

## 南台灣國道三號公路植生暨邊坡穩定工法之調查研究

蔡光榮<sup>[1]</sup> 林依璇<sup>[2]</sup>

**摘 要** 南台灣國道三號高速公路(簡稱南二高), 穿越台灣南部特殊軟岩地質地形區, 地質構造脆弱, 降雨集中, 使得該公路沿線(九如-梅山段)之軟岩邊坡衍生許多護坡工程問題。每遇颱風暴雨, 公路邊坡坡面受逕流沖蝕, 導致大型蝕溝遍佈及道路崩塌滑落, 形成大規模土砂災害, 影響該路段之行車安全與運輸功能至鉅。本研究係針對南二高九如-梅山路段沿線之護坡工法及其工法環境基本特質進行現地調查, 並以全球衛星定位系統(GPS)作實地災害區定位與受損現況勘查, 且應用地理資訊系統(GIS)分別作不同軟岩邊坡之地層岩性、地形特性、災害實況與等相關文字、影像與圖層資料之整合建檔及統計分析後, 發現該公路沿線所施作之植生護坡工程損壞主誘因及坡面逕流沖蝕密切相關, 進而再結合 GPS/GIS 等資訊技術篩選坡面逕流沖蝕影響因子進行分析, 及比較南台灣軟岩區內國道三號公路之邊坡水理沖蝕特性對植生護坡穩定性之影響, 俾期提供公路相關單位作為該公路邊坡之維護管理及坡面穩定處理之參考依據。

**關鍵詞**：土壤沖蝕、植生護坡、邊坡穩定、植生工法結構。

## Investigation on the Bioengineering Treatments of Slope Protection for the No.3 Freeway in Southern Taiwan

Kuang-Jung Tsai<sup>[1]</sup> Yi-Shiuan Lin<sup>[2]</sup>

**ABSTRACT** The No.3 National Freeway running through the soft rock region has become an important issue in southern Taiwan. Many problems regarding to the stabilization of vegetative slope protection along the freeway were induced by weak geological formation and uneven distribution of rainfall intensity. Slope failures which occurred at soft rock regions along the No.3 freeway in southern Taiwan can seriously damage public facilities and traffic systems of the freeway itself. This study investigates the detrimental characteristics of vegetative slope protection and the sliding sites located by using both global positioning systems (GPS) and geographic information systems (GIS). This GPS/GIS integrated technology can be used to analyze and determine the interactive relationship between the failures of bioengineering structures and surface runoff erosion mechanism. Also, all detrimental factors contributed to surface runoff

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[1] 國立屏東科技大學土木工程系(所)教授(通訊作者)

Professor, Department of Civil Engineering, National Pingtung University of Science and Technology, Pingtung 912, Taiwan, R.O.C. (Corresponding Author)  
E-mail: kjtsai@mail.npust.edu.tw

[2] 國立屏東科技大學土木工程系(所)研究生

Master, Department of Civil Engineering, National Pingtung University of Science and Technology, Pingtung 912, Taiwan, R.O.C.

erosion and instability of slopes along the freeway are extremely critical and important. All results can be used by the highway engineer to make an optimized decision on designing and planning of bioengineering structures along the No.3 freeway running through the soft rock region in southern Taiwan.

**Key Words:** soil erosion, vegetative slope protection, slope stability, bioengineering structures.