

Multi-Temporal Remote Sensing of landscape Dynamics and Pattern Changes in Dire District, Southern Oromia, Ethiopia

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Abstract : Improper land use results in land degradation and decline in agricultural productivity. Hence, in order to get maximum benefits out of land, proper utilization of its resources is inevitable. The present study was aimed at identifying the landcover changes in the study area in the last 25 years and determines the extent and direction of change that has occurred. The study made use of Landsat TM 1986 and 2011 Remote Sensing Satellite Image for analysis to determine the extent and pattern of rangeland change. The results of the landuse/landcover change detection showed that in the last 25 years, 3 major changes were observed, grassland and open shrub-land resource significantly decreased at a rate of 17.1km²/year and 12 km²/year/, respectively. On the other hand in 25 years dense bushland, open bush land, dense shrubland and cultivated land has shown increment in size at a rate of 0.23km²/year, 13.5 km²/year, 6.3 km²/year and 0.2 km²/year, respectively within 25 years. The expansion of unpalatable woody species significantly reduced the rangeland size and availability of grasses. The consequence of the decrease in herbaceous biomass production might result in high risk of food insecurity in the area unless proper interventions are made in time.

Keywords : GIS and remote sensing, Dire District, land use/land cover, land sat TM

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