ABSTRACT

The process of erosion and sedimentation that prolonged negative influence against for quality of the land, besides the sedimentation occurs could lead to decline of water flow speed and superficiality of a river that caused a new problem on the DTA (Catchment).

The magnitude of erosion in value gained by calculating using the formula of Universal Soil loss Equation (USLE). The amount of sedimentation in the river can be predicted by calculating between SDR by multiplying the results of erosion. Application of ArcGIS software 10.3 is used to process data map that in used.

Based on the analysis of the data using the computer program ArcGis 10.3 and Microsoft excel noted that Catchment (DTA) Compassionate has area of 99.5179 km2 or 9,951.79 ha. Most of the DTA Compassionate is dominated by the closure of the land in the form of a garden of 5,216.75 ha with a percentage of 52.42%. The results of calculations using ArcGis 10.3 shows that the pattern of river network DTA dendritic flow pattern language, Compassionate. According to Lee (1988) flow pattern like a branching dendritic tree, branching irregularly with the direction and angle.

Based on the results of the analysis method using USLE in area of DTA Compassionate, come by the erosion of a total of 2,493,517.4 tons/year, with the greatest erosion is derived from Moor, with the percentage of 61.16% and the value of sedimentation on the DTA is Gracious of 1,962,919.9 tons/year with the most massive sedimentation derived from Moor, with the percentage of 60.73%.

Key words: erosion, sedimentation, SDR, ArcGIS 10.3