

ABSTRACT

Landslide Mapping and Hazard Mitigation Study in Tibar Area, Liquiça Municipality

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The Island of Timor is located in the Southern Banda Arc in Eastern Indonesia forms as part of the collision zone between the Northwestern margin of Australia and the Southeast Asian island arcs. In Timor-Leste, geological hazard impacts to the population are really high based on the data from the relevant ministries and NGO's. The landslide hazard is one of the common geological hazards occurring in the island, due to its geology and the intensity of the rainfall in most cases. The objective of this study is also to analyze the Landslide hazard occurrences, which probably caused by the lithology and soil, structural geology, seismic activity, and ground water. The final product of this study also, to generate the Geologic Map and Landslide Susceptibility Map and Landslide hazard Map in 1:10,000 scale of the study area, based on the Field data observation and data analysis of Geo-hazard susceptibility map. In analyzing the safety factor of the slope it uses the GeoStudio2016 software to analyze the Factor of Safety (FoS), on the study area.

From the various results such as; geological structures impact to the landslide occurrences, Seismic activity near the study area analysis with the Peak Ground Acceleration (PGA) model, ground water impact on landslide occurrences analysis, rainfall intensity impact on landslide occurrences slope stability analysis on the landslide occurrences in the study area, in concluded that, the study area is a landslide hazard zone.

In minimizing the future impacts of landslide hazard, it is highly recommended that the proper mitigating measures for slope protection have to be well-studied on its slope and geology before the implementation, for the slope protection it is recommended to use these kinds of mitigating measure/slope protection; *Toe ditch or nets, systematic bolting, spot shotcrete.*

This study of Landslide Hazard Mapping and Mitigation Study in Tibar Area, Liquiça Municipality intends to point out best possible solution to reduce or minimizing the hazard and potentially hazard occurrences. The result of this study also, can be used by the policy makers, decision makers, planners, relevant government institutions and other parties to implement the effective system and to point out best possible solution in reducing or minimizing the landslide hazard and landslide potentially hazard occurrences in the study area and also in Timor-Leste.

Keyword: *Landslide hazard mapping, Landslide Mitigation, Slope stability analysis and slope Protection*