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Understanding the Reasons for Flooding in Chennai and Strategies for Making It Flood Resilient

Authors : Nivedhitha Venkatakrishnan

Abstract : Flooding in urban areas in India has become a usual ritual phenomenon and a nightmare to most cities, which is a consequence of man-made disruption resulting in disaster. The City planning in India falls short of withstanding hydro generated disasters. This has become a barrier and challenge in the process of development put forth by urbanization, high population density, expanding informal settlements, environment degradation from uncollected and untreated waste that flows into natural drains and water bodies, this has disrupted the natural mechanism of hazard protection such as drainage channels, wetlands and floodplains. The magnitude and the impact of the mishap was high because of the failure of development policies, strategies, plans that the city had adopted. In the current scenario, cities are becoming the home for future, with economic diversification bringing in more investment into cities especially in domains of Urban infrastructure, planning and design. The uncertainty of the Urban futures in these low elevated coastal zones faces an unprecedented risk and threat. The study on focuses on three major pillars of resilience such as Recover, Resist and Restore. This process of getting ready to handle the situation bridges the gap between disaster response management and risk reduction requires a shift in paradigm. The study involved a qualitative research and a system design approach (framework). The initial stages involved mapping out of the urban water morphology with respect to the spatial growth gave an insight of the water bodies that have gone missing over the years during the process of urbanization. The major finding of the study was missing links between traditional water harvesting network was a major reason resulting in a manmade disaster. The research conceptualized the ideology of a sponge city framework which would guide the growth through institutional frameworks at different levels. The next stage was on understanding the implementation process at various stage to ensure the shift in paradigm. Demonstration of the concepts at a neighborhood level where, how, what are the functions and benefits of each component. Quantifying the design decision with rainwater harvest, surface runoff and how much water is collected and how it could be collected, stored and reused. The study came with further recommendation for Water Mitigation Spaces that will revive the traditional harvesting network.

Keywords : flooding, man made disaster, resilient city, traditional harvesting network, waterbodies
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