# Using Airborne LiDAR Technology to Analyze Landslide Hazards in Shih-men Watershed

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During the flood seasons between 2001 and 2005, Taiwan was devastated by typhoons such as Toraji, Nari, Aere, Haitang, Matsa, Talim, and Longwang. Those trigger massive failures at the upstream. Large amount of sediment was washed into Shih-men Reservoir and dramatically increased the turbidity, far exceeding the capacity of water treatment plants. Water shortage happened as a result, and the managing authority has already begun the watershed conservation management. Remote sensing applications on large-scale monitoring are now widely used around the world. Of them, airborne LiDAR technology is very accurate and has the greatest coverage, able to perform quick and high resolution scan to obtain the three dimensional information of the target. Therefore, this study used airborne LiDAR technology to measure Shih-men watershed to establish high-precision elevation data. In the meantime, through analysis of variance on data before and after the measurement, topological changes from typhoons or extreme rainfalls as well as the efficiency of sediment control facilities are assessed.

Keyword: Shih-men Reservoir, LiDAR, digital elevation model, conservation management