

PREFACE

Urban hydrology, hydraulics, and storm water quality are important topics for civil engineers, urban planners, and environmental engineers. Flooding in urban areas as a result of excess runoff is one of the most immediate impacts on the daily life of many people. Storm water collection, transport and treatment systems are important components of urban infrastructure. The rainfall-runoff process in an undeveloped area is determined by the topography, natural surface detention, infiltration characteristics, and the drainage pattern formed by the natural flow paths. The natural rainfall-runoff process has altered due to large scale unsystematic urbanization by constructing more metalled roads, buildings and other types of pavements. This has lengthened the course of drainage channels while the depth and width have also decreased causing the problem of drainage congestion in urbanized areas. As a result, more storm water runoff is generated which is causing floods and water logging. However, the change in rainfall pattern may also be responsible upto certain extent for this problem. Therefore, as a first measure, there is a need to clear the water courses, deepened, and straightened to improve their conveyance capacities, new man-made drainage facilities are also required to be added to the drainage system and proper drainage facility should be given due weightage while any construction or urbanization activity is taken-up.

Further, various practices are employed to mitigate the adverse effects of urbanization on storm water runoff. The type and the size of such structures are governed by the frequency of storm runoff volumes and rates, the level of pollutant loadings etc. Urban storm water hydrology investigates the occurrence of storm water in urban watersheds, its movement through the different elements of storm drainage systems, and its response to various storm water management practices.

Since urbanization is a process of development and cannot be stopped but the management of storm water runoff, although a challenging task, is required to be dealt in a scientific manner. With this point in view and the problem of urban drainage of Chennai city, the Govt. of Tamil Nadu requested National Institute of Hydrology, Roorkee to initiate study on urban Hydrology of Chennai city. Accordingly the Deltaic Regional Centre Kakinada of NIH has initiated a Purpose Driven Study (PDS) on urban hydrology of a part in Chennai City under ongoing Hydrology Project-II and as a part of this PDS, a three days training course is being organized at Chennai during 4-6 October 2010 for the benefit of Officers who are working in the field of storm water management and especially for the field engineers involved in storm water management of Chennai city.

The training course material includes short-term rainfall analysis, runoff estimations, design of urban drainage network using advanced software and case studies. I hope, the course material would be useful to the participants for their reference.

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