

ADAPTIVE REUSE: SAFEGUARDING THE HERITAGE VALUES

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In the last decades, Qatar, a small peninsula in the Gulf Region, has unexpectedly experienced a fast, urban growth due to oil discovery and exportation. Doha, the capital of Qatar, is currently affected by a dispute concerning its direction of growth: from one side, the edification of a new contemporary global city, and the other side, the need to preserve the local heritage by establishing new links with the local traditions and history. The paper presents some recently completed adaptive re-use interventions in Qatar and demonstrates how the need to enhance the recognition for the Qatari architecture can intensify the perception and evaluation of the local significance. The conservation projects have been analyzed and compared, concerning socio-cultural, socio-economic, and environmental aspects linked with the adaptive re-use adopted approach. The results show that there exist many connections between the local heritage re-use, preservation of ancient natural materials, enhancement of socio-cultural values, and symbiosis with the environmental condition that could also be applied to any future restoration approach. The concept of sustainable re-use is thus described through the principles of unity and harmony in an extended meaning that includes materials preservation, ecosystem recognition, and social aspects applied to the two scales of intervention, both urban and architectural. The aim is to define a consistent approach in preserving the Qatari heritage while enhancing sustainable principles.

Keywords: Architecture, Mitigation, Conservation, Socio-Cultural, Socio-Economic, Environmental.

1 INTRODUCTION

In the Gulf Regions, the oil revelation (1960-1970) has generated a massive urban growth and expansion of many cities as never happened before. Among the Arab countries, Qatar has been subjected to a massive economic boom. However, the rapid urbanization generated an unfavorable impact both on the city center growth and preservation of the Qatari national heritage. The city center of Doha, the capital of Qatar, has been completely altered in the last decades to provide space for new towers, neglecting the ruins of the traditional urban fabric and some ancient buildings. Under the pressure of building up a new postmodern global city, represented by technological and innovative buildings, Doha is searching for its new identity into the past of the country by safeguarding the Qatari heritage to create new links with the local culture. Qatari heritage presents a high level of resilience and functional flexibility, being able to adapt to the social, environmental, cultural, and economic conditions of the places in which it developed, providing a more sustainable strategy for the city growth. There have been always conflicts between safeguarding the heritage of the countries and the sustainable values of the

applied interventions (UNESCO-ICOMOS 2010) because, frequently, the local laws and regulations generate a contrast at different levels (federal, state, and municipal), so that from one side, it increases the adopted sustainable values, and in the other, it contradicts the heritage preservation. The adaptive re-use of the ancient structures, presented in this paper, generates environmental, sustainable, economic, and cultural advantages. Economically, it reduces new construction costs and limits the number of used materials, water, and energy. From the environmental point of view, re-using the existing buildings decreases air pollution, prevents the materials' degradation, and protects the natural environment. From the social point of view, re-using the national heritage contributes to increasing the local values and national identity, which are particularly needed in the Gulf area.

2 METHODOLOGY

The research presents some conducted analyses and assessments of interesting cases of adaptive-reuse interventions in Qatar, with the aim of promoting the technical knowledge related to the used traditional materials and local techniques for constructions. This article opens the dialogue on exploring alternative methodologies of intervention by integrating the technical, formal, and functional solutions with the sustainable expansion of Qatari urban centers.

In Qatar, there is not a long tradition of conservation methodologies adopted for reusing the heritage buildings. Some specific institutions are responsible for the supervision and approval of conservative interventions, like the Qatar Museum Authority (QMA), which promotes the value of the local heritage by adopting a full preservative approach in restoring the old buildings and reusing the places in alignment with the local traditions. The Private Engineering Office (PEO), a governmental agency responsible directly for the Emir's interest and properties which usually adopts a more functional approach for the architectural restoration and urban upgrades of deteriorated area sites, to be integrated into new construction projects.

The sustainable approach of re-using the architectural heritage has been widely studied and applied around the world in the past years for its cultural value and benefits of the passive energies and commonly adopted in the past in such extreme environmental conditions.

Local communities usually preserve the traditional buildings' construction knowledge, and it is transferred to the future generation by adopting specific oral expressions and applications derived from traditional crafts, social rituals, and events. The Qatari culture is deeply rooted in such traditional knowledge (Al-Kholaiifi 2006) which represents some of the essential socio-cultural values that were assessed for the presented adaptive reuse interventions.

The present research has been developed through a series of interviews that were conducted in Doha to local people, project managers, workers, students, and professors at Qatar University, with the aim of assessing the perceived values of sustainability that pertains to the Qatari heritage reuse. Through the assessment, the conservative interventions are compared with the aim of linking the assessed values with the adopted methodologies and sustainable re-use of ancient architectures.

3 ANALYSIS OF ADAPTIVE REUSE INTERVENTIONS

3.1 Doha Governmental Institutions and National Laws for Safeguarding the Heritage

The fast and unexpected urban expansion of Doha in recent years has produced an extraordinary construction of spectacular architectures but has also negatively impacted the natural growth of the historic center of Doha, due to the demolition of many ancient buildings, which were the only testimonies of the local traditions (Mazzetto and Petruccioli 2018). Until late 1980, the Qatari

heritage suffered for the lack of safeguarding regulations for heritage, and then, due to the fast destructions of many traditional buildings, new laws were imposed for the heritage safeguard, such as the Emiri Decrees of 2009, the Law no. 23 of 2010, and the Antiquities Law no. 2 of 1980. Additionally, in 2005, new governmental offices were instituted for the safeguard and protection of the national heritage: the Qatar Museum Authority (QMA) and the Private Engineering Office (PEO), which are both active in managing and controlling the restoration projects. Diverse samples of sustainable re-use interventions were selected to provide an examination on the Qatari heritage status to discover the cultural traditions and architectural projects reused as new places to discover the defensive uses of the traditional structures. The adaptive re-use approaches were analyzed and compared for both the scales of interventions, urban and architectural, to show some of the socio-cultural values that were mainly promoted by re-using the abandoned places as new social and museum centers. Many architectural preservative interventions aimed to wholly safeguard the damaged heritage buildings, which were in a bad state of conservation, close to the collapse for the total abandonment during the last decades. In the same way, the urban old fabric regeneration has brought to light the sustainable capacity of the commercial places to increase the social values and the sense of belonging to a community by enhancing the value of social cohesion (Qatar Museums 2016).

3.2 Recent Sustainable Restoration Project in Qatar

The comparison between the selected samples of adaptive reuse projects in Qatar has provided an initial classification of the main adaptive reuse principles that has been assumed from the literature review (Jaidah and Bourennane 2009). The three main areas of assessment related to the sustainability in construction were:

- Socio-cultural, as the capacity to promote the cultural values, and the meaning of social inclusion.
- Socio-economic, as an indicator of the possibility of determining and enhance social welfare.
- Environmental, as the capability of the re-use interventions to merge with the environmental characteristics of a place.

A series of interviews were conducted to the local population in Doha with the aim of assessing the area of sustainability, which pertains to each analyzed adaptive reuse intervention.

3.3 Urban Adaptive Intervention: Discovering the Cultural Tradition

In the group of urban regeneration, we have analyzed two adaptive re-use projects that permit to understanding how cultural traditions can be discovered by contemporary society. The first one is the adaptive reuse of the Al Wakrah fishermen village, regenerated and reused as Al Wakrah souq, which was completed in 2015 by the Private Engineering Office (PEO). The old Al Wakrah fisherman village was located in the south of Doha, closed to the ancient port, and was abandoned for an extended period. The place was then regenerated and reused as the new Souq of Wakrah. The project was mainly the restoration and typological restoration of many damaged structures, the demolition of non-traditional elements and materials, the variation of the functions, and the realization of new commercial retail units. The functional reuse maintained the traditional local commercial activities such as fish markets, fruit and vegetable shops, and local restaurants. In Al Wakrah, the identity of the area was totally preserved so that the traditional cultural and social values are entirely preserved. The intervention has completely satisfied the assessed principles of two main areas of sustainability in conservation. In fact, from the point of view of the socio-cultural value, the project has enhanced the feeling of belonging to the

traditional Qatari culture, and the new cultural functions (*souq*), have improved the value of the cultural integration while promoting the appreciation cultural values. Additionally, the socio-economic aspects of the intervention (Table 1), have reinforced the values of the abandoned local areas to secure better social welfare.

The second sample is the adaptive reuse of the abandoned urban fabric of Al Jumail village, which is located in the north-east of Doha in Madinat Al Shamal. The village is an essential testimony of a densely populated urban area in northern Qatar before the oil discovery in the region. The origin of the town dates back to the 21st century when the local population was active in pearl fishing. In the northern coast of Qatar, many other abandoned settlements still exist and can be visited by tourists, such as Freia, Yusufiah, Abu Dhalouf, and Ruwayada in the southwest. These villages have been abandoned after the oil discovery when the population moved into the big cities in search of jobs and better living conditions. Currently, the ruins of the Al Jumail villages are safeguarded by the Qatar Museum Authority and are supposed to be restored soon. At the moment, Al Jumail village includes a mosque, a *madrassa* (school), and some small houses still in place, but there many surrounding rests of other houses already collapsed due to the effects of deterioration. The Al Jumail rests have been abandoned and neglected for many years, and the few remaining buildings are facing a high risk of collapse and loss of historical value. At the moment, the Al Jumail village buildings are used as an open-air museum that attracts many tourists in discovering the cultural life tradition of the local inhabitants, such as the dates presses; traditional pearl fishing activity; local commerce; and the educational, social, and private lives of the old inhabitants. The adaptive reuse of the old ruins as an open-air museum is an interesting sample of a possible way to rediscovering the old Qatari cultural tradition.

3.4 Architectural Adaptive Reuse Interventions: Discovering the Defensive Tradition

In the last decades, the rising importance of safeguarding the Qatari heritage has also increased the number of conservation projects at the architectural scale (Mazzetto 2018). In the group of the architectural projects, the adaptive reuses of three defensive old Qatari structures are compared: the al Rakyat fort, three Al Khor towers, and the Bir Zekreet fort, totally or partially restored by the local authorities and currently used as museums of traditional defensive structures.

Al Rekayat Fort is located in the northern area of Qatar, close to Umm al Qubur, and is reachable by Al Shamal road (Figure 1). It is a typical desert fort built around the 18th century to protect an area where rainwater used to be collected in the spring season by the local population. It was most probable that the fort was inhabited until the 20th century. Inside the fort is located a well and nearby are ruins of an ancient village, which in the past was linked to the well. In fact, “Allrakayat” means “well”, so the fort was built in the past to protect the well from marauders’ attacks. The rectangular plan of the fortified structure has three rectangular and one cylindrical tower at the corners. The conservative intervention carried out in 2003 under the supervision of the Qatar Museum Authority included the restoration of the masonry and roof cracks throughout the use of natural binder materials. Some old partitions inside the fort collapsed in the past, and their bases are a testimony of the old fort internal spaces distribution. Currently, the fort of Al Rekayat is a museum that bears witness to the local natural materials and construction techniques adopted by the local populations in building protective fortresses (Table 1).



Figure 1. Left: Al Rekayat Fort, the circular tower on the corner. Right: Bir Zikrit Fortress and the current state of conservation of the defensive wall's ruins.

The Al Khor Towers are three historical watchtowers located in the city of Al Khor, built to defend the well of Ain Hleetan and also to keep watching over the sea and land attacks. The towers' construction dated back to 1930; they have a cylindrical shape, and the thick defensive walls are approximately eight meters tall. The towers were constructed by using local limestone blocks and mud mortar. The small windows on the cylindrical walls were constructed to protect the defenders from the bullets in case of attacks from the sea and land. Ropes were usually adopted to reach the top of the towers. During the restoration project carried out under the supervision of Qatar Museum Authority, the defensive walls, partially damaged because of the abandonment, were restored by adopting local natural materials and by preserving the original geometry. During the restoration works, the primary defensive function was turned into a new freely accessible watchtower museum function. The watchtowers are another essential testimony of the traditional techniques and materials adopted by the local population in constructing defensive structures.

The last analyzed intervention is the Bir Zekreet fort ruin (Figure 1), which is located on the western Qatar coast, close to Dukhan city. Bir Zekreet is an ancient area, easily recognizable by its unique geological conformation of white rocks, similar to some strange sculptures created by the wind erosion. The ruins of Bir Zekreet fort are an essential testimony of the ancient local activities of the area and a sample of stable fortresses built in the south-west of the country. It is probable that the fort was constructed between 1809 and 1812, and close to it are the remains of ancient local settlements. The Bir Zekreet fort ruins are under the protection of the Qatar Museum Authority, which supervises the conservative interventions. The remains of the fort are only the bases of the ancient walls and towers; the rest has already collapsed. The materials used for the construction were the traditional blocks of local limestone, but the current state of conservation is terrible due to abandonment. These ruins are an essential tourist attraction for visitors who particularly appreciate the surrounding evocative desert environment of Al Khor and naturalness of the ruins. However, to preserve this relevant historical testimony of a traditional defensive structure, it will be necessary to proceed urgently to safeguard and protect the entire archaeological site. Both the forts of Zekreet and Al Rakyat, together with the three Al Wakra towers, promote the recognition of the socio-cultural values of the Qatari tradition. Additionally, the strong natural identity of the place contributes to enhancing the sense of belonging to a unique Qatari environment (Table 1).

4 CONCLUSIONS

The presented adaptive re-use project highlighted one of the main aspects of the re-use intervention to combine the environmental aspects of many Qatari places and limit the negative impacts on the natural places. The conducted research has compared the preservative adopted methodologies by providing a synthetic description of the adaptive reuse practice in Qatar, which currently includes the criteria of sustainability internationally recognized. The adaptive reuse interventions have often been planned and completed in isolation without being integrated into a coordinated master plan of the Qatari restoration projects. The comparisons took into consideration the typology of adaptive reuse, adopted scale of intervention, and traditional materials and methodologies adopted, assessing the various contributions in terms of social, cultural, and environmental values. The adaptive reuses were divided into two categories depending on the scales of interventions: urban and architectural. Contemporary re-use intervention on heritage building should be able to merge traditional methods and techniques for construction and enhancing the heritage values through contemporary know-hows, means, and cutting-edge technologies.

Table 1. Comparison and assessment of the analyzed adaptive re-use interventions in Qatar.

Name	Date/ Agency	Project categories	Project description	Type of materials used	Old use	Adaptive Reuse	Sustainability - Assessment
Al Wakrah souq	2015 PEO	Urban regeneration	Restoration, typological reconstruction	Natural materials, cement mortar, concrete blocks, and reinforced concrete	Fishermen Village	Commercial - Entertainment	Socio-cultural and socio-economic
Al Jumail village	Ongoing QMA	Urban conservation	To be completed, conservation	Natural materials, limestone rocks, gypsum mortar, wooden poles	Residential village	Open-air, old village museum	Socio-cultural Environmental
Al Rekayat fort	2003 QMA	Architectural conservation	Conservation, consolidation	Natural materials	Defensive structure	Fort Museum	Socio-cultural, Environmental
Al Khor Watchtowers	2007 QMA	Architectural conservation	Restoration, consolidation	Natural materials and cement mortar	Defensive structure	Towers' Museum	Socio-cultural Environmental
Al Zekreet fort	Ongoing QMA	Architectural conservation	Conservation	Natural materials	Defensive structure	Ruins Museum	Socio-cultural Environmental

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