

RETROSPECTIVE ANALYSIS OF LAND COVER AND USE DYNAMICS IN GILGEL ABBAY WATERSHED BY USING GIS AND REMOTE SENSING TECHNIQUES, NORTHWESTREN ETHIOPIA

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Abstract: Land cover and use change has its implication to socio-economic and ecological conditions of the watershed. This study was aimed at examining land cover changes for the last 35 years in Gilgel Abbay watershed by using GIS and remote sensing, survey and population data. The land cover and use status of Gilgel Abbay River watershed in the years 1973, 1986, 1995 and 2008 were examined using land sat images. From land sat images, changes in different land cover units such as forest, wood and bush lands, grass, wetlands and water bodies, and farm and settlements were analyzed. Population size, distribution, growth rate and land tenure, poverty and lack of market and credit facilities in the watershed area were analyzed as causes of land cover changes. The results of the study have shown that during the last 35 years in the Gilgel Abbay watershed, about 72.3% of forested areas, 55% of grass lands, 47.2% of wetlands and 6.3% of lake areas were converted to farm and settlement areas which was increased by 57.6% within stated periods. There was rapid increase of population with growth rates of 4.9% and 3.5 % (1984-1994 and 1994-2007), respectively per annum which caused more land cover changes. The other socio-economic factors such land tenure, poverty and lack of market and credit facilities have contributed to land cover changes in the catchment areas.

Keywords: Gilgel Abbay Catchment; Land Conversion; Causes of Land Cover Change; Population Increase; Socio-Economic Factors