

都會區淹水模擬與減災策略之研究

Flooding simulation and disaster reduction strategy for an urban area

國家災害防科技中心

魏曉萍

蘇元風

H.P. Wei

Y.F. Su

摘要

一個地區洪災發生的原因有許多複雜的因素。災害減災調適主要目的是為了維護生命財產安全，減低災害造成的衝擊與影響。因此減災調適方法在提出前，必須先針對災害發生區域的災害特性進行盤點與分析，並確認災害發生的原因，再因地制宜提出多方面的減災調適策略方法

許多文獻指出，都會地區治水減災調適策略於水利工程的方法有促進滲透、雨水儲存、加強排水等。近年來在治水對策中，具有滯洪、生態與休閒功能的綠地滯洪公園概念逐漸受到重視，強調使用綠色基盤設施，透過公園與綠地結合滯洪為都市治水新對策。

本研究以高雄市三民區為研究區域，以每小時 100mm 降雨量，搭配序率馬可夫 SSGM(simple scaling Gauss-Markov)法，推求出高雄市雨型的降雨情境，來進行減災調適策略研擬，減災調適策略研擬為將位於三民區內的全盟公園部份地區，降挖成綠地滯洪公園，降挖面積為 2.88 公，研究方案分別為方案(A)降挖 3m 與方案(B)降挖 6m，其中方案 A(降挖 3 公尺)與 B(降挖 6 公尺)淹水面積減少率，分別為 0.6%(2 公頃)與 7.2%(13.1 公頃)，而影響人口減少率分別為 0.2%(88 人)與 7%(3120 人)。

關鍵詞:都會區，淹水模擬，減災策略，影響人口

Abstract

There are many reasons for flooding disaster in an urban area. Intensity rainfall is one of the major reasons. With the risk of heavy rainfall generally increasing in recent years, more and more attention have been focused on how to enhance the resilience of an urban area by means of disaster reduction and mitigation strategies. In this study, we select SanMin District, Kaohsiung City, Taiwan as the study area, and simulate the flooding situation under rainfall scenario of 100mm/hour derived from Simple Scaling Gauss-Markov model with SOBEK 2D flooding simulation model. We proposed two mitigation strategies in which lower down the level of an existing flood detention park by 3 meters and 6 meters. Our simulation results shown that the flooding area in downstream area reduced by 0.6% (2 ha.) and 7.2% (13.1 ha.), respectively and the

affected people also reduced by 0.2% and 7%, respectively.

Keywords: Urban area , Flooding simulation , Disaster reduction strategy ,
Affected people