ABSTRACT

The increase in the population, especially urban settlements increases the amount of urban solid waste. The processing system of landfill at the landfill (TPA) is less efficient so that it exceeds capacity. Various ways are needed to maximize landfill capacity. The location of this study is located in the TPA Kabinuang, Tolitoli Regency. In this research, it is expected to maximize the operational of the Kabinuang landfill site to test the characterization of the technical properties of landfill by reviewing slope stability and deformation in the maximum embankment layer.

In this research, the Test Pit was taken in the field at a depth of 0.5-1 m at 3 observation points representing samples of old waste (SL), medium aged waste (SS) and new waste (SB) as well as subgrade samples (TD) and soil cover (TP). The samples were then tested for organic content, water content, Specific Gravity and Triaxial test. Laboratory data are then analyzed and modeling with variations in layers of landfill, especially in new waste with the addition of overburden. 2-dimensional Rocscience (limit equilibrium) and Slides (equilibrium) programs were used to obtain the safe and displacement value of the landfill slope at the Kabinuang landfill.

2D analysis of slope landfill stability has optimized the design with an increase in embankment capacity as high as a maximum of 10 m from the initial condition and slope of 450 without using soil cover resulting in a displacement of 0,31 m and a safety factor of static conditions 3,03 and 1,16 dynamic conditions. If the soil cover is used, the slofe stability of the landfill increases, indicating that the displacement is smaller, which is 0,18 m and the safety factor is 2,61 static conditions and 1,11 dynamic conditions.

***Keywords**: Waste embankment, Soil cover, Slope stability*