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Evaluation of humanitarian environmental design principles

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Abstract

In the early ages, architecture was part of the natural environment, so it had no impact on it until it became an environment of itself. A built-up environment that humans had to live and work in it. Architects changed the architectural design process, from a natural design in a natural environment to an environmental design in a buildup environment. The buildup environment does not consider nature and causes negative environmental impacts and nature pollution. Therefore, bringing architecture back to being the natural environment for humans is a must. However, architects still finding ways to decrease the impact of architecture on nature, forgetting that the design process itself misses some points that could help to reach a real environmental architecture and a natural design from the beginning. This paper aims to deduct guidelines for a Humanitarian Environmental Design, in a form of a checklist that helps architects in the early process of design. Therefore, this paper reviews some of the environmental architecture approaches and the principles their definitions depended on to achieve an environmental design. Consequently, the aspects that the study assumed to be taken into consideration are revealed. The deducted guidelines were applied to Taziry indigenous eco-hotel in Siwa to illustrate how they could increase the humanity of the architectural design environmentally. The paper concludes that the deducted guidelines should be considered before the design take a construction process, as some of its aspects cannot be applied after the building is constructed. On the other hand, humans are recommended to be the core of the design and they must be under focus as one of the resources in the ecosystem.

Keywords: Environmental Design, Natural Environment, Humanitarian Environment, Siwa oasis
2020 MSC: Primary 90C33; Secondary 26B25

1 Introduction

Ancient people realized the need for a comfortable and secure environment for themselves and their families. Secure homes are part of the culture and lifestyle of people. The building of houses turned into a craft and hallmark of world-historical changes. Architecture occupies an important place in the household from different historical periods. of course, the architectural boom was different in various parts of the world [11]. It has to do with planning, designing and constructing form, space and ambiance to reflect functional, technical, social, environmental and aesthetic considerations. It requires the creative manipulation and coordination of materials and technology, and light and shadow. Often, conflicting requirements must be resolved.

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In the present context, describe as 'unsustainable' architecture began, at the end of the 18th century, with the industrial revolution, as more and more new technologies were incorporated into the fabric of buildings. Buildings for all purposes, residential, industrial and institutional came increasingly to adopt mechanical systems of heating, ventilation and illumination in the quest to adopt the latest technologies in the service of their inhabitants. The subsequent history of this kind of architecture correlates quite precisely with the historical increase in global consumption of fossil fuels and its inevitable complement of the growth of greenhouse gas emissions.

Before this stage, every single building was environmentally designed. Most buildings employed the properties of material and form to make appropriate adaptations to the relationships between their uses and the climates in which they were set. Their design was based on a sophisticated empirical understanding of quite complex physical processes and relationships. The evidence of the many historic buildings that survive to the present day significantly complements all of this 'theory'. In a broad definition all of these buildings are sustainable [18].

Since the past century, architecture has been defined as environmental, ecological and even sustainable. However, it is necessary to establish the repercussions of each one of these adjectives in order to ultimately determine the implications of the actual term 'Environmental' [1]. Pre-industrial revolution architecture was environmental - even if the design was not intended to be – it was something intuitive and spontaneous. Before the sustainability era and even before architecture with real architects, architecture was called vernacular or spontaneous. And with architects and more technologies, sustainable architecture was the term used to describe environmental architecture. With more study and specific definitions, environmental architecture started to be called green or ecological, even if these terms appeared before the sustainability concept.

2 Architecture Terminologies Definitions

2.1 Vernacular (Spontaneous) Architecture

Along with resources, knowledge, culture, and tradition, human needs have served as a key determinant of vernacular architecture. [5] It is the pure response to a particular person's or society's building needs. It fulfills these needs because it is crafted by the individuals. In addition, the building methods are tested through trial and error by the society in which they are built until their building methods near perfection (over time) and are tailored to the climatic, aesthetic, functional, and sociological needs of their given society. [5] Vernacular architecture is an area of architectural theory that studies the structures made by empirical builders without the intervention of professional architects. There exist many areas of non-professional architectural practice, from primitive shelters in distant communities to urban adaptations of building types that are imported from one country to another. Accordingly, vernacular architecture is a very open, comprehensive concept. It is used as a shortcut and a synonymous for several different practices and theoretical stands on those practices. These include primitive or aboriginal architecture, indigenous architecture, ancestral or traditional architecture, folk, popular, or rural architecture, ethnic architecture or ethno-architecture, informal architecture, the so-called "anonymous architecture" or "architecture without architects" and even "non-pedigree" architecture. [20]. All forms of spontaneous architecture are built to meet specific needs, accommodating the values, economies and ways of living of the cultures that produce them without the intervention of architects. Vernacular architecture is a category of architecture based on local needs and construction materials and reflecting local traditions. It tends to evolve to reflect the environmental, cultural, technological, and historical context in which it exists [24]. Vernacular architecture could be defined as: "The building that is built spontaneously according to the needs and the economic state of the owner, under the umbrella of local traditions and culture, imprinting the surrounding society." (Figure 1).

After observation of this unique kind of terminology, it could be abbreviated in these points:

(a) The vernacular emphasizes that the most important dimensions of buildings lie inside, (b) Vernacular architecture could be considered the history of people or the identity of the society, (c) Vernacular building was necessarily functional, as opposed to decorative, (d) Vernacular is about making something out of nothing. Simplicity is the main concept behind vernacular architecture legend, and (e) Simply, it does not need to consider the environment in design as it is already part of nature.

2.2 Sustainable Architecture

'Sustainable Design' or 'Architecture Sustainability' are widely used terminologies since the beginning of the twentieth century and became the target of architectural design and the aim of architects. Nowadays, these words became an indication of a good design or the best approach to the environmental design world, Sustainable architecture

Figure 1: Diagram shows the relation among Environment, Society and Economy according to Vernacular Architecture definition and application.

is: "Architecture that fulfills current and future society needs without causing an extra load on the economic and fits within the surrounding environment with the less impact on it." (Figure 2). It encompasses the selection and specification of construction materials, engineering systems and equipment, in addition, it is a key activity in delivering sustainability in the built environment [23]. Sustainable construction is a part of the construction procurement process which has the most significant influence on the optimization of whole-life value. [23].

Figure 2: Diagram shows the relation among Environment, Society and Economy according to Sustainable Architecture definition and application.

After observation of sustainability terminology, it could be abbreviated in the following points:

(a) Sustainability concerns environment management with community awareness in a stable economy, (b) It mainly focuses on resources, whether direct from the environment or after industrial production. Resources management is the key to a sustainable environment, (c) The way a resource is consumed today has a direct effect on its existence tomorrow. Sustainability is not only concerned about preventing a certain resource extinct and saving it for the next generations but also with how it is consumed and how it could be recycled in environmental ways, (d) Sustainability is not only about buildings, it is beyond that. It must be deeply implemented in society with awareness and participation, (e) Conservation of resources is one of the basic aims of sustainability, any infinite resource must be conserved till another renewable one takes place, and (f) Sustainability is all about justice and well distribution of resources between present and future.

2.3 Green Architecture

There are many definitions of what a green building is or does. Definitions may range from a building that is "not as bad" as the average building in terms of its impact on the environment or one that is "notably better" than the average building, to one that may even represent a regenerative process where there is an improvement and restoration of the site and its surrounding environment. The ideal "green" project preserves and restores habitat that is vital for sustaining life and becomes a net producer and exporter of resources, materials, energy and water rather than being a net consumer. A green building is one whose construction and lifetime of operation assure the healthiest possible environment while representing the most efficient and least disruptive use of land, water, energy and resources. The optimum design solution is one that effectively emulates all the natural systems and conditions of the pre-developed site – after development is complete. [6] Green building: "Save energy, reduce CO2 emissions, conserve water, improve the health of their occupants, increase productivity, cost less to operate and maintain, and increasingly cost no more

to build than conventional structures" [15]. Because of these benefits, they are becoming highly prized assets for companies, communities and individuals nationwide, and a critically important part of the solution to global climate change and energy dependence [15]. In another way, green building is defined as a way of enhancing the environment. It benefits humans, the community, the environment, and a builder's bottom line. It is about tailoring a building and its site to the local climate, site conditions, culture and community, in order to reduce resource consumption while enhancing the quality of life [12]. There is no singular "look" for a green building. While natural and resource-efficient features can be highlighted in a building, they can also be invisible within any architectural design. Green Architecture is a "Philosophy of architecture that advocates sustainable energy sources, the conservation of energy, the reuse and safety of building materials, and the siting of a building with consideration of its impact on the environment." (Figure 3).

Figure 3: Diagram shows the relation among Environment, Society and Economy according to Green Architecture definition and application

After observation of Build Green, it could be abbreviated in these points:

(a) Green is all about Energy, how it is created, transported and consumed. Energy management in an environmental cycle is the main concern of green thinking, (b) Building a green building is not just a matter of assembling a collection of the latest green technologies or materials. Rather, it is a process in which every element of the design is first optimized and then the impact and interrelationship of various elements and systems within the building and site are re-evaluated, integrated, and optimized as part of a whole building solution, (c) Minimize adverse impacts on the environment (air, water, land, natural resources) through optimized building siting, optimized building design, material selection, and aggressive use of energy conservation measures, (d) Recyclability is the main consideration for choosing a material to build Green, and (e) Renewable sources of energy is the core of Green Concept.

2.4 Ecological Architecture

Ecological Architecture is: "The architecture that satisfies human needs without affecting the environment's health from both its biotic components and abiotic factors." (Figure 4). After observation of Ecological terminologies, it could be abbreviated in these points:

(a) Equality is a right for all humans, animals and plants in any environment is the Ecology foundation. Architecture to be ecological it must consider human beings as well as other organisms in the surrounding environment, (b) Resource equity for a new approach toward resources, especially non-renewable ones, and would put a more realistic value on others, (c) In practice, ecological economics focuses primarily on the key issues of uneconomic growth and quality of life, (d) Ecological economics challenges the conventional approach towards natural resources, claiming that it undervalues natural capital by considering it as interchangeable with human-made capital, labor and technology, and (e) Ecology is all about nature, so ecological architecture is about how to make buildings part of nature.

2.5 Humanitarian Environment

The word 'Humanitarian' is defined as anything concerned with improving people's living conditions and preventing unfair treatment [3]. Also, the term 'Humane' means to be kind and not cruel, especially to people or animals who are suffering [3].

Humane Design is: "The design that is concerned with the livability of all constituents of the global ecosystem, including plants and wildlife" [13].

Figure 4: Diagram shows the relation among Environment, Society and Economy according to Ecological Architecture definition and application.

From an architectural perspective, Humanitarian Environment Design is: "The design that could enhance the relationship between Humans and the main natural environment and could achieve the humanitarian goal of respecting the life and dignity of fellow living organisms.

" Humanitarian Environment is defined as: "The Environment that is suitable for a human being to live with logical comfort, psychological well-being and productivity, and also respects nature health to ensure human survival." [14]

So comfort is of course different than health. When relative humidity drops below 25 percent that the breathing difficulties whenever relative humidity drops below 15 percent due to the mucus linings of the respiratory system desiccating. (Figure 5) illustrates the recommended comfort zone in psychometric chart (h, x diagram): this is the comfort zone that should exist or be created in a room to provide the best conditions for optimal performance. In addition to temperature and humidity values given in this diagram, the corresponding recommendations with regard to air velocity and surface temperatures must also be taken into consideration.

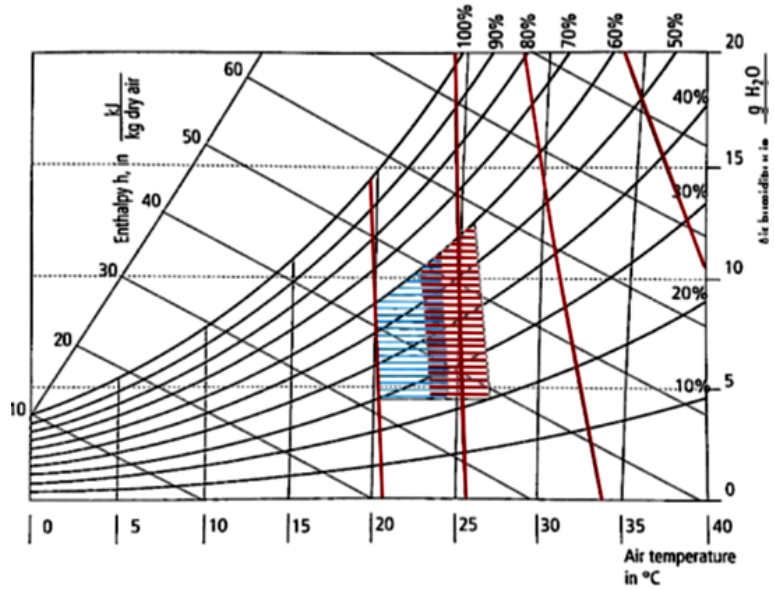


Figure 5: Diagram shows the relation among Environment, Society and Economy according to Ecological Architecture definition and application.

3 The terminology that describes the human need for Environmentally

The definition of sustainability does not specify the ethical roles of humans for their everlasting existence on the planet. It also fails to embrace the value of all other constituents participating in the global ecosystem. The need for finding long-term solutions that warrant continuing human existence and well-being is far more compelling than that of

finding proper terminology to describe human needs. In this respect, the debate on the terms "green," "sustainable," or "ecological" architecture is not terribly important [13].

4 Main Aspects of Environmental Design

From studying different approaches, terminologies and their detailed definitions, and after trying to understand what these approaches do to help the Environment and make architecture more environmental – according to their definitions and applications – through different aspects like Materials choice, Energy consumption, Site consideration, Water management, Ventilation and more. It turned out that most of the aspects fall under four main categories: (a) Physical aspects, (b) Visual aspects, (c) Usability aspects, and (d) Calculation aspects.

Every aspect of environmental design and most of the points the environmental rating systems depended on could fall under these four categories.

4.1 Environmental Architecture Rating Systems' Design Guidelines

Before knowing the purpose of an Environmental Architecture rating system and how this system depended on some guidelines and regulations to give a rating. It was a must to understand what rating itself means. And how the Architecture could be rated to be environmental?

The Environmental Architecture Rating system is a system of classifying buildings and gives varying levels of certification to them that meet the rating standards towards the Environment and human comfort. (Figure 6)

Figure 6: Environmental Architecture Classification& the most important kind the rating systems depend on [4]

The Rating System is to encourage the design of buildings in an environmentally acceptable manner. This will be a major step towards adopting a sustainable practice in the development of buildings to utilize natural resources and make efficient designs to utilize nature for the betterment of mankind [16]. Architects cannot manage what they cannot measure. Therefore, good environmental measurement solutions are needed so they can manage the impact of architecture on the environment and improve the built-up environment.

4.2 Environmental Ratings or Environmental Design?

Although there is a considerable degree of commonality between BREEAM and LEED in terms of their aims, approach and structure, there are significant differences in terms of the scope of environmental issues addressed, metrics and performance standards. The LEED certification process is more expensive primarily because its business model is based on a monopoly of the supply of assessment [8].

Although studies indicate that BREEAM's scope is wider and its standards are overall more difficult to achieve than LEED's, they also demonstrate that direct comparison of rating classifications under each method is not straightforward. Meaningful comparisons of actual individual project ratings would require each project to be assessed under each method, which would be costly and unlikely to be undertaken [22].

The following charts show that both systems – and most of the other systems created – concern more about the calculation aspects including Energy consumption, Light calculations, CO2 emissions, and more, which could be abbreviated to cost. This simple analysis reveals that designing to achieve the assessments of these systems will lead to a building that consumes less energy and perform better than other buildings in the built-up Environment, but that will not deny the presence of the building in a Natural Environment. Rating systems cannot measure the real impact of the building itself and not its consumption – on nature.

5 Aspects of Environmental Design and Humanitarian Guidelines Considerations

From what the research goes through starting with the Environmental Approaches and understanding the terminology, definitions, and interest in each approach, and showing how each considered the environment in different ways but targeting the same aim. And with the analysis of the most widely known and used Environmental Rating Systems (Figure 7), the aspects of a humanitarian environment design became clear. Then these aspects were categorized, and each was discussed in the form of guidelines to be easily understood and applied in the architectural design. However, to be applied early in the design process, these aspects must be put in a form of a checklist (Table 1), so the architect could read and use it to assess the design even before it is constructed.

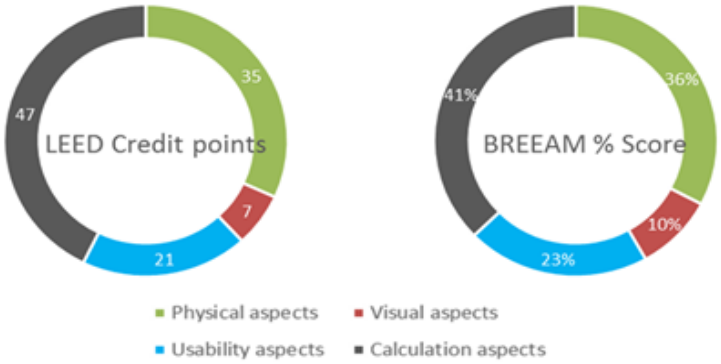


Figure 7: Different ratios achieved in both LEED and BREEAM according to Environmental Design aspects [4]

Table 1: Humanitarian Environment Design Aspects checklist (the researchers)

Physical Aspects	Visual Aspects	Usability Aspects	Calculation Aspects
Site conservation • Site selection • Construction site impacts • Enhancing site ecology • Heat isl& effect • Site relation with community • Site curing & restoration **Materials efficiency** • Raw & regional materials • Construction process materials • Maintainability & robustness • Renewable, reusable & recyclable **Water management** • Water efficiency • Wastewater systems • Landscape water use reduction **Waste & pollutants** • Construction waste • Operational waste & pollutants • Demolition pollution	**Form visual satisfaction** • Form visual & humanitarian. proportion • Visual effect on human psychologically • Spaces scaling **Respect of the surrounding** • Respecting natural environment • Respecting surrounding context **Colors** • Logical appropriate colors • Colors impact on productivity **Intuitive design**	**User comfort** • Thermal comfort • Visual comfort • Hygienic comfort • Human environmental behavior **Indoor environment quality & Ventilation** • Indoor air quality • Natural Ventilation • Humidity level **Low physical activity** **Balance creation & flexibility** **Culture & Traditions** • Respect regional Culture • Society Traditions **Time dimension** • Design through time • Durability & maintainability • Aesthetic of decay & time	**Energy consumption** • Emissions reduction • Consumption control • Alternative & onsite energy **Acoustics** • Acoustic levels in different spaces • Noise attenuation **Light & Shadows** • Artificial lighting consumption • Natural light efficiency • Level of darkness & shadows effects **Space & scale** **Cost**

The following diagram is necessary to understand the chart and how it helps the design process, giving it an assessment of the missing aspects and the area to be improved in the design whether it is the Environment, Society or Economy. This diagram combines all the Environmental Approaches diagrams that describe how each considers the three main axes of environmental design (Environment, Society and Economy) and shows the relation between one

another. In the diagram (Figure 8) each aspect is placed according to its direct relation to Environment, Society or Economy. The position of each aspect also shows its relation to one of the approaches from what have studied in the previous sector.

Figure 8: Humanitarian Environment Design Diagram (the researchers)

6 Analytical Study of Taziry Hotel, Siwa

Siwa Oasis lies in the north-west of Egypt; 30 km away in the south-west of Marsa Matrouh, in which the depression extends eastward from Umm Al Saghir village 120 km away and westward till Jaghbub Oasis 30 km away from the Egyptian Libyan border (Figure 8); Northing 255 and meridian 29 east [19]. It represents a depression of 77 km in which its width ranges between 5 km and 15 km and is 18 m below sea level (Figure 9 (a)). The oasis itself consists of a number of small, serried oases; Siwa is the most important oasis among them followed by Alagormy, Maraghy, Khamisa, Abu Shrouf, Korast and olives (Figure 9 (b)).

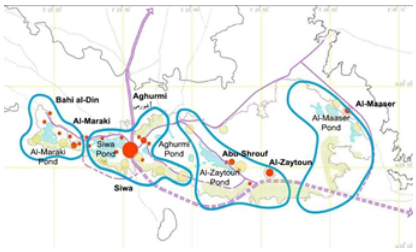
Laying out Siwa goes back to three centuries ago, in which it was divided into a number of stages: old village stage (Sidi Muslim), old town stage (Shali), descending from the mountain to the level land stage and physical extension stage (current Siwa). Construction was affected in each of the previous stages by different geographical, population and security factors, as far as the planning ideology was the same and derived from the ideology and identity of the Arabian Desert cities. It is shown in the presence of a main road for the city that ends directly in the arena, which includes the modernized mosque and most of the commercial, social and political activities.

Siwa represents one of the oldest societies in Egypt, in which its geographical location led to its relative isolation from the surrounding societies since ancient times, which had its effect in distinguishing Siwa's society with a strong identity that appears in all the elements of customs whether the patterns of housing, clothes, jewelries or tools and the products produced by the local society. As a result of the previous factors, Siwa became a tourism destination for those who are looking for unusual tourism and enjoying this different culture. Hence, we find a group of environmental hotels that represent Siwa's local mode and provide Siwa's food and art.

With respect to climate characteristics, the hot dry regional climate is generally characterized by its high temperature in summer (45^{o}C during the day) and biting cold in winter (10 ^{o}C during the night), in which the huge heat range between summer and winter appears. In addition, this region suffers from huge solar intensity on the horizontal facades and surfaces. Concerning the prevailing winds; it is northern and northeastern bearing dust and sand granules. In addition, it is characterized by rain rarity. For this reason, the climate is considered as a main element that specifies the design basics in desert regions, which will be discussed in the research through displaying the standards the environmental processors' basics in Siwa Oasis. (Figure 10.a) shows average temperatures during the year, whereas the highest temperatures that have been recorded in July is about 40 ^{o}C. (Figure 10.b) also shows the average wind speed, whereas the highest average wind speed that has been recorded during June which is 7 m/s and the annual average wind speed is 4 m/s. In (Figure 10.c), it is clear that favorable wind directions is northwest, in which the highest speed has been recorded by this direction [7].

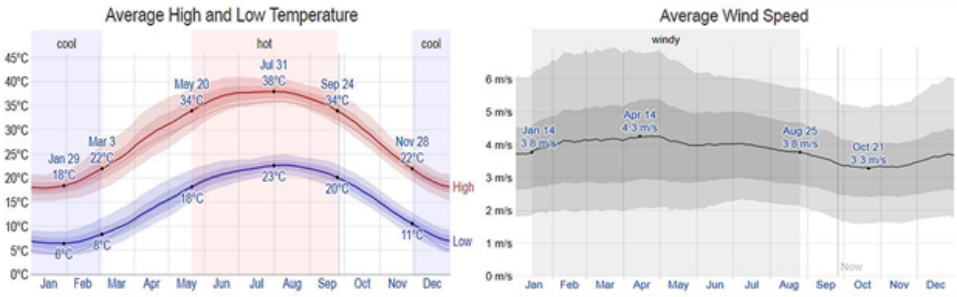
Taziry hotel lies 16 km away from the city center in Siwa- Marsa Matrouh, where it is located in front of the Adrar Amellal Mountain (Gaafar Mountain) and overviews the mid lake in Siwa. One can go there by bus from Cairo to Marsa Matrouh then moving to Siwa. The hotel execution continued from 2007 to 2009. In 2010, the teamwork

(a) Left: Siwa location in Egypt

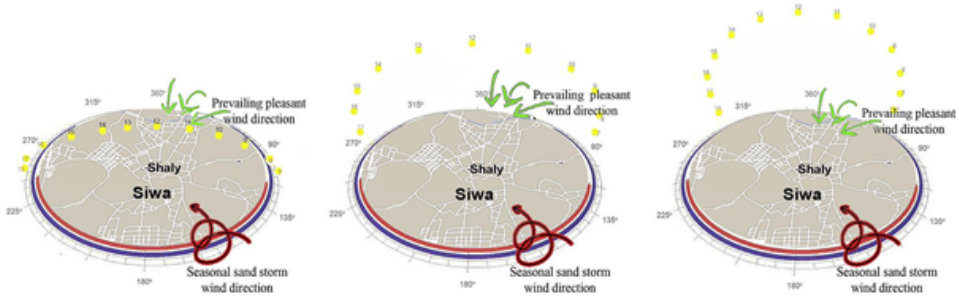


(b) Right: Small parts that form Siwa oasis

Figure 9



(a and b) Temperatures and wind in Siwa [2]



(c) Climate characteristics [2]

Figure 10

training started in the hotel and the work plans were set up. In 2012, the hotel was renewed, in which modern technologies were introduced to manage wastes, marketing local products with planting vegetables and fruits locally and set a program to develop the culture of the local society. The hotel consists of 30 accommodation units (cabins, room for two people, room for three people or royal suites). Accommodation units contain windows and terraces with a swimming pool view placed in the center of the village. (figure 11) The hotel also contains a group of services represented in a large library (in which it includes a large number of books and manuscripts, and it helps in learning about Siwa's unique crafts like poetry and calligraphy) and a special exhibition for arts and handicrafts, in addition to a marketplace (special for selling local products produced from Siwa), garages, tracks for walking, swimming pool, contrary to Azul restaurant (a specialized restaurant for Siwa's food), a café and a special farm for vegetables and fruits, especially for the hotel. (figure 12 (a, b and c))

6.1 Materials and Raw Resources

Available and suitable building materials for the environment in Siwa were used. They used blocks of Karshif (figure 13) which are tied with a kind of clay that acts as a mortar and is characterized by a high thermal resistance that reduces thermal transfer between the outer and inner environments; the palm splint, that results from the destructible

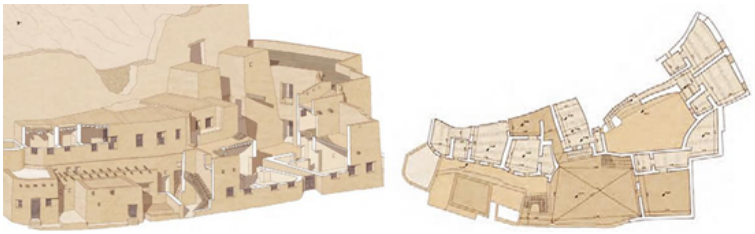


Figure 11: Environmental planning considerations in Taziry hotel

Figure 12: Left (a): Harmony between the colors of the facades and the surrounding environment.
Middle (b): Openings proportion in the facades.
Right (c): Using of local heritage in interior design.

sections in palm gardens, were used. These splints are cut, prepared and treated by salt to prevent being infected by mites which damage the ceilings. They are covered by a mortar clay, added to them olive leaves which act as an isolator. Holding walls system was used in constructing and with the same followed way in building used in Adrar Amellal village, in which the way of building allows the presence of cold air streams as a result of the existence of yards and alcoves; and the way of constructing windows. The village's site is 18 m below sea level which decreases the temperature. Karshif blocks and palm splints were used in building, since all of them are environmentally friendly local materials. Moreover, olive tree woods were used in making windows and palm leaf stalk was used in making furniture like beds, chairs and tables. Handmade textiles and local carpets are made use of also, since they give the place a local identity. All used building materials in the hotel can be easily maintained in case of being damaged. Remnants of buildings that are demolished, can be recycled to make new building materials from them [17].

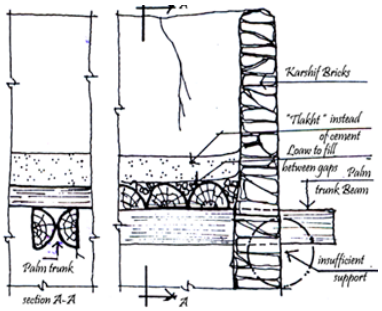


Figure 13: Section showing the palm tree trunks used for roof construction.

6.2 Site Conservation and Ecosystem

All agriculture on the land is organic and free of chemicals. Minimal changes are made in the natural landscape of the area and furthermore, they do not use chemical fertilizers of any kind on property. The design avoids interference with the natural habitats of the area in both the construction and operation of the eco-lodge.

6.3 Light, Energy Consumption and Noise Reduction

Taziry hotel is not operated with electricity. Lamps and candles are used for lighting and on cold nights, coal-filled braziers are used for heating. Designed to operate as a low-profile structure with no lighting and producing very

limited noise. The hotel initiated a bio-energy pilot project to promote awareness of reducing energy consumption and to promote the adoption of organic agriculture through the use of organic fertilizer produced by the bio-digester. The goal of the hotel's Renewable Energy Initiative was to provide bio-gas technology in selected villages throughout the Oasis. Organic raw elements such as animal waste are treated to produce biogas, as well as organic fertilizers. The Initiative's aim is the replacement of butane fuel that is imported from Marsa Matrouh, a town that is a three-hour drive away from Siwa. High-quality organic fertilizer is produced as a byproduct of this process, which further contributes to increasing household incomes.

6.4 Indoor Environment and User comfort

Kershef as a material maintains indoor temperatures at moderate levels throughout the day and merges well with the socio-cultural and environmental context of Siwa. Natural ventilation systems that rely on the strategic positioning of doors and windows have been adopted, eliminating the need for air conditioning. Long-established Siwan dwellings are renovated to put forward a real "desert fashion" comfort. Siwans came to appreciate their traditional ways of building that they had previously thought were outdated and unnecessarily expensive. As a result, Siwans now proudly use more Kershef than concrete in their buildings.

6.5 Wastewater Reduction and Reuse

Contemporary plumbing is used throughout. Wastewater is first settled in self-contained sedimentation tanks, allowing the supernatant to flow through perforated pipes into a sealed wetland where indigenous papyrus plants are grown to complete the biodegradation and waste reduction process.

6.6 Case Study Analysis with the Humanitarian Environment Design Assessment

From the analysis of the case study and what Taziry hotel has done saving nature and rebirth culture, the study shows on the checklist (Table 2) and the chart diagram (Figure 14) which aspects are applied.

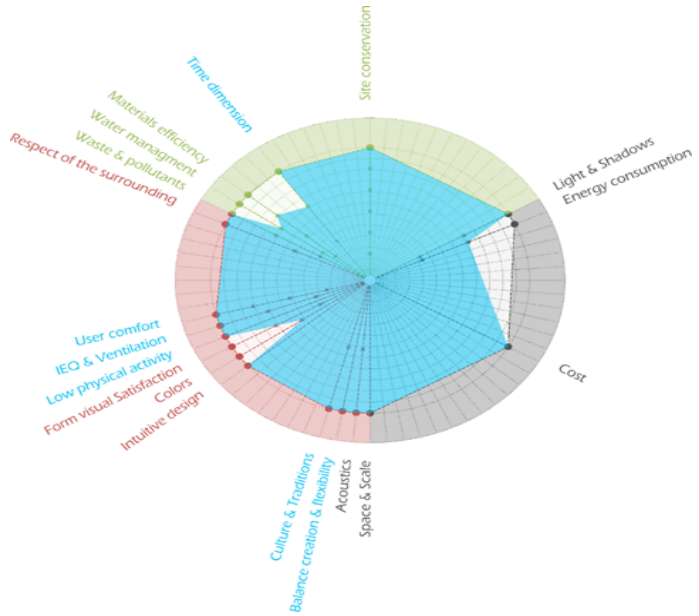


Figure 14: Taziry hotel Aspects diagram chart (the researchers)

6.7 Outcomes from the case study analysis

From using the checklist with the case study there are few points became clear: (a) Some of the aspects could not be achieved anymore as it should have been considered before construction and some even before design, (b) The diagram shows the areas that could be improved or that is missing and could affect the environment, and (c) One of the things that drew the attention, is that there are some aspects that are usually neglected in most buildings are

Table 2: Taziry Hotel's aspects checklist (the researchers)

Aspect Category	Applied	Applicable	Non
Physical Aspects			
Site conservation	●	○	○
• Site selection	●	○	○
• Construction site impacts	●	○	○
• Enhancing site ecology	●	○	○
• Heat island effect	●	○	○
• Site relation with community	●	○	○
• Site curing and restoration	●	○	○
Materials efficiency	○	○	○
• Raw and regional materials	●	○	○
• Construction process materials	●	○	○
• Maintainability and robustness	○	●	○
• Renewability, reusability and recyclability	●	○	○
Water management	○	○	○
• Water efficiency	●	○	○
• Wastewater systems	●	○	○
• Landscape water use reduction	○	●	○
Waste and pollutants	●	○	○
• Construction waste	●	○	○
• Operational waste and pollutants	●	○	○
• Demolition pollution	●	○	○
Visual Aspects			
Form visual satisfaction			
• Form visual and humanitarian proportion	○	○	●
• Visual effect on human psychologically	●	○	○
• Spaces scaling	●	○	○
Respect of the surrounding	●	○	○
• Respecting natural environment	●	○	○
• Respecting surrounding context	●	○	○
Colors	○	○	○
• Logical appropriate colors	○	●	○
• Colors impact on productivity	●	○	○
Intuitive design	●	○	○
Usability Aspects			
User comfort	●	○	○
• Thermal comfort	●	○	○
• Visual comfort	●	○	○
• Hygienic comfort	●	○	○
• Human environmental behavior	●	○	○
Indoor environment quality and Ventilation	○	○	○
• Indoor air quality	●	○	○
• Natural Ventilation	●	○	○
• Humidity level	○	●	○
Low physical activity	●	○	○
Balance creation and flexibility	●	○	○
Culture and Traditions	●	○	○
• Respect regional Culture	●	○	○
• Society Traditions	●	○	○
Time dimension	○	○	○
• Design through time	●	○	○
• Durability and maintainability	○	●	○
• Aesthetic of decay and time	●	○	○
Calculation Aspects			
Energy consumption	○	○	○
• Emissions reduction	●	○	○
• Consumption control	○	●	○
• Alternative and onsite energy	●	○	○
Acoustics	●	○	○
• Acoustic levels in different spaces	●	○	○
• Noise attenuation	●	○	○
Light and Shadows	●	○	○
• Artificial lighting consumption	●	○	○
• Natural light efficiency	●	○	○
• Level of darkness and shadows effects	●	○	○
Space and scale	●	○	○
Cost	●	○	○

highly considered in this example like: Time dimension aspect is covered especially the aesthetic of decay except the durability aspect, which is opposite than regular designs. Furthermore, user comfort aspects are also covered from all its dimensions, which proves that design could change the occupants' environmental behavior. In addition, the way this example uses energy consumption is different. The designer studied the purpose of the buildings and user requirements, which helps the decision to cut electricity and communication services in most places in the village.

7 Conclusion

Points concluded that could be considered as answers to the study questions: The different Environmental Approaches have many terminologies that have the same aim and target towards the Environmental design. Each terminology has its definition and its own Environmental consideration. The need for finding long-term solutions that warrant continuing human existence and well-being is far more compelling than that of finding proper terminology to describe human needs. In this respect, the debate on the terms "green," "sustainable," or "ecological" architecture is not terribly important. Environmental Architecture mains to combines all these in just one aim. Any rating system is used for classification and determining the problems and suggesting solutions. So, it cannot be used as a guideline to design especially humanitarian design. After all the guidelines and design methodology shown in the study and even with the aspects' checklist and chart, there are some points as a conclusion for this research also should be considered

to reach Humanitarian Environment. Some of the conclusion points are as followings:

Fewer types of materials make building more recyclable and could save a lot of energy. The more purpose the material was the more it helps to decrease the building footprint and makes it more nature-like. Inner space and dimensions are more important than the exterior and façades and have a bigger impact on the environment. Improve life quality through improving the relationship between nature and the building. Vegetation and trees are key for reducing heat islands which reflects in decreasing temperature and achieving more thermal comfort. Respecting the surrounding in the design could help the building to dissolve visually in nature. Intuitive design makes the building more visually satisfying and more usable. Culture and Traditions are very important to be considered for a better community and a sustainable society. Alternative and renewable energy, besides onsite energy, is just a monetary term not difficult to consider, but it is all about cost. From research and studies, alternative energy is a must now and more the in future, as it depends on fossil fuels input. No alternative energy process can reproduce itself. Renewable materials are better than finite ones, so short life cycle materials are more environmental and could be reproduced or replanted. Light is a key factor between building visuals and energy consumption; besides it should be studied in the design with the matter of darkness. The building is healthier with proper darkness. Cost should not take major attention when considering environmental design, but also if sustainability is done right, it costs less. Human is the main user of the resources on earth, but he is not alone. To have a better life, the ecosystem must sustain its health and well-being. Respecting the aspects of the Humanitarian Environment could bring back the design to what was called an architectural trend as it usually should have been. It was neglected in the last century in the name of universal design and environmental architecture that deeply never respected nature. Some aspects have more weight than others and that could be clear in the analyzed diagram more than any checklist or consideration points [10].

8 Recommendations

Environmental Architecture is the recommended step for Humanitarian Environment, Environmental Architecture is a combination of Vernacular, Sustainable, Green and Ecological Architecture, as each has points of strength considering the environment. Localization is a recommended term that must be considered in nearly every aspect (materials, design visuals, culture, onsite energy and more).

Physical aspects recommendations:

It is recommended to consider the guidelines before the design takes a construction process, as some of its aspects cannot be applied after the building is constructed. Humans are recommended to be the core of the design in a way to control everything to serve their needs. Humans must be under focus as one of the resources in the ecosystem.

Visual aspects recommendations:

Architecture is an art, which above all others, combines expression, technology, and the satisfaction of human needs, so it is recommended not to forget the first part, it is an Art. Visual aspect mentioned in the study are recommended for environmental architecture as well as the other aspects.

Usability aspects recommendations:

It is recommended to always develop usability aspects even after the building is constructed and operated. Most of these aspects could be always improved over time and technology. Time dimensions are mainly respected in durability terms, but it is recommended to consider its aesthetics as its monetary side.

Calculation aspects recommendations:

Most Calculation aspects of the design look to them as monetary aspects, while in fact it is more than that according to the Environment vision, The checklist and diagram chart is just experimental to facilitate assessing the design of a Humanitarian Environment, so it is recommended not to take it as a rating system of any kind or to be compared with any.

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