

Preliminary Analysis of Slope Movements of Almirante Tamandaré and Colombo, Paraná State, Brazil

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The unorganized conurban growth of the Curitiba Metropolitan Area, without a previous land use planning, has caused several social, economical and environmental losses, similarly to what happens in other metropolitan areas in Brazil. One of the problems is the slope instability and movements of unconsolidated materials, favored by geological and geomorphological features, heavy rainfalls, removal of vegetal protection, urban occupation and limestone mining.

The study attempts to investigate the majors mass movements in slopes, trying to identify them in a particular area with 80 km² located in the Northern hills of the region. The determination of possible agents, causes, geometry, strength parameters (friction angle and cohesion), movement mechanism, nature and state of the materials involved was aimed. A preliminary slope stability analysis was also carried out and strength characteristics were obtained. Based on these values, an estimate of factors of safety for the slopes in the area was reached and expressed as limiting slope angles.

The authors wish that, with the help of this study, a better land use management can be established, specially in points where the natural slopes are steeper than 35 degrees, that are the ones more susceptible to hazards.