

SUSCEPTIBILITY ASSESSMENT OF SHALLOW LANDSLIDES IN DIFFERENT LAND USE USING SINMAP IN BRANTAS WATERSHED AREA, INDONESIA

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ABSTRACT

In Indonesia for the last five years increased significantly in term of intensity and its distribution. Landslide hazard occurrence often comes at the same time with flood disaster, and this event as an impact of increasing number of bad land, landuse change in the sloping areas. Some appropriate models to study the landslide susceptibility is mostly done, but each model must be adapted to regions that have their respective characteristics. The approach has been used for this study to assess assessment of shallow landslide susceptibility is Deterministic Stability Index Mapping (SINMAP) Model. Study location is two Districts of Brantas Watershed Area. Data used is ALOS AVNIR-2, ASTER DEM, and other supported data. The study demonstrates successful SINMAP calibration and the model can be considered a reliable tool for production of landslide susceptibility maps under specified rainfall conditions. Landslide assessment studied on agricultural land will be significant to develop the model other than the existing one (weighting method). The map was analyzed by SINMAP model gives significant results with higher accuracy than expert knowledge weighting method. It can be implemented in small area (district) that is required by local government (district level).

Keywords : Shallow landslide, land cover, susceptibility, SINMAP model