept is to maintain, preserve and protect both the tangible and intangible heritage. This resource is non-renewable and irreplaceable. A demolished building cannot be retrieved or recreated. This means that a part of history is permanently lost. A folkloric tradition or ritual is indispensable to the local culture. Therefore, heritage is perceived as a cultural resource that must be perceived in the same way as other non-renewable resources.

From this basic notion, the core of conservation is to keep heritage protected and to hand it to future generations.

Therefore, keeping historic buildings intact requires some sort of a sustainability process (Rodwell, 2007).

Conservation avoids the unnecessary use of finite resources such as materials and fossil fuels, as well as the gener-

ation of waste and pollution. Heritage conservation can be considered an integral part of sustainable development in terms of (Aref, 2009).

- There are environmental, social, and economic benefits, for using heritage buildings are the main three dimensions of sustainability.
- Heritage buildings rehabilitation conserves energy, and reduces waste.
- Process, manufacture and transport building materials need an initial energy also to construct buildings.
- The energy needed in maintaining and repairing buildings.
- The energy needed for heating, cooling, ventilating, and lighting buildings.
- The energy needed for demolishing and disposing of buildings.
- The social & cultural values for heritage buildings are non-renewable resources.

Heritage conservation is playing an important role in sustainable urban development for cities. It also uses renewable resources of energy. Cultural heritage is also important for community's quality of life. It helps in preventing cultural globalization and has positively affected economic development (Keiner, 2006).

8. Importance of Sustainability

There is no doubt that heritage context must be sustainable. The importance of sustainability as a concept needed for heritage legislation, policies and guidance are most likely due to the fact that 'heritage assets'.

Nowadays economic climate, heritage supports itself not sustainability, and there is an emphasizing on finding alternative sources of funding ("Heritage Lottery Fund", n.d.).

In the last decades, a paradigm shift is presented, as people felt more engaged with the past (Smith & Waterton, 2009). As a result, the voluntary sector has expanded over the last decade due to the support from organizations such as the National Trust and English Heritage. With recent cuts to government spending on heritage, the last five years has seen the rise of projects that build up the capacity and commitment of local communities to champion the conservation and enhancement of their own local heritage ("English Heritage", 2009).

Heritage cultural and social value has been set as a powerful tool in sustainable development.

9. Architectural Heritage of Egypt

Many Egyptian cities have a modern center contrasting sharply with the old medieval ages it has a unique architecture that have combination between European styles and local influences. Heritage public awareness isn't yet fully formed. That is why there is a must for documenting, protecting, and restoring sites for future generations ("CULTNAT", n.d.). Many Egyptian cities historical centers managed to survive as living cities in spite of physical decline and economic depression. Their fabric carries out the spiritual and cultural messages that communicate with their present citizens. Historical city centers' heritage is more than a material character as they must meet the needs of citizens with sustainability transformations.

The challenge is not how to preserve, but how to create dynamic living spaces and places that produce richness in cultural traditions that lead organically from the past to the future. The research will analyze the historic center of Rosetta "Rashid".

10. Case Study Rosetta City

11. Rosetta Location

Rosetta city lies in the north of Egypt. It is an old port. It is found 12 km away from the mouth of the Rosetta branch of River Nile, along with its western side that flows into in the Mediterranean Sea. Its area is approximately 8 400 000 m^2 with “estimated population” in 2010 about 400,000. Rosetta’s master plan sets guidelines until 2022 that focuses on tourism. It shows different places for activities in the city (”UN Habitat”, 2006).

Figure 1. Rosetta location - Source: Google Earth.

Rosetta lies 65 km east of Alexandria and 55 km away from Damanhour.

Its location has been of great strategic importance since the most ancient Paranoiac periods. In 1517 AD, when the Ottoman Empire conquered Egypt, Rosetta became its most important harbor, reaching the acme of its architectural prosperity thanks to the mosques, houses, bathhouses, mills, citadels, and gates built there.

Figure 2. Rosetta 1779

12. Historical Background

Many details about Rosetta's earliest history are uncertain due to a lack of reliable sources. Remains of ancient settlements have been found all over the region and on Tall Abu Mandur[1]. In addition, ancient texts talk about a temple called Bulbitinum, possibly dedicated to Cleopatra, which existed in the area in the Ptolemaic period, but its exact location is still unknown. Similarly, some sources suggest that around 270 A.D., the Roman Emperor Aurelian built a fortress, apparently to defend the area against attacks by Queen Zinubiya's army. Remains of an early fortress have been discovered on Tall Abu Mandur, but it cannot be established with certainty that it is that of Emperor Aurelian. Excavations on the tall have also uncovered the remains of a 5th_6th-century wall, which was constructed around the town, presumably to protect it from Persian and Nubian attacks, apparently frequent during the Byzantine period. Other remains from this era include a basilica and several vessels stamped with the image of the Coptic Saint Abu Mina ("Egyptian Antiquities Information System", 2008).

The town was relatively prosperous in the 12th century when it was possible to pass through Rosetta on the way to Alexandria via the Khabur canal, which was later neglected and was completely sanded by the end of the 14th century. Although Rosetta may have lost some of its commercial aspects upon the obstruction of this route, it remained an important military outpost. During the Mameluke rule of Egypt, Turkish merchants settled in Rosetta in large numbers and built houses, wikalahs, and mosques. After thriving as a point of transition for merchandise from the northern Mediterranean destined for the Silk Road or the Red Sea, commercial activities in Rosetta - and the Mediterranean were hampered by the discovery of Cape of Good Hope by the Portuguese in 1488 (Al-Sadeq, Ismail, & Al-Kady, 1999).

Sultan Qayitbay after building his citadel in Alexandria in 1479, he turned to Rashid where he built a fort which now stands at the border of 'Izbat ai-Burg village, on the northern edge of Rosetta.

As the Ottomans invasion continued to threaten Egypt, around 1515 Sultan "Al-Churi" expanded and repaired the castle of Qayitbay also built walls around Rosetta. But this did not spare the city from the Ottoman invasion in 1517. At an early stage, the Ottoman conquest of Egypt brought no major changes to the country as the Mamelukes stayed in power and the trading pattern of the city was not affected. Moreover, Rosetta became Egypt's closest port to Istanbul and all ships with merchandise from Turkey landed here, Egypt being the Empire's main supplier of rice, grain and other vital products (Al-Sadeq, Ismail, & Al-Kady, 1999).

In 1798, Napoleon and his army invaded Egypt, launching the Expedition d'Egypte. A year later, as Napoleon's soldiers took up residence in Qayitbay's fort, the most important Egyptological find of all times was made in one of its walls: The Rosetta Stone which became the key to the deciphering of the hieroglyphic script. The French presence in Egypt was short-lived but led to a boost in trade for Rosetta as French merchants had free passage to the port. However, Napoleon's adventure ended with the British intervention. Their navy launched attacks on Egypt and together with their Ottoman ally, defeated Napoleon in 1801. Mohammed Ali took the throne of Egypt in 1805 and two years later, he defeated the British General Fraser's forces in battles within and around Rosetta. Shortly after, Muhammad' Ali initiated extensive projects in an attempt to modernize Egypt. Consequently, railroads were constructed, industries were built up and the road network was improved. As a result, overland transport

became both more efficient and much cheaper than transport on the river. Muhammad Ali also seemed to favor the development of Alexandria over Rosetta, which was not connected with Cairo on a direct railroad.

The city was further bypassed by the construction of the Al-Mahmdiyyah canal in 1819-20. The new canal connected Alexandria directly with the Nile, ensuring that boats no longer had to stop in Rosetta on their way to the Mediterranean. With this development, Rosetta's days as the principal harbor of Egypt were over and a century later, it had fallen almost completely into oblivion to the outside world ("Egyptian Antiquities Information System", 2008).

Rosetta is considered as a large open-air museum of Islamic architecture for its religious and civil buildings (houses and mosques). The site has undergone an unfortunate process of transformation and is felt to be losing its characteristic traditional architecture and the style and spirit of tradition.

13. Rosetta Identity Through Heritage Areas

Rosetta is set to be the second city after Cairo regarding the quantity of its Islamic buildings and houses, it has a unique group of Islamic buildings (there were 54 monuments in 1963 "gates, mosques, wakala, mill, bath, and 39 houses").

Figure 3. Some ancient postcards of Rosetta houses ("CULTNAT", n.d.).

The number of heritage buildings in Rosetta had decreased from 52 in 1963 to 37 in 2006 ("Organization for Urban Harmony", 1985).

Rosetta's famous piece of heritage is "Rosetta stone" that led to understaning hieroglyphs. The fortress of Qaitbay on the west side of River Nile, its place is directly connected to the Rosetta stone, which was discovered in 1799.

Mill Abo-Shahen: this mill dates back to the second half of the 18^{th} century; it was built by Uthman Agha at-Tubgi (al-Amasyali) who also built the two adjacent houses in the early 19^{th} century. Azzuz Bath: this public bath was built by Abd Ar-Rahman Ibn al-Hagg Higazi in the 19^{th} Century, it is the only bath remaining in Rosetta ("Organization for Urban Harmony", 1985).

14. Rosetta's Heritage Development

The historical area in Rosetta has basic urban services except for sanitation network, which made the groundwater level increase, and therefore had a direct effect on historical buildings. For example, the Zaghloul Mosque "which is considered to be the second largest mosque in Egypt", is undergoing a major preservation project to raise the mosque foundation level to one meter above ground after its floor was submerged in rising groundwater.

– Rosetta suffers from severe air pollution; it also suffers from the vibrations that affect structural elements of historical buildings.

– There is no authority from local government on Rosetta's center's operations that is supervised by ministries and central institutions.

– Rosetta suffers from the shortage of conservation trained and expert workers.

– Its public community has shortage in knowledge of the awareness of cultural heritage resources and their significance.

– Signs for public streets has been provided by Tourism Development Agencies.

Figure 4. Al-Amasyali

Figure 5. Ismail Ramadan

Figure 6. Al-Qanadili

Figure 7. Mosque Zaghlul (1577)

Figure 8. Mosque Saleh Agha Dumaqsis (1704-1721)

15. SWOT Analysis for Heritage Historic Areas in Rosetta

15.1. Strengths

- Rosetta heritage is considered to be the second city in Egypt after Cairo rich in historical Islamic heritage buildings.
- Rosetta stone which was discovered is very important.
- Rosetta is uniquely located on the Nile near the Mediterranean.

– Previous projects have restored most of the historic houses in Rosetta.

– National policies support the upgrading of heritage cities.

15.2. Weaknesses

– The lack of coordination among different authorities responsible for historic buildings.

– Insufficient public transportation and railway tracks.

– Inadequate resources for historic building conservation.

– Deficiency of data related to historic buildings.

– Its public community has shortage knowledge awareness of cultural heritage resources.

– Restoration of monuments without upgrading the whole city historic area.

– The absence of tourism agencies and touristic services in the whole city.

– Small number of agencies help in funding Rosetta heritage conservation.

Figure 9. Mosque Al-Mahalli

Figure 10. Zaghloul Mosque

Figure 11. Rosetta Buildings

- There is no clear plan for developing historic buildings and historic city center.
- Sanitation problems which harms the heritage buildings.

15.3. Opportunities

- Adding Rosetta to the list of historical heritage cities in Egypt.
- Adding Rosetta to the UNESCO World Heritage Sites list.

15.4. Threats

- The national drainage project will be delayed due to the negative impact of the city's historical heritage buildings.
- Loosing its unique identity due to continuous transgression.

From the above SWOT analysis, it is necessary to establish an office that is responsible for tourism development as a main priority to help in adding Rosetta to the UNESCO world heritage site list.

16. Problems Facing the Identity of Heritage Areas of Rosetta

16.1. The Conflict Between Local Authorities in Rosetta

There is a conflict between the authorities responsible for Rosetta and its heritage:

- **Al-Beheira Governorate**: its major responsibility is to state license issues before building any new building in Rosetta and how to deal with exited heritage buildings.
- **The Ministry of Endowments**: its responsibility is to offer full services to all the historical mosques.
- **The Supreme Council for Antiquities:** its responsibility is to offer full maintenance and restoration for heritage buildings.

The lack of coordination led to the decline of the identity of heritage areas in Rosetta.

16.1.1. Underground Water Level and Sewage

The preservation of Rosetta's historic buildings is faced by a persistent problem, largely due to its location on the Nile so close to where it flows into the Mediterranean. In addition, Rosetta has no effective system to dispose of sewage water and wastes that cause serious damage to the historic building in its historic areas.

16.1.2. Monuments Restoration Without any Sustainable Development Program

Most of the monument buildings and other historic merchant houses have been the subject of many restoration projects over the past 20 years, but many of them have been regularly re-damaged by water and humidity and are now being re-restored. Unfortunately, few of them have even collapsed or had to be demolished. Proper conservation, coupled with regulated reuse of buildings is paramount to their preservation. For example, there are some plans to reuse the Ottoman houses in activities that assure their constant and proper maintenance. Also, "Arab Khulli house" has already been turned into the National Museum of Rosetta and "AI-Baqirawalli house" is used as an office for the local inspectors. Ideally, two or three houses could remain "show houses" while the rest could be allocated to customized activities or "adaptive reuse" but there is not any holistic program to conserve and manage the historical areas in the city as a whole.

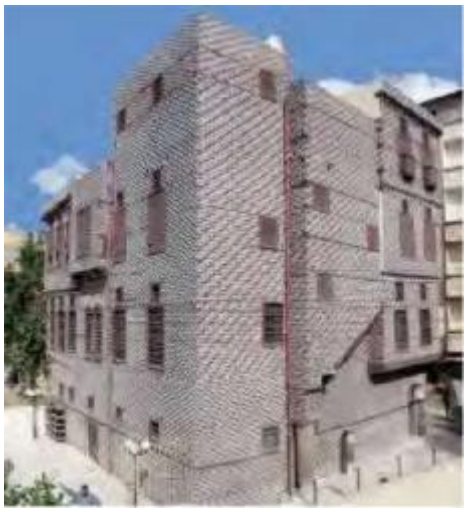

Figure 12. Arab khulli house

Figure 13. Current sutiation of the historical residential building in Rosetta.

17. Conclusions

This research concludes that sustainable development programs for improving the identification of heritage cities in historic areas of small and medium-sized cities may help its opportunities to survive against modern urbanization, and monuments restoration projects alone without upgrading the whole context may be useless. Restoration is the first step but it should be accompanied by a long-term developing program to create a sustainable system and increase the knowledge of the surrounded community and local authorities mentioning the importance of heritage cities identity and how to benefit from it.

The conflict between local authorities in Egypt is the worst problem that faces cultural heritage conservation and historical areas development, after initiating the Organization for Urban Harmony (1985).

Rosetta, like most of the Egyptian medium and small cities suffers from neglecting and need to be inserted in the touristic map of Egypt, by developing the traditional activities and upgrading the city infrastructure. This is to help in giving an economic impact on the city from its heritage identity and that will preserve monument and all the historic areas as a living sustainable place.

Sustainable conservation in small historic city areas should start from the wide base that is the inhabitant and their houses this should be parallel to upgrading the infrastructure, as well as main services and training programs for user's local authorities finally any restoration project starts when there is enough fund.

Governmental and non-governmental organization and private agencies are all involved in the conservation of urban heritage in the Egyptian context.

Rehabilitation of the city inner areas must give priority to the social aspects.

The concentration of historic heritage buildings in Rosetta needs certain important actions to sustaining and improving the urban heritage.

By achieving the above steps, this will lead to achieving environmental compatibility as an approach to conserve the identity of Rosetta city.

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