

Smart Architecture and Sustainability in the Built Environment for the Hatay Refugee Camp

Authors : Ali Mohammed Ali Lmbash

Abstract : The global refugee crisis points to the vital need for sustainable and resistant solutions to different kinds of problems for displaced persons all over the world. Among the myriads of sustainable concerns, however, there are diverse considerations including energy consumption, waste management, water access, and resiliency of structures. Our research aims to develop distinct ideas for sustainable architecture given the exigent problems in disaster-threatened areas starting with the Hatay Refugee camp in Turkey where the majority of the camp dwellers are Syrian refugees. Commencing community-based participatory research which focuses on the socio-environmental issues of displaced populations, this study will apply two approaches with a specific focus on the Hatay region. The initial experiment uses Richter's predictive model and simulations to forecast earthquake outcomes in refugee campers. The result could be useful in implementing architectural design tactics that enhance structural reliability and ensure the security and safety of shelters through earthquakes. In the second experiment a model is generated which helps us in predicting the quality of the existing water sources and since we understand how greatly water is vital for the well-being of humans, we do it. This research aims to enable camp administrators to employ forward-looking practices while managing water resources and thus minimizing health risks as well as building resilience of the refugees in the Hatay area. On the other side, this research assesses other sustainability problems of Hatay Refugee Camp as well. As energy consumption becomes the major issue, housing developers are required to consider energy-efficient designs as well as feasible integration of renewable energy technologies to minimize the environmental impact and improve the long-term sustainability of housing projects. Waste management is given special attention in this case by imposing recycling initiatives and waste reduction measures to reduce the pace of environmental degradation in the camp's land area. As well, study gives an insight into the social and economic reality of the camp, investigating the contribution of initiatives such as urban agriculture or vocational training to the enhancement of livelihood and community empowerment. In a similar fashion, this study combines the latest research with practical experience in order to contribute to the continuing discussion on sustainable architecture during disaster relief, providing recommendations and info that can be adapted on every scale worldwide. Through collaborative efforts and a dedicated sustainability approach, we can jointly get to the root of the cause and work towards a far more robust and equitable society.

Keywords : smart architecture, Hatay Camp, sustainability, machine learning.

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