

Land cover change mapping in some mining area of Mongolia

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Remote Sensing and GIS were used to monitor interactions and relationships between land use and land cover changes in the regional ecology area of Umnugobi province (South Gobi). This study aims at determining the land degradation conditions in 15 soums (administrative units) of the study area, Umnugobi province. Using GIS processing of data climate drivers (precipitation, air temperature) vegetation data and socio-economic drivers (livestock numbers, population figures, mining activities) were analyzed. We focused on developing a modeling approach for monitoring land degradation using GIS and Remote Sensing tools by integrating natural and socio-economic data. The Moderated Soil Adjusted Vegetation Index (MSAVI) from SPOT/VEGETATION was used to determine vegetation cover change for the period 2000 to 2013. Landsat data for the years 2000, 2010 and 2013 were analyzed to derive and classify "hot spot" areas of land degradation. GIS conditional functions were used for mapping and analyzing climate and socio-economic driving factors, both of which affect land degradation. Conditional functions such as MAP-Algebra from ArcGIS were developed using ground truth data and data from National Statistics. Our study documents that 60 percent of the study area is affected by land degradation caused by human and climate drivers.

Keywords: socio-economic change,, mineral resources, land degradation monitoring, grassland degradation