

MONITORING OF ENVIRONMENT QUALITY IN SINGKARAK WATER CATCHMENT AREA, INDONESIA BY REMOTE SENSING TO SUPPORT INDONESIA GOVERNMENT LAKE RESCUE PROGRAM

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ABSTRACT

One of the lakes that are currently very poor condition and become one of the priorities of the government lake rescue program is Lake Singkarak in West Sumatra Indonesia. This problem that occurs due to high sedimentation rate of erosion (180 s / d 480 Ton / ha / year) that cause siltation, decreasing of quality and quantity of lake water. Therefore the monitoring of environment quality of the lake and its surrounding environment is required. The information obtained is very important input for the local governments to plan and manage water catchment area in order to rescue the lake condition. One effort that can be done is monitoring by using remote sensing data. This study used Landsat and SPOT satellite data of year 2000, 2004 and 2011. The information that obtained are land use and land cover change, the changes of lake water quality (turbidity), as well as the changes of runoff and discharge that occurs. The method used are the maximum likelihood classification to obtain information of land use changes, Doxaran formula to get information about turbidity of water lake, as well as the rational method to get information about water discharge changes. The results of this study shows there are decreases in forest area that caused the increases of turbidity (MPT) of lake water, from 0-4 mg / l to about 0-7 mg /, as well as runoff and water discharge in Paninggahan and Sumpur area.

Key words: Rational Methods