

水庫集水區土砂評量與整治率評估模式

陳樹群^[1] 賴益成^[2]

摘 要 為有效評量水庫各項治理工程之土砂整治效果，本研究乃針對水庫集水區土砂產量之特性進行分析，並從土砂整治的觀點，透過集水區土砂整治率評估模式之研究與應用，配合水庫集水區各項保育計畫之實施以有效評估土砂整治效果，期可提供未來水庫集水區治理規劃之參考。本研究乃利用有治理及無治理情況下之累積淤積曲線差異，計算得德基水庫之減淤增容量相當於延長水庫 22 年之使用壽命；石門與曾文水庫之減淤增容量分別相當於延長水庫 38 年及 25 年之使用壽命，由此可見歷年來所投資推動之各項治理計畫乃存有實質之效益。若將集水區歷年治理之減淤資料推算至逐年減淤量，並以均化方式評量水庫集水區歷年治理之整治成效，則三座水庫之整治率均可達到 50% 以上，本研究更藉由整治率曲線圖說明歷年整治率之變化趨勢。

關鍵詞： 整治率、土壤沖蝕指標模式、崩塌、泥砂減淤。

Evaluation Model for Reservoir Watershed Sediment and Ratio of Completion

Su-Chin Chen^[1] Yi-Cheng Lai^[2]

ABSTRACT In order to assess the effectiveness of reservoirs management plans and watershed conservation work, this study analyzes the characteristics of sediment yield in reservoir watersheds with the goal of sediment management. This study uses the concept of ratio of completion to apply the evaluation model of the watershed sediment management in planning and evaluating reservoir conservation; and it should be a practical and convenient method in the future. Results of this study reveal an increases in the life expectancy of the Techí, Shihmen and Tsengwen Reservoir were 22, 38, and 25 years due to the effectiveness of the long-time reservoir management plans and watershed conservation work. The results also demonstrate that the reservoir management plans and watershed conservation work was economically effective. In addition, we can compute the effectiveness of the watershed conservation work, year by year. When using the reduction of reservoir sedimentation over the years, the ratios of completion of three reservoirs were all more than 50%. We also use diagrams to explain the tendency of variations in ratio of completion over the years.

Key Words: ratio of completion, soil erosion index model, landslide, sediment reduction.

[1] 國立中興大學水土保持學系教授

Professor, Department of Soil and Water Conservation, National Chung-Hsing University, Taichung 402, Taiwan, R.O.C

[2] 國立中興大學水土保持學系博士生(通訊作者)

Doctoral graduate student, Department of Soil and Water Conservation, National Chung-Hsing University, Taichung 402, Taiwan, R.O.C. (Corresponding Author)

Email: d9042003@mail.nchu.edu.tw