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Conservation of Egyptian Vernacular Desert Architectural Heritage in Search for a Successful Conservation Model

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***Abstract* - Egyptian desert oases have very distinguished architectural heritage and tradition, with its roots related to its environment and rich history. Such buildings and traditional methods need to be well protected and preserved against an arising false modernization wave that leads to the increasing use of concrete buildings instead of local traditional materials and crafts in search of false sense of modernization and user comfort.**

Keywords* - *Egyptian Vernacular Architecture, Desert Architecture, Siwa, arid regions, Heritage, Conservation, Urban Regeneration

I. INTRODUCTION

One of the characteristics adopted by the Egyptian heritage conservation law no. 144/2006 to identify and legalize a conservation and protection status for heritage buildings in Egypt is the "local and traditional value" which addresses buildings that are representing local traditional architecture, local materials used in building, local and traditional crafts adopted in vernacular architecture in various regions in Egypt, and local environmental architecture. [1] Such Architecture is widely represented in the Egyptian oases traditional architecture throughout the Egyptian deserts. But in spite of the legal protection state, the Egyptian vernacular desert architecture is facing a great survival challenge within the current trend of fake modernization.

TABLE I. DIFFERENT VALUES AND CRITERIA CHARACTERIZING HERITAGE BUILDINGS ACCORDING TO LAW NO. 144/2006 [1]

Value	Criteria
Historic Value:	• A building related to national historical aspects. • Linked to a significant figure locally or globally important. • Related to important national events. • Has a symbolic value. • The building's age.
Architectural Aesthetic Value	• A building with unique and distinct architectural style. • Distinctive Architectural Design, unique artistic creativity. • Represents an important era in the history of art and architecture. • The product of a locally or globally prominent architect. • Represents a significant structural scientific or technical value.
Urban Value	• The building has a value of being part of an integrated distinct urban heritage area. • The building's garden has an environmental or historic value. • Heritage buildings integrated with each other in regards of style or technique.
Social Intangible Value	• Related over time to important social functions. • Represents social ideology, faith or tradition.
Local Traditional Value	• The building is a part of an integrated urban, rural or desert architecture. • The building is a part of an architectural group built with distinctive materials reflecting its place and climate. • Traditional building represents accumulated experiences in design and construction of traditional crafts.

II. EXAMPLES OF CONSERVATION OF VERNACULAR BUILDINGS IN EGYPTIAN OASES

Some serious efforts have been made to conserve vernacular buildings and traditional building techniques in Egyptian deserts. The following are some example of conservation projects.

A. Restoration & rehabilitation of the old mosque of shali, siwa

The old Mosque of Shali Fortress (Masgid el Moqbil), completed in 1203, survives today as the oldest monument built in Shali as well as the oldest mosque in the world constructed using "karshif" which is a mud-salt mix taken from natural salt flats, and used as building material in Siwa's traditional material mud brick architecture. [2]

As Shali has evolved, the mosque has remained a perpetual and unremitting symbol of the history and community of Siwa Oasis. Devastating floods in the early and late 20th century [2]. In 2015 a local construction company, Environmental Quality International (EQI), undertook a restoration of the mosque that is now used once more by the local community. The project galvanized the community to restore local buildings and convert them into bazaars, and the mosque is now under the careful management of the local people. The project preserves the Mosque, using traditional materials and building methods including the use of Karshif blocks, which is the traditional building method for the area. During the restoration, partially fallen or rotten palm trunks and olive beams are replaced, and walls are finished with hardened clay known as "tafla" [3].

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Fig. 1. Orginal state of Shali old mosque [3]

Fig. 2. Facades restoration using Karshif and Tafla finishing. Photographed by the researcher

Fig. 3. Roof and interior restoration. [2]

B. Albabenshal hotel, siwa

Within the ruins of Old Shali, in the heart of Siwa, a restoration and reuse project of several abandoned houses to create "Albabenshal", a village-hotel in central Siwa. Siwan master builders led the restoration of these structures using karshif, other Siwan craftsmen provided furnishings and decorations and still others run the ecolodge, generating a range of valuable employment opportunities for the local community. [4]

Fig. 4. Albabenshal hotel Adaptive reuse Project [4]

Fig. 5. Albabenshal hotel Adaptive reuse Project [4]

C. Qasr eldakhla project

Conservation, restoration and reconstruction of the Shihabiya quarter in Qasr Aldakhla Oasis were conducted by an ongoing project since 1978 called "Dakhleh Oasis Project" which concerns with archaeological, environmental and architectural research and conservation projects. Since 2003, Professor Fred Leemhuis of Groningen University has completed the restoration of Bayt el Qadi, and the neighbouring building, Bayt el Gourashi, and other buildings in the quarter. Five houses were restored and reconstructed, electrical wiring and water pipes and sewage drains have been installed. [5] [6]

However, no decision has been taken about the use of these houses. Which poses critical risks for the buildings as they will most probably slowly fall to pieces again and the entire restoration will have been in vain, as maintenance of these unique houses should be performed regularly. [7]

Fig. 6. Conservation, restoration and reconstruction of the Shihabiyya quarter in Qasr Alakhla Oasis [6] [7]

III. FROM VERNACULAR TO CONCRETE

From these three examples, it is remarkable that the first two projects were successful, while the third was not that successful to the point that some of the restored houses were not used and re-deteriorated for the lack of maintenance. The noted difference between those projects is that the first is a historic mosque with bazars that are related to the history of the oasis itself and its core public and touristic attraction. The second project also relays on touristic strength. While the third project, on the other hand, is aimed towards the residential sector of the oasis, which was apparently not that convinced by the matter of conservation of vernacular buildings.

Though it is not unexpected that local people are shifting their attention towards what they see as modern architecture instead of their "old fashioned" local vernacular architecture. This trend is well noted in many Egyptian desert communities.

This trend is currently spreading rapidly throughout Egyptian desert architectural (as well as other rural vernacular architecture).

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Fig. 7. Concrete buildings replacing traditional buildings in Siwa and Dakhla. [8]

Fig. 8. New materials within old fabric, and New materials with mud finishing in Siwa, photographed by the researcher

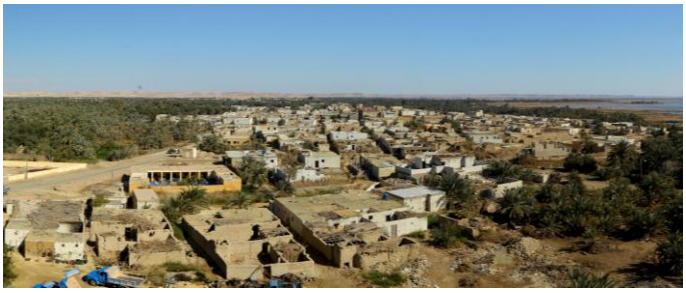

Fig. 9. A view of Aghormy village at Siwa Oasis shows the use of stone and concrete instead of mud and karshif, Photographed by the researcher

In a study of Marwa Dabaieh about Balat town in Dakhla oasis, she summed up the reasons why residents abandon vernacular houses to new concrete ones in these points: [8]

- The need for services such as electricity, water supply and drainage systems, which is hard to achieve in vernacular mud houses.
- Safety from rain and earthquakes.
- To get rid of insects such as white ants or termites that are destroying their houses' structure by eating wood in roofs and fibres inside mud bricks.
- They need larger spaces inside their houses, which traditional structures cannot offer all the time.
- To make use of the land value and build more than two or three stories.
- Finally, as locals see it, they need a shiny modern look for their houses and they want to use modern materials such as ceramic tiles and cladding to produce a look like that in cities

So new innovative architectural solutions are well needed to eliminate the gap between vernacular architecture and local residents' needs and expectation of modern comfort standard. On the other hand, the cultural aspect is much important to change the way they see their own architecture, and this could not be done without a holistic effort towards social and economic development based on the local cultural and architectural heritage.

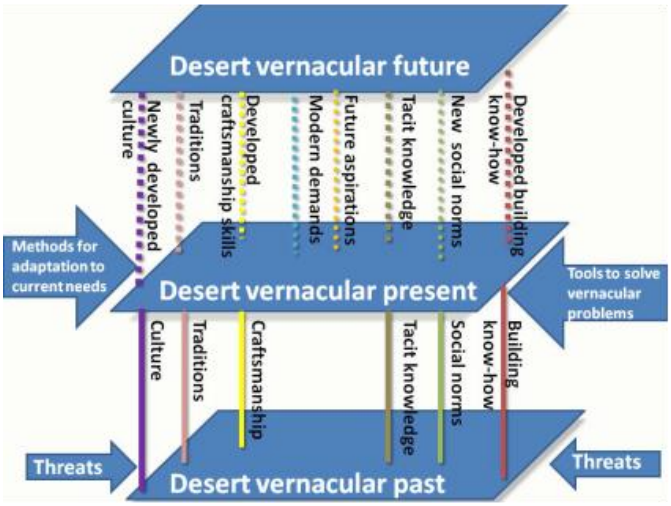

Fig. 10. The figure shows that the future of desert vernacular is based on the vernacular past and connected to contemporary needs. [8]

IV. DEVELOPMENT BASED ON HERITAGE

The following are some successful examples of development plans based on heritage, which led to the conservation of vernacular architecture taking into account the prosperity of the whole local community.

A. Santorini, Greece:

Santorini is a small circular archipelago of volcanic islands, located in the south Aegean Sea, about 200 kilometres south-east from Greece mainland. Its area is about 73 km^2, and population of 13,670 inhabitant (2011 census). [9]

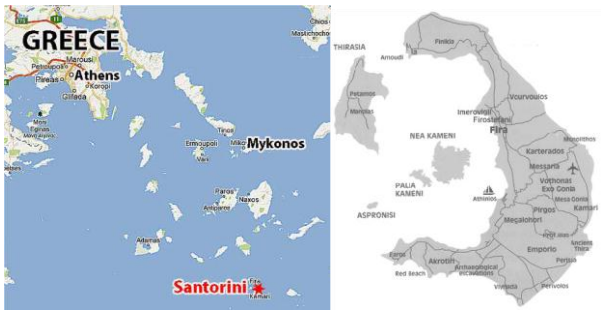

Fig. 11. Santorini location.[9]

The architecture of Santorini is one of the finest examples of vernacular architecture in the whole of the Cyclades islands. The buildings of Santorini consist of solid volumes, thick masonry walls with small openings, the whitewashed plaster covering almost everything with an integrative power, the creation of composition through continuous repetition. All those elements have produced organic urban & building forms, evolving through a long response to the climatic conditions using the locally available resources, and at the same time imprinting the social evolution through time. A particular ergonomic scale is evident, similar to the one found in ships: low doors, narrow and steep stairs, tiny inner/outer spaces. Climate, earthquakes, materials scarcity, and topography had been the primary design parameters, and were respected with admirable integrity & ingenuity. Tradition resulting from long experience was dictating the building specifications from layout to decoration, with little ground for experiments or deviations from the established norms. [10]

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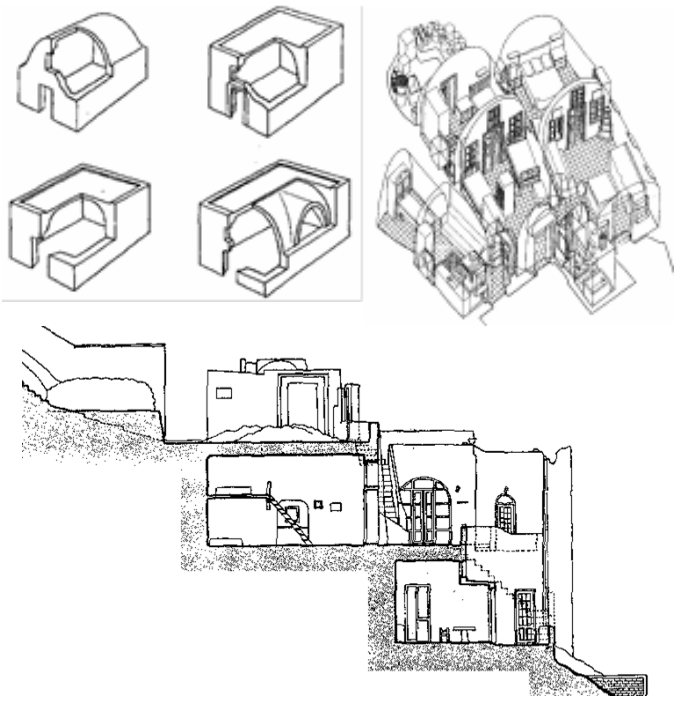

Fig. 12. Architecture of Santorini [10]

The development plan of the island, takes into account the sensitivity of local history and culture. This means the respecting of local materials, vernacular designs as well as being sensitive to the existing built environment, and giving priority to the conservation and preservation of old buildings as cultural beacons in the history of a place [11].

Fig. 13. New development of Santorini based on its traditional vernacular architecture [12]

In the last 50 years every corner of the island, especially the unsafe slopes, was reconstructed and continues to replenish with all kinds of sophisticated touristic uses and interpretations of the local architecture. Even the vaulted shelters build after the earthquakes of 1956, were used as tourist shops. [12]

B. Sidi Bou Said, Tunisia:

A former summer resort village that become a year-round residential area of Tunis. Built on a hill above a magnificent cliff and the Bay of Carthage, it is characteristic by its lovely gardens, white washed walls, narrow windows, mashrabiyas, domes and vaults are most predominant. [13]

Fig. 14. Sidi Bou Said location and urban fabric [15]

The buildings are a mix of Moresque and some Italianate elements organized contiguously along a tangled pattern of streets surrounding the central mosque and souq. The coming of mass tourism brought increasing pollution and traffic congestion. Moreover, the later posed serious threat to the geological stability of the cliff.

Fig. 15. Architecture of Sidi Bou Said [15]

A management plan prepared by the district of Tunis, enacted in 1978, sets direction of the control of development and land use. The time received a citation from the Agha Khan jury in 1980 for "the efforts over a long period of time by a community towards the conservation of their village based on true understanding of the architectural values of the village, legislation has been enacted controlling maintenance, expansion and vehicular circulation, and the sense of place has been kept. Sidi Bou Said has retained not only the picturesque quality of a village but its very essence." [14] [15]

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Fig. 16. New development of Sidi Bou Said respecting its traditional architecture and urban fabric [15]

The main design concepts of the development project: [11]

- An integral conservation that merits its history, spiritual and symbolic significance.
- Preserving the basic pattern and morphology of the village.
- Repairing and restoring old buildings. (Some of the old houses were turned into touristic hotels.)
- Modifications of facades of new buildings to suit the old.
- Character and volume of new buildings to match the old.
- User interaction for a self-preserved site.

V. CONCLUSION

The above-mentioned examples show the potential of social and economic development based on the vernacular architecture conservation, and preservation of the character of the place, using tourism as their economic leverage.

The same can be implemented in Egyptian oases, if there is a strategic development plan taking into account the local public participation, and the preservation of their culture, heritage and vernacular architecture, while respecting their needs and finding innovating solutions related to the local environment, culture and heritage.

While many individual sincere efforts have been done in this direction, but it is not enough to convince the local communities that their own tradition and heritage can lead to modern economic development. The global view and a major development plan must be the main umbrella, as well as conservation legislation and public participation.

An example of such proposed development plan can be implemented to "Aghormy" village in Siwa oasis, it has very good conditions for touristic development, located to the east of Siwa, on a natural lake "Aghormy Lake" and near Amoun temple and Cleopatra spring. The local vernacular architecture in the village should be enhanced, concrete buildings should be replaced with traditional architecture serving as touristic infrastructure; hotels, bazars… and consequently it will enhance the life standard of the local residents.

Fig. 17. View of Aghormy village excluding concrete buildings to be replaced with traditional vernacular architecture. Photographed & prepared by the researcher.

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