

The Potential of Use Slope Gradient as a Criterion for Demarcating Agro Ecological Zones of Wet Zone, Sri Lanka: With Special Reference to Kegalle District

Thanura Madusanka Silva¹, Nishan Sakalasooriya²

This study is focused to introduce the importance of slope gradient for existing criterion for demarcating agro ecological zones of the Wet Climatic Zone (WCZ). The case is special reference to Kegalle District. There are 46 agro ecological zones in Sri Lanka and those defines with considering similar climatic variations, soil condition as a major factor and beyond this stage, it has been concerned elevation regarded from the mean sea level (MSL). Then focus either level of precipitation and spatial changes or soil types when constant level precipitation with vary of soil types. This zonation is the major decision of agriculture; it is a major economic activity, which is majority of local population engaged. Apart from that, commercial and domestic agriculture is the backbone for cultural aspects of traditions Sri Lankan society. Agriculture is playing a key role of land use activities with dynamic scenarios plus unplanned land use and land cover changes are key roles to enhance disaster risk specially the WC. Consequently, there is essential to apply better land use practices including agriculture for the disaster risk reduction.

This study points out that the slope gradient is an important factor for demarcating agro ecological zones in WCZ and the study recommends for applying micro level implementation for agriculture decision-making to risk areas of WCZ. Kegalle District is a one of high disaster risk district for landslide with identified risky and dynamic land use practices.

The study based on spatial analysis with the secondary data collected from Land use and Policy Planning Department (LUPPD) and Department of Survey, Sri Lanka. Then, applied relevant geospatial techniques to manipulate the data for the research purpose. Selected manmade agriculture (MMALs) land covers in 1998 and 2016 as tea, home garden and rubber cultivation were concerned in whole Kegalle District. Arc Map 10.1 is the main Geographic Information System (GIS) for apply relevant Geoprocessing techniques. Couple of slope gradients selected here according to the LUPPD as 30 – 60% gradient use under proper soil conservation methods and more than 60% slope gradient keep with natural vegetation. The results show the MMALs has temporal changes with drastically increasing even in the slopes of more than 60% within last 50 years of period. This situation alarming to consider the slope gradient use as a criterion for demarcating agro ecological zones of WCZ with relevant conditions.

Keywords: Agro ecology; Disaster; Kegalle; Slope gradient; Wet zone

¹ Janathakshan (GTE) Ltd, Sri Lanka, ntmsilva123@gmail.com

² Department of Gerography, University of Kelaniya, Sri Lanka