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A review on Urban Flood management emphasizing "Low Impact Development" Methods

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Abstract

Nowadays, urbanization expansion has caused the transformation of the permeable lands to impermeable surfaces and the runoffs resulting from rainfalls in large cities leads to the flooding and disordering of traffic inside the cities. The modern approach in urban stormwater management is suggested relying on methods most compliant to the surface water natural cycle processes that are so-called as low impact development methods. In the past of the management approaches, the urban stormwater controlling measures of many of the countries were traditionally directed at collecting, transmitting and disposing surface waters. In line with this, many costs were made for the management of the urban stormwater based on traditional methods via creating various kinds of structures serving the collection and disposing of the flood and the low impact development methods were not so much attended to. The low impact development (LID) is one method of urban runoff management for preserving and restoring the natural hydrological conditions of a watershed area to its prior conditions before development and improvement of the environment therein. In this method, the natural and artificial characteristics and reliefs situated in the basin level are utilized to perform interventions parallel to the reduction of the peak discharge and volume of the runoff, increase in water infiltration and feed into the underground aquifers and, resultantly, reduction of surface water and groundwater contamination. In case of the actualization of the considered objectives in low impact development, contamination reduction and feed increase into the underground aquifers are attained plus enhancement of the runoff quality. The present study tries introducing low impact development methods and expressing the implemented methods and position of it in urban stormwater management.

Key words: Urban Flood, Urban development, Low impact development