

ASSESSING THE HERITAGE ADAPTIVE REUSE IN QATAR

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ABSTRACT

In recent years, Qatar, a growing country in the Gulf Regions, has experienced an intense conflict about the national direction of development, oscillating between the construction of a contemporary global image, and the rehabilitation of national heritage to appreciate the local culture. This paper discusses some adaptive re-use interventions, recently concluded on Qatari heritage, which have been compared by adopting the assessment principles of socio-economic, socio-cultural, environmental, and sustainable values. The results show that there are direct relationships between the reuse of Qatar's heritage, the preservation of traditional materials, the promotion of cultural values, and adaptation to the country's climate.

KEYWORDS

national identity, architectural heritage, conservation, change of use, cultural enhancement

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In recent decades, Qatar has practiced fast urban growth due to the discovery and export of oil (1960-1970) that have generated significant private investments and an unprecedented economic boom. The capital, Doha, for such rapid development, has grown as a new global city on the world scene for its financial markets and cutting-edge projects. The urban development has caused many conflicts for the preservation of the existing areas, producing a restrictive result both on the development of Doha historical center, and on the safeguard of the local heritage. The economic boom in Qatar has also generated large flows of Asian, European, and Arab immigrants from neighbouring countries in search of work, following the strong demand for labour to complete the ongoing projects.

The demand for housing and services and the cultural diversity of the new arrivals have created a poorly integrated social context in Qatar that is reflected in a highly fragmented urban fabric. In a context of delicate social integration, the 2017 recession was accentuated by the imposition of an embargo by the United Arab Emirates and Saudi Arabia – between other GCC (Gulf Cooperation Council) countries – which also ordered a blockade for the national airline, thus increasing the effects of the ongoing national economic crisis. In such a fragile context, the country has started reviewing its development plans and reconsidering the growth direction of its capital, Doha, plagued by a permanent conflict of adaptation to rapid changes. On one hand, the development of a contemporary global state, produced by postmodern structures, marvellous architecture, and technological materials; on the other, the preservation of existing historical buildings reusing the urban constructed fabric and abandoned buildings, to establish new relationships with the tradition and the local culture.

In Doha, fast urban growth has definitively changed the historical city center, by destroying the fragile remains of the urban fabric and allowing the demolition of many traditional buildings to make room for the new towers. The resilience of Qatar started to deal with the current search for the country's identity, and recently some interventions of historical buildings' adaptive reuse of historic buildings have been completed in search of new links with the traditions of the country (Radoine, 2010; Furlan, 2016; Furlan, Petruccioli and Jamaledin, 2019). The historic structures present a considerable level of flexibility and high functional adaptability to social, cultural, environmental, and economic conditions in the delicate urban context, allowing for more sustainable directions of growth and development of the city (Di Pasquale and Mecca, 2016; Furlan and Faggion, 2017; Kahraman and Carter, 2019).

This contribution presents a comparison and an evaluation of some adaptive reuse projects showing how the enhancement of historical architecture and the awareness of the local heritage values can contribute to the creation of the new national identity of the country (Salama and Wiedmann, 2013; Eddisford and Carter, 2017). The aim of the research is the codification of some principles for the adaptive assessment of the completed interventions, which have enhanced the local culture and traditions. The achieved results intend to propose some possible innovative strategies and models to

incorporate the principles of valorization pursued both in the field of the adaptive recovery, in the planning and design of new architectures through the formation of a 'resilient thought', which enhances the national identity. The assessment of adaptive reuse interventions has highlighted numerous economic, environmental, and social benefits. Economically, the costs for new constructions' materials have been reduced, as well as the quantities of water and energy adopted.

From an environmental and sustainable point of view, the approach to re-use has reduced the emission of pollutants, preserving the natural environment, and preventing deterioration. From a social point of view, the adaptive reuse of historic buildings has allowed the population to perceive and appreciate the value of heritage and has contributed to defining the cultural identity of the place, mainly researched in all the Gulf regions. The results show that there exist many relationships between the adaptive reuse in Qatar, the preservation of natural, historical materials, the promotion of the nation's cultural values, synergy with the environment, and adaptation to the country's climate. The concept of adaptivity is then analysed in its complex connotation of harmony and unity, in addition to the recovery of historical materials, traditional uses, social, economic, and environmental aspects by evaluating different intervention strategies for adaptive reuse interventions both on urban and architectural scales.

Methodology | The United Nations Educational, Scientific and Cultural Organization (UNESCO-ICOMOS Documentation Centre, 2010) since many years promotes the principles of protection, management, sustainability and enhancement of cultural identity to safeguard the world's heritage, without however giving clear definitions or general rules to be respected (Miccoli et alii, 2014), but trying to promote the uniqueness of each initiative in specific countries. In the past, conflicts have often arisen relating to the protection and safeguarding of buildings, sometimes in contrast with the sustainable development of growing countries, or with socio-cultural and economic aspects linked to rehabilitation projects. In fact, in the protected areas, there are often contrasts and overlaps between the safeguarding laws, which are applied at different grades (municipal, statal, and federal). While on the one hand, the laws enhance specific aspects of the historic buildings' reuse of, on the other, they can be in contrast with the sustainable aspects of protection.

The definition of 'heritage reuse adaptivity' is widely debated. Adaptability is the ability to adapt to environmental circumstances, which involves the use of available resources to meet needs and requirements, however, according to the World Heritage concept the definition of adaptive reuse is linked to the quality principles adopted to increase the life cycle of historic buildings leading to significant social, cultural, environmental sustainability and economic development results (Landorf, 2009).

The adaptive reuse interventions for some historical buildings in Qatar, analysed in this research, have produced many economic, environmental, and social benefits, also promoting the national identity research that the country has debated for many

years. From the economic point of view, the analysed reuse interventions have allowed reducing the investment of money in the new buildings' construction, limiting the use of new materials, the waste of water and electricity. From an environmental point of view, the approach to reuse minimizes pollution, preserves the natural environment, and prevents deterioration of existing structures. Socially, heritage rehabilitation improves the values of the local cultural identity that is particularly needed in the Persian Gulf regions.

The primary purpose of this paper is the classification, comparison and assessment of some adaptive reuse interventions recently concluded or under completion in Qatar, with the intention of codifying some principles and rules of best practice, for the definition of innovative strategies and models that could be applied not only in the restoration field but also in the field of requalification of archaeological sites or urban planning. The research activities started with the identification, analysis, and comparison of some interesting projects of adaptive reuse of Qatari heritage.

The projects allowed developing critical ideas on the assessment of additional solutions for the integration of formal, technological and functional options with the sustainable growth not only of the urban Doha city center, but also on the peripheral areas of the nation. The topic of the heritage rehabilitation, widely discussed in the past for the requalification of the cultural values, has been the subject of renewed interest in the last decade, especially in terms of re-using solutions that lead to the rediscovery and enhancement of national, local culture, allowing traditions to be transmitted to the future generations.

The traditional knowledge systems, typical of the old construction technology, usually preserved within local communities, can belong to a vast area within a large-scale circuit that allows for 'world views' more comprehensive and international. For example, local traditions expressed verbally, some practices related to past craftsmanship, social customs, festive events, and the national rituals are part of an intangible heritage that characterizes the entire human race and has a value of worldwide interest. The national traditions and knowledge, firmly rooted in the Qatari culture (Jaidah and Bourennane, 2009), constitute some of the essential socio-cultural, environmental, and socio-economic values that have been adopted for assessing the implementation results of adaptive reuses.

This research, which needs to be further developed, intends to promote solutions, strategies, and examples of good practice that could also be extended to other Middle Eastern nations. The intent is to define a persistent approach and contribute to the Arab culture enhancement in the field of restoration in compliance with some sustainable principles and values.

Adaptive reuse projects' analysis in Qatar | For the assessment of the analysed recovery interventions, we have classified the principles of heritage requalification based on three areas of research: socio-cultural, environmental, and socio-economic.



Fig. 1 | Al Taghab Fort, consolidation works completed for the adaptive reuse as a museum of the fort (credit: Author, 2018).

Architectural rehabilitation and the conservation of existing buildings is a discipline that involves many values: social, economic, cultural, sustainable, and resource enhancement. Many of these factors and values – including the sustainability of interventions, environmental protection and the enhancement of culture – have recently been promoted by the UN General Assembly which has adopted an ‘action plan for people, the planet and prosperity’ lasting fifteen years, in which many development and action plans have been classified for the collective achievement of the set objectives. In particular, the value of restoration and recovery interventions in all sectors was reaffirmed and promoted within the assembly (UN General Assembly, 2015).

The adaptive reuse of old monumental buildings is an intervention that has a direct link with national growth. The conservation of historic buildings is not just a simple act of adaptive reuse of old materials and abandoned places but includes high values related to the redevelopment, enhancement, and understanding of the local culture,



Fig. 2 | Al Zubarah Fort, conservation project completed for the adaptive reuse as a cultural museum (credit: Author, 2018).

history, and memory of knowledge and traditions, to be preserved and transferred to future generations. Furthermore, the interventions of adaptive recovery and heritage conservation have recently created a substantial boost to employment and the development of local activities, by strongly influencing many social, cultural, and economic factors and promoting the national growth. The construction building traditions of ancient civilizations are an extraordinary collection of technological, cultural, and environmental techniques that, in recent years, have often been ignored. Even in Qatar, local administrations have neglected the values of historical culture, due to the advent of the national recent economic boom. The lack of legislation and specific laws for safeguarding the heritage has led to the loss of many historic buildings, demolished in the old center of Doha to make room for new contemporary towers.

However, new laws have recently been promoted to safeguard and preserve the past. In 2005, two national institutions responsible for protecting and safeguarding



Fig. 3 | Al Dhakhira Mosque, adaptive reuse project as religious and cultural center (credit: Author, 2018).

historical heritage were founded: the Qatar Museum Authority (QMA) and the Private Engineering Office (PEO). They have imposed many restrictions on the ongoing demolitions and launched many protection measures, redeveloping abandoned urban areas, restoring historic buildings, and promoting adaptive reuse with the inclusion of cultural enhancement and tourism entertainment activities.

The interventions have interested many categories of historic buildings among which we have selected three with the aim of providing a comparison between the interventions carried out and the results achieved: the re-use interventions of defensive structures in Qatar to enhance the values of the buildings' traditions; the restoration of some religious buildings for the promotion of the local culture and finally the urban redevelopment interventions with the aim of promoting the tourist attraction (Mazzetto and Petruccioli, 2018; Mazzetto, 2018a, 2018b). The comparison between the adaptive reuse interventions has led to the recognition of recurrent strategies and tech-

niques in similar environmental contexts, with social or cultural characteristics, significant for their capability to satisfy the contemporary social needs, such as the search for a cultural identity, the quality of interventions, and their functional, social and environmental adequacy.

Assessment and evaluation criteria adopted for comparisons | The adopted approach for the evaluation and comparison between the selected examples of restoration and adaptive reuse interventions in Qatar has provided a division into three main categories of assessment criteria: 1) Socio-cultural criterion (it is the property to enhance cultural diversity, the feeling of inclusion, local traditional experience, personal and community belonging, the appreciation of cultural values, and social attachment); 2) Socio-economic criterion (indicates the ability to create and maintain the highest values achieved within the place, to emphasize the social and economic well-being of the country); 3) Environmental criterion (refers to the property of adaptive projects to enhance the environmental characteristics of a place, minimizing the negative impacts, including the climatic changes).

The study recognizes and compares three different types of adaptive reuse, which generated different aspects of enhancement: i) Adaptive reuse on an architectural scale of historic defensive buildings to enhance and protect the local building tradition; ii) Adaptive reuse on an architectural scale of historic religious buildings to enhance the local culture; iii) Adaptive reuse on the urban scale of abandoned areas to enhance the national territory and local tourism.

Adaptive re-use on an architectural scale: the rediscovery of the defensive Qatari traditions | In recent decades, the activity promoted by the institutions in charge of safeguarding – Qatar Museum Authority (QMA) and Private Engineering Office (PEO) – has favoured the development of adaptive reuse projects on the architectural scale, for many historic buildings, that risked collapsing due to neglect and abandonment. Among these, we have compared the adaptive reuse interventions of two ancient historical defensive structures: the Al Zubarah Fort, and the Al Thagab Fort. These forts are located in the northern part of Qatar, to defend the land from attacks and invasions and to protect the inhabitants' lives, by securing the rare wells of drinking water.

The Al Thagab Fort (Fig. 1) is a traditional fort constructed by the local people to defend a fertile territory where rainwater was collected at the bottom of the valley and where a drinking water well was used since 1911. The fort has a regular plan with towers on the corners. The courtyard in the center allowed the villagers to protect and preserve food and water, even in the event of foreign invasions and attacks. The structural consolidation works were carried out by the Private Engineering Office (PEO) through a typological reconstruction that used large blocks of local natural stone of regular shape overlapping the oldest irregular stone layers. The considerable thickness of the defensive walls also had a natural function of thermal insulation and favoured



Fig. 4 | Al Wakrah Souk, urban rehabilitation project (credit: Author, 2018).



Fig. 5 | Al Jumail Village, the project of conservation for the adaptive reuse as an open-air old village museum (credit: Author, 2018).

the protection of the inhabitants from the summer heat. The adaptive reuse intervention has been realized with traditional materials and construction techniques, such as the use of wooden poles, plaster ceilings, bamboo canes, and mangrove nets for the application of mixed mortar plaster. The fort is in a good state of preservation and is currently used as the museum of the fort, which can be visited during the day.

The Al Zubarah Fort (Fig. 2), located on the western coast of Qatar, is part of a national touristic circuit. The archaeological excavation campaign concluded in 2014 by the Qatar Museum Authority (QMA), has brought to light critical archaeological traces of Al Zubarah settlement, one of the largest in Qatar, abandoned before the discovery of oil, whose remains today are buried in the sand. The fort of Al Zubarah, which stands near the archaeological excavations, was built in 1938 by Sheikh Abdullah bin Qassim Al Thani as a military building, was also used as a national coast guard office and as a police station. Its strategic position allowed controlling all the surrounding areas from possible enemy attacks. The fort has a regular square plan, with external walls built of local stone and four defensive towers at the corners.

The restoration work was concluded in 2015 under the supervision of QMA, recovering the stone walls, the partially collapsed roofs, the bamboo ceilings of the soldiers' rooms, and the sentinel's walkway. The consolidation intervention involved the use of traditional natural materials and cement mortars to reinforce the structures. Al Zubarah is currently a tourist place equipped with facilities and services for visitors and used as a museum of the local country culture, where you can discover the building traditions, the drinking water supply techniques through the well of the fort, and you can appreciate the traditions of local housing culture. The adaptive reuse intervention carried out has highlighted the great socio-cultural value of the place, and the im-

portance of the rediscovery of local defensive traditions. Moreover, the tourist promotion of Al Zubarah has enhanced the socio-economic aspects of the area by demonstrating the high capacity of adaptation over the centuries, and the ability to integrate with the environmental characteristics by minimizing negative impacts and addressing problems related to extreme climatic conditions.

Religious buildings: enhancement of local culture | The adaptive reuse of the Al Dhakira Mosque (Fig. 3) is particularly essential for the enhancement of the traditional culture of the place. The mosque is located in the northern area of Qatar. The conservative restoration work, carried out by the PEO, has allowed the recovery of one of the oldest mosque in Qatar. After 1970 the place was abandoned due to the transfer of religious activities, and the historic building was in a state of severe degradation. The intervention involved the use of natural materials, such as local coral stone and wooden poles. A building portion, mainly degraded due to the abandonment, was rebuilt using cementitious materials and cement blocks.

The mosque was equipped with a new air conditioning system and an electrical system. After the intervention, the mosque was used as a new cultural and religious center in the area. The reuse has allowed the enhancement of the local tradition, especially in the transmission of cultural values linked to the performance of religious functions and the teaching of religion to young people. One of the most critical aspects of the architectural intervention was the enhancement of the transmission of socio-cultural aspects. The new function of the cultural and religious center has highlighted the ability of the building to historical adaptations. It has become an example of the population's call for the strengthening of religious and social-cultural values, thanks to the recognition of social cohesion in the territory.

Adaptive reuse on an urban scale: enhancement of local tourism | In the typology of the urban rehabilitation project, we analysed the Al Wakrah fishermen village adaptive reuse project, where the place is currently used as a new souq. The intervention, concluded in 2015 and supervised by PEO, was about the urban conservation of the old fishermen village, located near the ancient port, which had been abandoned and neglected for many years. The area was renovated as the new Al Wakrah Souq, through urban requalification interventions that included the edification of many destroyed buildings, the replacement of broken parts, the functional adaptation, and the promotions of new commercial activities, as well as restaurants and cafeterias, facing the waterfront (Fig. 4). The place has maintained a strong sense of identity with the inclusion of many traditional activities, to recall the old culture. The social values, very tied to the environmental aspects of the place, are still highly tangible and easily perceptible, by creating a strong sense of appreciation and transmission of the local commercial culture.

The second sample of adaptive reuse on an urban scale is the abandoned area of Al

Name	Date/ Agency	Old use	Project categories	Project description	Type of materials used	Adaptive Reuse	Assessment principles
Al Thagab Fort	2014 PEO	Defensive structure	architectural conservation	conservation, consolidation	natural materials and cement mortar	Fort Museum	socio-cultural environmental
Al Zubarah Fort	2014 QMA	Defensive structure	architectural conservation	conservation	natural materials, limestone rocks, gypsum mortar, wooden poles	Cultural Museum	socio-cultural and socio-economic
Al Dhakhira Mosque	2015 PEO	Mosque	architectural restoration	restoration, consolidation	natural materials, cement mortar, and reinforced concrete	Religious and Cultural Center	socio-cultural and socio-economic
Al Wakrah Souk	2015 PEO	Fishermen Village	urban regeneration	restoration, typological reconstruction	natural materials, cement mortar, concrete blocks, and reinforced concrete	Commercial Entertainment	socio-cultural and socio-economic
Al Jumail Village	Ongoing QMA	Residential Village	urban conservation	to be completed, conservation	natural materials	Open-air, Old Village Museum	socio-cultural and environmental

Table 1 | Schematic comparison of the adaptive reuse projects completed in Qatar.

Jumail Village (Fig. 5), located in Madinat Al Shamal, north of Doha. The village was densely inhabited before the oil discovery in the country, when the local population was devoted to fishing and pearl trading. Later, similarly to other villages, the place was abandoned form the inhabitants who moved into big cities in search of a remunerable job and better living conditions.

The Al Jumail ruins are under the protection of the Qatar Museum Authority, which is planning an adaptive reuse intervention, bringing to light the ancient traces of suburban life and the commercial activities of the area. In Al Jumail villages, there are still many buildings linked to the past for economic and social activities, such as the mosque for religious services, a madrasa (school) for the childrens’ education, and many small houses built with sizeable local stone walls to protect the inhabitants from the hot climate. At the moment, the buildings are used as an open-air museum to witness the past residential life. Many tourists are nowadays attracted to such important testimonies of local historical culture.

Both the two adaptive reuse interventions have highlighted the enhancement of the socio-cultural and socio-economic conditions of the re-qualified urban areas. Regarding the socio-cultural values, both interventions have strengthened the sense of attachment of residents and visitors to the Qatari traditional cultural places, by producing new entertainment areas (souqs), and enhancing the value of diversity and cultural integration, while strengthening the values of local traditions. Furthermore, from a socio-economic point of view, reuse projects have contributed to strengthening the value of these urban areas that have been abandoned for many long years.

Conclusions: the enhancement of Qatar’s heritage | The comparison of the analyses

(Table 1) and the assessment (Table 2) of the adaptive reuse interventions, made it possible to build a synthetic framework that proposes a method of study. The research, still at its initial stage, can be further developed by extending the assessment methodology to other categories of intervention. Evaluations have, in fact, only taken into consideration some types of intervention (defensive buildings, religious and residential buildings), the scale adopted (architectural and urban scale), and classifying the interventions based on the assessment of some socio-cultural, socio-economic, environmental and sustainable values. The research aims at proposing a new assessment methodology that could be extended to other interventions by providing guidelines and innovative evaluation criteria to be adopted for future analysis.

The adaptive reuse projects followed the restoration approach imposed by the government authorities responsible for the interventions (QMA and PEO). The adopted assessment principles also considered the scale of the intervention, the context in

	A = High B = Average C = Low	Arch. Defensive		Arch. Religious	Urban	
Areas of Assessment	Principles of Assessment	Al Thagab Fort	Al Zubarah Fort	Al Dhakhira Mosque	Al Wakrah Souk	Al Jumail
SOCIO-ECONOMIC PRINCIPLES	1. To support local autonomy	A	A	B	A	C
	2. To promote traditional activities	C	C	A	A	B
	3. To promote local construction	B	A	B	B	A
	4. To extend building lifetime	A	A	A	C	B
	5. To save resources	B	B	B	B	B
SOCIO-CULTURAL PRINCIPLES	6. To preserve the cultural values	A	A	B	B	B
	7. To transfer construction cultures	B	A	A	C	C
	8. To enhance innovative and creative solutions	B	B	B	C	C
	9. To promote tangible and intangible values	B	B	A	A	B
	10. To encourage social cohesion	A	A	B	A	B
	11. To improve the quality of life	C	B	B	A	C
ENVIRONMENTAL PRINCIPLES	11. To respect the environmental context	B	B	B	C	A
	12. For the benefit of natural and climatic resources	C	B	C	A	C
	13. To reduce pollution and materials' waste	B	C	C	B	B
	14. To contribute to human welfare	B	A	B	A	C
	15. To reduce natural hazard effects	C	A	B	A	C

Table 2 | Schematic results of areas and principles adopted for the assessment of the adaptive reuse projects completed in Qatar.

which the historic building is located, the environmental characteristics, the relationship with the place and traditions, the transmission of cultural and social values, the economic aspects and the new buildings' functions, as well as the materials used during the intervention. Table 1 and Table 2 document the characteristics of the adaptive reuse interventions and the evaluation criteria adopted for assessing the projects, although other analyses and comparisons are still needed to validate the obtained results. Finally, the analysed adaptive reuse projects are not part of a strategic urban Qatari coordination plan. The interventions are currently isolated cases, although many elements and many features can be identified as frequent and repetitive.

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