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Flood Mitigation by Using Hydraulic and Hydrologic Modelling

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Abstract

India's metropolitan regions are quickly expanding, resulting in significant land-use changes. This results in altered runoff patterns with high peak flows and the potential for flash floods. Flooding is the most expensive natural disaster in terms of human casualties and property damage. A study of the many features of flooding in a complex metropolitan context has been attempted. The study looked at traditional flood mitigation measures as well as sustainable approaches to dealing with runoff in metropolitan settings. There has also been research on resilient measures. For this thesis, the Mithi River sub-catchment in Mumbai is considered. The catchment is separated into several basins, which are then modeled using SWMM software.

For this study, the Mithi River sub-catchment in Mumbai is considered. The catchment is separated into several basins, each of which is modelled using SWMM software depending on varied land uses. A variety of features in the catchment were investigated, and their feasibility for low-impact development strategies was determined. Within the catchment, solutions for source control, site control, and regional control are identified. The impact of the proposed systems on peak flow was assessed at several places throughout the catchment. The standard treatments were discovered to be extremely pricey. Rainwater harvesting systems looked to be the most promising LID approach, with the potential for reuse and runoff control. to get to a higher level.

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