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Mapping the land use land cover impacts by the war using remote sensing and GIS in Maritimepattu division, Sri Lanka in 1979, 2010 and 2018.

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Land cover is defined as the layer of soil and biomass, including regular vegetation, harvests, and human structures, that involves the land surface. Land use refers to the reasons for which people activity in the land cover. Land cover and land use (land use/cover) are firmly related and reliant, and much of the time treated conversely. Land use/cover change is the impact of many collaborating forms that are dynamic over a wide scope of scales in reality. Advances in remote detecting and spatial examination methods have profited specialists of incredible assets for mapping and distinguishing changes in land use/cover. Recent investigations have utilized these advanced strategies for the study of land use/cover changes. The Mullaitivu town of Maritimepattu division has been the point of convergence of the armed conflict between the administration of Sri Lanka and the Liberation Tigers of Tamil Eelam (LTTE) for more than two decades. Consequently, the Mullaitivu zone has been influenced seriously in contrast with different regions of Sri Lanka. Landsat satellite images were used due to freely available, reliable data source with longer time coverage. In this study, Landsat 2, 5 and 8 images of 1979, 2010 and 2018 were used as the data sources respectively. Digital image processing used to get ready land use/cover maps from satellite images contained various advances including digital image preprocessing for removal of errors in atmospherically and geometrically, image enhancement for increasing the accuracy of images, and image classification for identify relevant land use/cover classes. All these steps were done with the use of ENVI and ArcGIS 10.1 software. Supervised image classification of maximum likelihood classification was used for preparing land use/cover maps and the training samples of accuracy assessment and signature collection for classification done with historical maps, historical records, Google earth images, pan-sharpening technique, and false color and true color composite images. In addition the statistical analysis was performed to calculate the land use/cover variation within the period. Rendering to the study, it reveals that vegetation and settlements were getting highly decreased in the war period by 11.97% and 5.54% respectively and on the other hand forest area get increased by 2.86 %. Furthermore, according to the 2018 image (nearly after 10 years from the war), there were 10.52% and 13.10% of the increase in settlements and vegetation in the Mullaitivu area respectively.

Keywords: GIS, Landsat, Land cover, Land use, Remote sensing