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Climate, desertification and sustainability in the Sahara desert

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The transport and deposition of sand by wind are important factors which contribute to desertification process in the Sahara desert. These regions contain more than 350 cities (Razavi, 1989). Sand encroachment and deposition in built environments cause a number of problems such as erosion of building materials, and substantial coverage and often complete burial of urban features such as buildings, transport facilities and roads, which then need continuous clearance and incur continuing costs. In addition, the coverage of vegetation and agricultural lands has led residents in some areas to abandon their houses or even entire settlements. This presents a complex problem to the architects as it demands attention not only to certain aspects of building design but also planning the settlement as a whole. However, there is evidence that specific layouts and building forms of some vernacular settlements in areas of active sand dunes, such as the region of Souf in the Algerian Sahara, have survived and mitigated the impact of sand encroachment and deposition. The destructive effects of sand deposition are more pronounced around contemporarily designed housing projects, which led many of them to be abandoned. The aims of this research were to investigate the relationship between dwelling forms and the sand depositional geometrical patterns formed around them, in particular around those located in areas of active sand dunes in hot arid lands, and to propose some possible design indicators for building forms which may mitigate the undesirable features of sand deposition around them.

Biography

Mohammed Sherzad is a Faculty Member at Department of Architectural Engineering, Ajman University. He is also Director of University Engineering Consultant Office. His reach interests are architecture in hot climate, sustainability and environmental behavior.

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