Geospatial Techniques in Mitigating the Effects of Climate Change to Create a Sustainable Environment in Yilo Krobo Municipality

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SUMMARY

The African continent has experienced significant effects of climate change in the form of increasing temperature, and variability in rainfall profoundly impacting the most important sectors of the economies despite contributing minimally to global warming. Climate change mitigating strategies are crucial if the world is to reduce the effects of climate change on livelihoods and bolster economic resilience. Mitigating the effects of climate change requires knowledge and data on the prevailing environmental conditions to devise strategies to mitigate the effects. Geospatial techniques such as remote sensing and Geographic Information Science (GIS) can provide data on the state of the environment and resources to aid mitigation plans. However, there have been limited applications of these techniques in monitoring the effects of climate change on agriculture and other environmental activities. This study employs remote sensing applications to assess the health of vegetation and soil moisture content within the Yilo Krobo Municipality. The Normalized Different Vegetation Index (NDVI) and the Normalized Different Moisture Index (NDMI) of Yilo Krobo were calculated for 2002, 2012 and 2023 Landsat images. The NDVI results indicate reduced vegetation health and NDMI also shows reduced moisture content, particularly on the 2023 image. This provides information for devising strategies to enhance environmental practices to mitigate the effects of climate change in the municipality. The study recommends that areas with adequate moisture content should be identified and used for agricultural activities. Also, deliberate tree planting exercises can make use of such areas to enhance vegetation health and mitigate climate change effects.
