

Landslide caused by typhoon-induced disaster:A case study on Shihmen watershed

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Abstract

Taiwan is located in the subtropics and easily attacked by typhoons. The Shihmen reservoir watershed was severely damaged by Typhoon Aere from catastrophic rainfall in August, 2004. Reasons for the disaster caused by the Typhoon Aere were analyzed from spatial distribution on the Shihmen reservoir watershed. Results indicate the dominant landslide regions were distributed within the storm center in the midstream and western part of this watershed. About 64.45% of the total landslide areas were found within 200 meters along drainage networks and roadsides using a normalized differenced vegetation index-based landslide detection method. Based on the field data, the slopeland infrastructure such as roads, bridges, revetments, and sediment control measures need passable and breakable designs that allow sediment transport. The sediment accumulation may deposit small amounts caused by forest protection and engineering structures that flow out in a lump sum under catastrophic events. Therefore, watershed disaster mitigation should involve the concept of sediment budget.

Keyword : landslide; normalized differenced vegetation index