



4th International Conference on Energy and Environment Research, ICEER 2017, 17-20 July
2017, Porto, Portugal

The Saharan Setting facing future climate

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Abstract

As we know Climate change is now a reality, a reality that threatens human settlements and natural resources. This dangerous phenomenon has a direct impact on many aspects, but most importantly the environmental aspect, which can be critical for all the living being. In contrast not all the regions undergo the same magnitude. In this case, what about the Saharan contexts where excessive temperatures, violent sands, catastrophic and unpredictable winds, make this environment already hostile and difficult to live? Time flies and the price of inaction can be expensive.

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Peer-review under responsibility of the scientific committee of the 4th International Conference on Energy and Environment Research.

Keywords: Climate Change, Hostile Environment, Saharan settlement, Vernacular Architecture

1. Introduction

The climate knows, and will continue to know of the peremptory as upheavals attest to these scientific results of the GIEC (Intergovernmental Group of experts on climate change). The extra frequency equally to the extent of the extreme weather events (whose: waves of heavy heat, wind storms, floods,...,etc) do threaten human settlements and natural resources; threatening the safety and the health of men, which consist in human life and it's development, including the economic stability. If the damage climates that undergo the city, the built environment, and people are increasingly expanding, what about Saharans contexts where excessive temperatures, violent sands and floods, catastrophic and unpredictable winds make this environment already hostile, difficult to live?

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The heats extend from June to September, between 35 ° and 50 °. Continental temperatures are very cold in winter and hot in summer, where we can distinguish only two seasons. The winds has such an importance, since they can either generate rains or cause heat to dry out the soil and vegetation. The dominant winds, evolve from the North (in summer) and Southwest (in the spring). The sand winds last for many days, in March and August. As to rainfall, the durations of rainy phases are enough shortened from November to March. The average rainfall is between 100 and 150 mm/year, by strong irregularities from one year to another also in the same year. If in such a context, extreme temperatures can cause bothersome and sometimes deadly effects in men, it is necessary to ensure thermal comfort to ensure the occupation similarly to the use of the spaces built and/or free. No doubt, in the absence of a United and thoughtful action, the changing process, possibly due to human activities, may become irreversible and difficult to stop. *«Running out of time and the cost of inaction is growing»*. This is why the mitigation or adaptation is needed as a response to this obvious reality, to the challenges posed by climate change. From the House to the city (through all scales of the built environment), architects in the heart of the interventions, scientists, and professionals,...they all have the responsibility to agree reflections on human wellbeing, and to allocate a development adapted to the culture and the local context aware solutions. “Architecture cannot save the world», said Alvar Aalto, but “it can set a good example.”

2. Saharan setting, and the test of the climate challenges

Sahara, this vast desert territory became important since men settled on it despite of an unfavorable soil together with arid climate. The adaptation to the severe climate change actually defines this land. Marc Côte (1998) said: *« There is a unique category, referring firstly to the arid climate, on the other hand to the landlocked within empty expanses»*. Despite of these constraints, sites and settlements exist, where hatches life.

«The danger of thirst, always present in mind, developed in the Saharan diggers and hydraulic engineering knowledge. We've imagined that the Sahara is abandoned to itself, wells would be badly required, their very small number compared to the possibilities of the country, the less European intervention could expand the list and increase throughput. It's a free native contempt. The only aspect of the wells denies this legend ... » (Gautier. E.F, 1922). Ksourien space (see Fig 1), this precious legacy, resists to the time's tests, and often the inaction of the man. However, traditional settlement has kept its diverse and significant conceptual splendor and has been able to stand up to the human action vagaries and climate in a temporality qualified by the transformation and the quick change.

In order to understand the relationship between these constraints and the form of construction, several reflections on traditional architecture were initiated by developing diversified way the technical aspects, economic climate and anthropological. *«We should be proud of having inherited all the past had better and more noble. Do not defile his heritage by multiplying the past mistakes»* (Gandhi).

3. Strong points of the human establishment in the sahara facing varied forces

South of the Algeria is a vast region as rough as fragile, as hostile as attractive, where a significant number of human settlements (Ksar & palms) are formed over time. In this geographical area, three fundamental elements interact to produce habitat, Palm Grove and the oasis. It is about human, water and Palm. Each oasis constitutes a cultural area, in which we can find the product of a collective experience, characterized by its codifications, its solutions and its way of doing. The oasis is a settlement around water generator of planting, see Fig 2. The oasis is an artificial ecosystem founded and maintained by humans through careful management of natural resources on three strata: the herbaceous stratum (gardens), the shrubby stratum (fruit trees) and the trees stratum (palms). The environment submitted to the extreme aridity requires the movement of surface water as an essential condition for the maintenance of a plant density important.

Ksar, this Saharan settlement found in the vastness of the desert has a various types of morphological site factors, cultural factors, and climatic factors. The form, in turn, is modified by the weather conditions. To do this, those Saharan genius builders respected the site's structure, where the persistence of their property for long periods.

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