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DETERMINATION OF THE CRUCIAL TERRAIN FACTORS ON THE PROGRESSION OF GALABADA LANDSLIDE IN RATNAPURA DISTRICT, SRI LANKA

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Ratnapura is one of the most susceptible districts for natural hazards including ground instabilities. Galabada landslide, which is situated in the Ratnapura divisional secretarial region is identified as a slow moving and progressive landslide, which shows landslide features over last four decades. Therefore, mitigation work is to be implemented to reduce potential risks. Landslide hazard mapping methodology developed by National Building Research Organisation in 1995 is currently considered as the best predictive model in identification of crucial terrain features that may initiate a landslide. It has introduced a weighting system including six major terrain factors for the evaluation of site specific landslide susceptibility potential as an assistance for scientific decision-making process. Identification of the most causative terrain factors is very objective for the planning and designing of mitigation measures to reduce landslide susceptibility. Here the weighting system is manually applied to Galabada landslide and surrounding area to assess the outstanding causative terrain factor, which obtains a relatively higher score over allocated values.

A *Landslide Remote Monitoring System* has been installed to determine the direction, rate and mechanism of the movement, geometry of the slip surface, the extent affected and to monitor the landslide triggering factors. Continuous ground water level measurements were taken using an electronic water level meter and daily rainfall readings were considered using an automated rain gauge system.

Results revealed that the displacement of the unstable soil mass of the landslide is proportional to the fluctuation of ground water level hence to rain spells. Also a highest weight percentage was owned by hydrology factor class concluding that hydrology and drainage is the causative terrain factor for the progression of Galabada landslide. This finding could be assisted in designing most appropriate mitigation measures, which reduces the impact of the major causative factor resulting reduction of overall landslide vulnerability.

Keywords: Landslide Remote Monitoring System, Landslide hazard mapping