Abstract

A case study on the assessment of rehabilitation program in up-stream watershed by using Water Quality Index (WQI): was conducted in Namnao district, Phetchabun province in 2008-2009. The Water Quality Index equation was developed by the questionnaire comparing Namnao district and the areas with different levels of soil losses. The results of the study showed that the water quality in the up-stream watershed of the rehabilitated Namnao district and areas with the amount of soil loss at low, moderate, severe and most severe levels over the standard of type 2 of surface water. The average turbidity was improved from 29.43, 17.03, 20.91, 37.15 and 77.08 to 25.28, 7.00, 10.62, 26.72 and 116.75 NTU, respectively. The average suspended solids was improved from 34.82, 19.60, 25.00, 59.33 and 73.25 to 28.99, 11.83, 15.55, 27.77. and 113.15 mg/L, respectively. Most suspended solids were not over the standard effluent entering ground water (50 NTU).

The assessment for Water Quality Index of the region in 2008-2009 in Namnao district and the areas with the amount of soil loss is at low, moderate, severe, and most severe levels was carried out. The average WQI's were increased from 75.09, 80.96, 78.78. 69.63 and 55.45 to 82.10, 89.92, 85.64, 76.28 and 56.91, respectively. It was classified as the 2nd category of national surface water although the up-stream water quality should be in a very good condition on classified as the 1st category of national surface water. This was due to the intrusion of land causing changes in land use as agricultural land (Maize). The changes of the Water Quality Index at Namnao district in 2008-2009 is not statistically different at the confidence level of 95 percent (P-Value = 0.344). While the areas with different the amount of soil losses were found to be statistically different at the confidence level of 95 percent (P-Value = 0.033).