

## Heat Stress Adaptive Urban Design Intervention for Planned Residential Areas of Khulna City: Case Study of Sonadanga

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**Abstract :** World is now experiencing the consequences of climate change such as increased heat stress due to high temperature rise. In the context of changing climate, this study intends to find out the planning interventions necessary to adapt to the current heat stress in the planned residential areas of Khulna city. To carry out the study Sonadanga residential area (phase I) of Khulna city has been taken as the study site. This residential neighbourhood covering an area of 30 acres has 206 residential plots. The study area comprises twelve access roads, one park, one playfield, one water body and two street furniture's. This study conducts visual analysis covering green, open space, water body, footpath, drainage and street trees and furniture and questionnaire survey deals with socio-economic, housing tenancy, experience of heat stress and urban design interventions. It finds that the current state that accelerates the heat stress condition such as lack of street trees and inadequate shading, maximum uses are not within ten minutes walking distance, no footpath for the pedestrians and lack of well-maintained street furniture. It proposes that to adapt to the heat stress pedestrian facilities, buffer sidewalk with landscaping, street trees and open spaces, soft scape, natural and man-made water bodies, green roofing could be effective urban design interventions. There are evidences of limited number of heat stress adaptive planned residential area. Since current sub-division planning practice focuses on rigid land use allocation, it partly addresses the climatic concerns through creating open space and street trees. To better respond to adapt to the heat stress, urban design considerations in the context of sub-division practice would bring more benefits.

**Keywords :** climate change, urban design, adaptation, heat stress, water-logging

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