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## Comparative Analysis of Climate and Morphology between Traditional Patterns and Modern Approaches: The Case of Bushehr's Traditional context

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### Abstract

There is no dispute over the importance of sustainability. We know already that our cities, the containers of our behaviors, have to use resources considerably in respect with their ecology. Yet, as our behaviors' technological context advances, we have taken successive step away from our sustainable design solutions. Eventually we are going through over-decades-accumulated consequences of our nature-striking industrial and consumption technics. Moreover, studied climate changes projects an unacceptable outlook of future unless we modify our today technology consumption in the first step, and direct our technics toward procedures that has each ecosystem energy pathways at the root, literally toward sustainability. In this study we seek if presumably there exist threads of sustainable methods we used in past (e.g. organic production methods that has closer forms to natural ecosystems). As the ultimate goal we aim to develop them to scales or intensities that responds to today world's rates leading to take a step ahead in modern responsive urban design solutions.

Traditional context of Bushehr a city located in the south of Iran is a case study with significant advantages, one due to using traditional solutions to wide range of severe climate conditions and the other, it has an extremely unexploited traditional pattern as the date study performed. This study derives the common patterns of Bushehr's urban design from the large-scale to the small-scale, and proceeds to analysis and evaluation of these patterns.

Reviewing the traditional patterns gives us a benevolent handbook of experimented solutions used in the past. Also there is a gradually emerging need for primitive or iconic design objects to represent originality of the context. Here there are problems of this subjected discussed in the study.

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## 1. Introduction

Earth's human-made climate change has raised more and more discussions among representatives of the building industry in the past decade [1, 2 and 3] and a new sensibility within practitioners of the building industry is emerged. Researchers has demonstrated that this sensibility tends to believe that it is necessary to adapt with nature and develop new ways of addressing climate change [4].

Meanwhile, traditional patterns are inspiring the new generation of Iranian urban designers to design integrated urban environments more sustainable [5]. They argue that these traditional patterns are useful in learning how to deal with the local climatic conditions. Many of the long-standing Iranian mosques and bazaars are still providing conditions of comfort for their users without any active technology [6, 7]. In the past due to technological incapability for producing high power sources, and today due to decreasing consumption of energy (and undesired effects and products brought), there is a remarkable tendency to create solutions based on maximized use of energy pathways available in ecosystem of the regions. If we are to deploy the experiences of bygone generations in devising these strategies, we must consider the traditional urban patterns treasurable records for designers, with the potential of educating them in the ways of sustainability. Also, by comparing the energy demand between contemporary and traditional cities, the value of researching their urban patterns can be understood.

With this aim in mind, this case study investigates the traditional context of Bushehr, a city in the south of Iran. Bushehr's architectural and urban design is held in high regard, especially because of its solutions in the face of severe atmospheric conditions, and its traditional context is quite intact.

According to many space syntax analysis, a correlation exists between geographical location and climate and the natural urban form, the morphology of cities and their elements and components. The present paper's objective is to evaluate climatic conditions and needs of the city, analyze the urban structure and context, make a greater rule to reach in practical details of solutions and provide answers for the following questions:

- What climatic conditions has influenced the traditional context in the city of Bushehr?
- What passive, climatic techniques and strategies have been deployed in the structure of traditional cities?
- How successful were traditional cities in using potentials of the micro-climate to offer conditions of comfort?

## 2. Approach

Through empirical understanding of conditions for comfort and quantitative analysis in the micro-climates of Bushehr, the present study is set to divulge the correlation between climate and how the traditional context is formed. First, it investigates the influential factors in the formation of Bushehr's context. Next, based on the morphological analysis of the city, the study investigates pathways and their details, plazas, buildings and their adaptation with Bushehr's climate.

Since climatic conditions has led to many of the techniques and strategies in the local architectural and urban structures, accurate understanding of climatic needs can offer guidance to better understanding of their systematic formation. Thus, the present study uses a descriptive-analytic approach to explore various climatic factors, to uncover the critical needs of the urban context in providing the conditions of comfort via analytic diagrams, and to assess local potentials and limits. Therefore, the passive strategies concerning the explored needs can be perceptible.

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