中華水土保持學報, 36(3): 281-291 (2005)
Journal of Chinese Soil and Water Conservation, 36 (3):*281-291* (2005)

河道種植糙率推估資料庫之建置與應用

許盈松[1]　許裕雄[2]　林信輝[3]　林傳茂[4]

摘　　要　河川或管道中水流流動，受到水深、濕周邊界形狀、邊界粗糙度及渠坡等因素之影響。河道中若有高低莖植物之存在，當上游流量漸增、水位逐漸漫升時，依不同水深及植物所受阻力相對關係，水流所受阻力將逐漸增加。但對於河道植生所增阻力之糙率推估，爲河道水理或洪水演算前所必先得知，其並不易直接以理論或經驗公式直接推估，往往需要先多方評估水理與植生條件，並進行多次試算、迭代，方能正確推估出河道植生後之糙率係數。本文整理分析前人所完成之河道糙率相關研究成果、經驗公式，以建立河道植生糙率推估試算流程，並建置河道植生糙率推估資料庫，將大幅簡化過去對河道植生糙率推估時之繁複流程，提高糙率推估之正確性，並可提供未來河道植生相關研究或水利生態、綠美化工程規劃工作之參考。

關鍵詞：河道植生、糙率、洪水演算、資料庫。

Database Setup and Its Application for Roughness Estimation of Planting in the Floodplain

Yin-Sung Hsu[1]　Yu-Hsiung Hsu[2]　Hsin-Hwei Lin[3]　Chuan-Mao Lin[4]

ABSTRACT　Flows in streams or channels are affected by many factors including water depth, the shape of the adjacent perimeter, boundary roughness, and longitudinal bed gradient. In cases where plants of diverse heights exist in the channel, resistance to flow due to vegetation can increase as the incoming discharge increases and/or the stage rises. Such increases may follow a prescribed stage-vegetal resistance relationship. Estimation of this stage-vegetal resistance relationship is needed ahead of river hydraulics and/or flood routing; however, at present such a relationship has not been derived theoretically or obtained empirically. A reasonable vegetal-resistance value is only obtained after careful evaluation of hydraulic and vegetation conditions and from repeated trial-and-error computations.

This project reviews and analyzes the results and empirical formulas of previous roughness studies to establish the procedures of roughness estimation of floodplain vegetation as well as constructing a database for roughness estimation. The efforts are aim to considerably reduce the amount of repetition and complexity of considerably in the earlier process of roughness estimation so as to improve the

〔1〕逢甲大學水利工程學系助理教授
Assistant Professor, Department of Resources Engineering, Feng Chia University, Taichung 407, Taiwan, R.O.C.
〔2〕逢甲大學營建及防災研究中心研究工程師（通訊作者）
Research Engineer, Construction and Disaster Prevention Research Center, Feng Chia University, Taichung 407, Taiwan, R.O.C.(Corresponding Author)
E-mail:yuhsiung@mail2000.com.tw
〔3〕國立中興大學水土保持工程學系教授
Associate Professor, Department of Soil and Water Conservation, National Chung Hsin University, Taichung 402, Taiwan, R.O.C.
〔4〕水利署水利行政組科長
The 4th Section Chief, Water Administration Division ,Water Resources Agency, MOEA, Taiwan, R.O.C.