

台灣西南部泥岩邊坡沖蝕防護之觀測試驗

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摘 要 台灣西南部軟岩區之泥岩邊坡每當豪大雨時常發生破壞，針對泥岩坡面所常發生之災害問題，發展出一套新的邊坡坡面保護工法——土胎植生工法（Soil-Tire-Vegetation Method），並進行現地實作試驗。本文乃針對此現地試驗邊坡進行觀測，驗證土胎植生護坡工法在保護坡面抵抗沖蝕之功能。現地試驗之坡面分為土胎組坡面、對照組坡面及原坡面，土胎坡面以濾層束制坡面，並以充填客土袋或植生袋的廢輪胎——土胎作為植生基層，同時在坡面上分別種植地茅及鋪設植生帶，防止坡面表層之沖蝕。對照組坡面則只在坡面上鋪設植生帶，以顯示傳統植生帶保護軟岩邊坡沖蝕的能力，而原坡面則未做任何坡面保護處理。本研究為量測坡面之沖蝕量，在邊坡之坡趾處設置淤砂池以便計測各坡面的沖蝕量，作為判定護坡工法的成效依據之一。

現地試驗結果證實在植生立地條件較差之泥岩坡面上可用土胎客土混合化肥植生來改善其植生立地條件，在自然成長未加以維護管理的情況下，土胎植生工法在約半年的時間中坡面植生覆蓋率可達到 80%至 100%，並在歷次颱風豪大雨的連續考驗下其沖蝕量亦極輕微，已初步證實其保護泥岩坡面防止沖蝕的效果。

關鍵詞：泥岩、沖蝕、邊坡穩定、護坡工法、廢輪胎。

The Field Experimentation of Erosion Protection for the Mudstone Slope in Southwestern Taiwan

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ABSTRACT In Southwestern Taiwan, mudstone slope protection works often fail during heavy rainfalls. To address the disastrous problems on mudstone slopes, we have developed a new slope protection method—Soil-Tire-Vegetation Method—and carried out field tests on the mudstone area. This paper aims to verify the function of the Soil-Tire-Vegetation Method in protecting slopes against erosion through observing the slopes on which field tests are conducted. The slopes in the field are divided into two categories: test slopes and contrast slopes. The former are covered with filter, and the soil-tires are used as the base layer for vegetation on those slopes. In the meantime, *vatica zizanioides* are planted and vegetative mats are laid down on those slopes to

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prevent surface erosion. On the other hand, the contrast slopes are only covered with vegetative mats to observe the effectiveness of traditional vegetative mats in preventing mudstone slopes against erosion. To measure the amount of erosion on slopes, sand settling basins are constructed on every slope toe. It is used as one of the criteria to evaluate the protection effect of such method.

The field test results show that vegetation of soil-tires mixed with fertilized foreign soils can be employed to improve the site condition of mudstone slopes, which have poor site condition for vegetation. Without maintenance and management of natural growth, the Soil-Tire-Vegetation Method can achieve a vegetation cover rate of 80 to 100 percent on mudstone slopes within half a year approximately. The erosion is also extremely slight even when these slopes suffer from continuous attacks by typhoons and heavy rainfall at several times. From the field test results, it preliminarily proves that Soil-Tire-Vegetation Method is a suitable method to protect slopes against erosion.

Key Words: mudstone, erosion, slope stabilization, slope protection, waste tires.