

Storm-water Management for Greenfield Area Using Low Impact Development Concept for Town Planning Scheme Mechanism

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Abstract : Increasing urbanization leads to a concrete forest. The effects of new development practices occur in the natural hydrologic cycle. Here the concerns have been raised about the groundwater recharge in sufficient quantity. With further development, porous surfaces reduce rapidly. A city like Ahmedabad, with a non-perennial river, is 100% dependent on groundwater. The Ahmedabad city receives its domestic use water from the Narmada river, located about 200 km away. The expenses to bring water is much higher. Ahmedabad city receives annually 800 mm rainfall, and mostly this water increases the local level waterlogging problems; after that, water goes to the Sabarmati river and merges into the sea. The existing developed area of Ahmedabad city is very dense, and does not offer many chances to change the built form and increase porous surfaces to absorb storm-water. Therefore, there is a need to plan upcoming areas with more effective solutions to manage storm-water. This paper is focusing on the management of stormwater for new development by retaining natural hydrology. The Low Impact Development (LID) concept is used to manage storm-water efficiently. Ahmedabad city has a tool called the "Town Planning Scheme," which helps the local body drive new development by land pooling mechanism. This paper gives a detailed analysis of the selected area (proposed Town Planning Scheme area by the local authority) in Ahmedabad. Here the development control regulations for individual developers and some physical elements for public places are presented to manage storm-water. There is a different solution for the Town Planning scheme than that of the conventional way. A local authority can use it for any area, but it can be site-specific. In the end, there are benefits to locals with some financial analysis and comparisons.

Keywords : water management, green field development, low impact development, town planning scheme

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