SIMULATION STUDY OF HEAVY RAIN AND WATERLOGGING SCENARIOS IN HAINING CITY BASED ON SWMM MODEL

Bachelor's thesis

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ABSTRACT

The relevance of the research. With the rapid development of urbanization, the problem of rainstorm and waterlogging in the city has become increasingly prominent, which has caused great trouble to the operation of the city and the life of citizens. Haining City, as a typical area of rapid urbanization, the problem of rainstorm waterlogging is particularly prominent.

With the help of high-precision digital elevation model and urban drainage pipeline network information, and with the support of high-resolution remote sensing images and other data, combined with the empirical formula of rainstorm intensity, a GIS urban rainstorm water accumulation model based on SWMM is constructed, which can quickly realize the simulation of urban stagnant water under multi-scenarios, which has a key guiding significance for expanding the scope of urban disaster early warning services and strengthening the monitoring and prediction of water accumulation caused by urban rainfall.

The object of the research is the rainstorm event on August 3, 2018 in Haining City, and **the subject** is the analysis of stagnant Water in Haining City.

The purpose of this work is to analyze the situation of stagnant water in the study area and put forward the solving measures. To achieve the purpose of the study, the following **tasks** were set:

1.To analyze the main causes of urban waterlogging disasters.

2.To study the relevant experience of simulating urban waterlogging scenarios.

3.Analysis of the causes of stagnant water in waterlogging-prone areas of Haining City.

Structure of the work. The thesis consists of an introduction, four chapters, and conclusions. The work is laid out on 46 pages, includes 11 figures, 3 tables. The reference list includes 50 sources.