

## 土壤沖蝕性指數估算公式之研究

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**摘 要** 土壤沖蝕性指數估算公式歷來有眾多學者進行分析，其公式來源皆為使用不同土壤進行田間降雨實驗得其土壤流失量後反推所得之值，進行歸納分析後而得知各種經驗公式。台灣現行使用通用土壤流失公式 (USLE) 之土壤沖蝕性指數 (K) 資料為萬鑫森及黃俊義 (1989) 依據 Wischmeier and Smith 之列線圖推算得台灣 280 處土壤之沖蝕性指數。本研究選定 Wischmeier *et al.* (1971)、Torri *et al.* (1997) 及美國農業部 (USDA) 發展之幾何平均粒徑公式等三種估算公式，利用石門水庫上游集水區之 50 個點位之土樣進行不同公式估算結果之探討。結果顯示 Wischmeier 公式考慮因子較廣，為廣泛使用之公式，Torri 公式及幾何平均粒徑公式於粗質地土壤估算成果較為不佳，但於土壤資料缺漏時，仍不失為簡單易用之公式。

**關鍵詞**：土壤沖蝕性指數、幾何平均粒徑、列線圖。

## Study of Soil Erodibility Factor Estimation Equations

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**ABSTRACT** Soil erodibility factor equations have been developed by numerous scholars. Most of these equations were obtained from field soil erosion under certain rainfall intensities on different soil. Soil erodibility factors were then derived for different soil properties. Finally, empirical regression equations for soil erodibility factors (K) with some soil properties were developed. Taiwan soil erodibility factors have been calculated by Wann and Huang (1989) based on the Wischmeier and Smith nomograph. The soil properties needed in calculation are percent coarse, percent fine sand and silt, percent organic matter, as well as classes for structure and permeability. However, this information is not complete in the soil database. In this research, three regression equations are developed by three designated kinds of equations, Wischmeier *et al.* (1971), Torri *et al.* (1997), and United States Department of Agriculture (USDA). These equations were applied to estimate 50 soil samples collected from the Shimen reservoir upstream catchment area. Results showed that the Wischmeier equation is used widely for its consideration of more factors. The Torri equation and the geometric mean particle size equation are not suitable for coarse soil material.

**Key Words:** soil erodibility, geometric mean particle size, nomograph.

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