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論文名稱：大甲溪 921 震災崩塌地植生復育之研究

英文論文名稱: Vegetative Recovery for the watershed Landslides caused  
by 921 Earthquake in TA-CHIA Creek

### 【中文摘要】

921 地震造成台灣中部多處崩塌，裸露坡面鬆散之土質易因豪雨引發土石災害，造成生命財產之損失。崩塌地整治需長期監測，在有限人力物力下，需依植生復育狀況調整治理區位，以避免土砂災害危及河川水質。

本研究選定大甲溪主流天輪至德基大壩間之河段，依支流劃分為 30 個集水區，利用地震前後不同時期之衛星影像判釋崩塌區位，藉由通用土壤流失公式及泥砂遞移率之演算，評估集水區崩塌區位之泥砂產量，做為崩塌地治理優先順序之指標。

由集水區出流口泥砂產量所推算之崩塌區位沖蝕深度，可作為集水區崩塌地治理順位之指標。依此指標，集水區崩塌區位復育順序前三者依序為 No.0，No.30，No.28，其年平均沖蝕深度分別為 30.04 cm，16.59 cm，9.80 cm。崩塌地之植生復育宜根據不同區位配置適當的工法。崩塌地植生復育工程以基礎工最為重要，藉由集水區坡面泥砂遞移率之計算可標定崩塌地基礎工之適當配置區位。

### 【英文摘要】

Chi-Chi earthquake caused lots of landslides in Central Taiwan. Fragile debris of the landslides is susceptible to erosion and having the potential disaster during the rainy season. The effectiveness of landslide treatment should be long-term monitored. Under the limitation of manpower and finance, the priority of treatment zone needs to be set and adjusted according to the recovery status of the monitored landslides for avoiding sedimentation in the aquatic ecosystem.

The river segment (Tian-Lun to Der-Ji dam) of Ta-Chia Creek was selected and the watersheds of its tributaries were delineated in this study. Sediment yield of the landslide, before and after the quake, in the interested watersheds were estimated by using Universal Soil Loss Equation (USLE) couple with the calculation of sediment delivery ratio (SDR).

Annual erosion depth calculated from the sediment yield of watershed outlet can be as the priority index for landslide treatments. Results show that the top-three watershed need to be treated priority is No.0, No.30, and No.28 in order, and the annual erosion depth of the three watersheds is 30.04 cm, 16.59 cm, and 9.8 cm respectively. Vegetative engineering methods should be placed at the suitable sites for landslide restoration. Toe-protection work is a key to vegetative restoration for a landslide. The placement sites of toe-protection work in the analyzed watershed can be displayed effectively using the calculation of sediment delivery ratio.