

A Comparative Assessment between LiDAR and Conventional Ground Survey Methods through Cost and Efficiency Evaluation: A Case of Bohol, Philippines.

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Key words: Cost management; Engineering survey; Laser scanning; Positioning; Remote sensing

SUMMARY

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A magnitude 7.2 earthquake hit Bohol, an island province in Central Visayas, Philippines on October 15, 2013 with epicenter at Sagbayan, Bohol. Houses, seaports, airports, churches, government buildings, schools and hospitals were damaged in Bohol and nearby provinces.

The earthquake was caused by North Bohol Fault (NBF), a new fault discovered by a team of Dr. Teresito Bacolcol, a state volcanologist. For post-disaster damage assessment and infrastructure planning, there is a need to map out the new fault line and the areas affected. Mapping techniques include the conventional ground survey methods and the use of light detection and ranging (LiDAR) technology.

Light detection and ranging (LiDAR) is an advanced mapping technology that uses near-infrared laser to generate precise, three-dimensional information of the earth's surface. Conventional ground survey methods include triangulation using GPS and traverse using a total station.

This paper will be a comparative assessment between LiDAR and conventional ground survey methods through cost and efficiency evaluation in mapping post-disaster area in Bohol. Evaluation will be done by computing the ratio of total output (area covered in sq.km) to total input (operational cost and time). The result is a detailed and comprehensive comparison between LiDAR and ground survey techniques performed.

Keywords: NBF, LiDAR

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