

The Effects of Land Use Types to Determine the Status of Sustainable River

Authors : Michael Louis Sunaris, Robby Yussac Tallar

Abstract : The concept of sustainable river is evolving in Indonesia today. Many rivers condition in Indonesia have decreased by quality and quantity. The degradation of this condition is caused by rapid land use change as a result of increased population growth and human activity. It brings the degradation of the existing watersheds including some types of land use that an important factor in determining the status of river sustainability. Therefore, an evaluation method is required to determine the sustainability status of waterbody within watershed. The purpose of this study is to analyze various types of land use in determining the status of river sustainability. This study takes the watersheds of Citarum Upstream as a study area. The results of the analysis prove the index of sustainability status of the river that changes from good to bad or average in the rivers in the study area. The rapid and uncontrolled changes of land use especially in the upper watersheds area are the main causes that happened over time. It was indicated that the cumulative runoff coefficients were increased significantly. These situations indicated that the damage of watersheds has an impact on the water surplus or deficit problem yearly. Therefore, the rivers in Indonesia should be protected and conserved. The sustainability index of the rivers is an index to indicate the condition of watersheds by defining status of rivers in order to achieve sustainable water resource management.

Keywords : land use change, runoff coefficient, a simple index, sustainable river

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