

**MALAYSIA**

**Laser Scanning Applications in Landslide and Flood Assessments**

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Laser scanning systems (or LiDAR – Light Detection and Ranging) are the modern techniques of acquiring spatial information rapidly and efficiently. Their high accuracy and dense point clouds allow generating three-dimensional (3D) models for natural and human-made features (e.g., trees, buildings, transportation). The 3D models generated by laser scanning data support a wide range of applications such as landslide and flood assessments. LiDAR data is used to study the geomorphology and topography of the Earth, detect fresh and under canopy landslides, produce landslide susceptibility and hazard maps, simulate the motion of landslides, and estimate the impacts of landslides. In addition, LiDAR data provide information to detect flood inundation areas, simulate river water levels, produce flood susceptibility and hazard maps, and estimate the damage areas due to flooding. This paper presents an overview of methodological ideas of using LiDAR data for landslide and flood assessments. It focuses on the recent developments and the current challenges. It aims at providing new techniques for improving the utilization of LiDAR data for the mentioned applications. Finally, it draws some conclusions that can help other researchers to build their ideas upon the ideas proposed here.