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Learning from Casbah of Algiers for more Sustainable Environment

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Abstract

Algeria as one of the Islamic biggest countries in Africa has three different climate zones: Mediterranean, semi-arid and arid; in three different regions: Northern, Central and Southern. Each region developed its typical vernacular tradition; one that responded to climate, topography and life style. Following modernization, westernization of the country since hundreds of years, traditional building practices started to be abandoned; leading to a radical transformation of the built environment. The current situation of the built environment depends only on reinforced concrete construction that does not respond to country's regional variety and as it disregards nature, climate and lifestyle of many. This paper explores the vernacular building types from one geographical region of the country; Casbah (Mediterranean region of Algeria), to understand its architectural design methods; its climate and site responses; its fit with the people's lifestyle. The aim is to be able to evaluate the degree of sustainable practices achieved in that kind of traditional housing building. This will be concluded first by knowing the architectural design principles which should be in a building to call it sustainable. Analyzing the different sustainable housing features of Casbah's house have been explored. This study helps us to understand more about the Architectural heritage of Algeria, and gives us a clear knowledge on traditional houses design principles in the Mediterranean region according to the climate, lifestyle, and local available materials, and how those architectural methods belong and valuable to sustainable issues. This might be useful for designers and architects to use those sustainable strategies in their future building projects, and change the design approach to a better one which is more sustainable, as well as restoring the heritage of the country which should not have to be forgotten, in order to be known for future generations.

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1. Introduction

Sustainability has become an important issue which needs to be taken into consideration in many subjects, mainly in architecture. This is mainly because of the following reasons: First is the increasing demand for energy consumption in today's building sectors, and second pertains to the increasing world population coincided with the pressing need to provide more housing buildings. The role of architects and designers should come into play here in order to find suggestions and long-term solutions to solve this problem in a way that does not jeopardize the human environment but rather contribute to its protection over time. The need to understand and benefit from both vernacular and sustainable architecture is unequivocal today. This premise forms the backbone of this study which primarily investigates the linkage between sustainable architecture and vernacular architecture in Algeria, which may in turn provide architects with insights about the possible plausible strategies out there in the building sectors. The French colonization, started in 1830, brought about a wave of modernization and westernization of architecture in Algeria, at least when it comes to the gradual shift away from the traditional building practices. This has led to a radical transformation of the built environment in the country. The vernacular architecture has since started to vanish, although its cultural impact remains and its economic benefits are still valid today [1]. Sustainable architecture is understudied in many developing countries like Algeria. This lack of knowledge may hinder any form of progress in facing the challenges to meet increasing needs of the populations while protecting the environment. Hence, using sustainable methods in architecture has become a must. Vernacular architecture around the world is impressively rich with ingenious techniques early dwellers used to protect themselves from the diverse weather conditions they were subject to, great example of well-thought vernacular architecture is located in the Mediterranean region of Algeria called Casbah [2]. This climate region is probably a good example of extreme weather conditions and studying the architectural techniques that allows the creation of independent microclimates is worth exploring. Developing design guides and approaches based on lessons from the traditional architecture is important to ensure sustained livelihoods of the inhabitants in these area.

1.1. Literature Review

1.1.1. Vernacular Approach

The term 'Vernacular' derived from the Latin expression 'verna' or 'vernaculus' which has three different meanings according to Aurelio Dictionary: 1. Particular from the region in which it exists. 2. Pure language without foreignness. 3. The idiom of a country. So the original of the term 'Vernacular' is always related to the native language of a specific country or region. So many writers have defined the term 'Vernacular' differently, according to the design historian *Darron Dean*, the term 'Vernacular' was first applied to design by *George Gilbert Scott* in *Domestic and Secular Architecture*, published in London 1857, he observes that the first study on Vernacular Design were in the field of architecture. He says that the term of 'popular' or 'classic' can be used to describe what we call 'Vernacular'. *Cardoso* emphasize that what we call 'Vernacular Design' is related to the production of the popular culture. *Lupton* said that the word 'Vernacular' shouldn't be identified as something small, marginal or non-professional, but a vast territory with infinity of visual languages resulting in different groups of different idioms. *Dones* defines the term 'Vernacular' as the existence of local visual languages and idioms that refer to different cultures [3]. The term 'Vernacular' varies from culture to culture, or from country to country. Today, there are so many objectives which characterize the word 'Vernacular': informal, spontaneous, ingenious, authentic, genuine, popular, rustic, artisanal, non-academic, non-official, anonymous, and local, among others [4]. The meaning of 'Vernacular' term varies according to the context of its use, it has been used by architects, historians, archaeologists, folklorists and others, but it has one meaning 'Native'. *Bernard Rudofsky* is the first person who used the term 'Vernacular' in an architectural context. Since this emergence of the term, 'Vernacular' considerations have played an increasing part in the architectural design.

Vernacular buildings are human constructs that are the results of relationships among ecological, economic, material, and social'. Vernacular Architecture combines the local climate conditions, available local materials, simple construction techniques and strategies, the living style, the traditions, the socioeconomic conditions of a

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