

Adaptation to rainfall intensity variation considering climate change for the planning & design of urban stormwater drainage infrastructure

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Adaptation of Rainfall Intensity Variation Considering Climate Change is one of the most parameter need to be considered by Urban planners, policy makers and design engineers of major drainage infrastructure, because of problems many cities are facing today. The intensification and dramatic change of the hydrological cycle, for example, more intense rainfall and extreme weather events (most recent Hurricane Irene 2011), such kind of events can cause flooding of vast urban areas and basements, overflowing sewers and stormwater drainage infrastructure, in addition of these the discharge capacities of most drainage infrastructure are also reduce in the system due to increased amount of infiltration into the pipes and under sized drainage networks. The cumulative effects of gradual changes in rainfall intensities due to climate change may alter the magnitude and frequency of peak flows over the term of service of urban stormwater networks. Potential future changes in rainfall intensity are likely to modify the service level of urban drainage networks, with increased intensity of precipitation likely resulted in more frequent flooding from storms and additional costs of culverts and other drainage infrastructure. The expected effect of gradual changes in rainfall intensities requires a change in the approach and practices used to plan and design different urban drainage infrastructure networks, therefore planning and design of new urban infrastructure must incorporate or Adapt the gradual changes in rainfall intensities due to Climate Change, and Drainage networks characteristics of sustainable development that provide multiple benefits such as reduced urban flooding and localized adverse impacts on the environment, then the future urban stormwater network design may be subject to future rainfall that is different from current design and standards we are practicing.

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