

Land Use Land Cover Change within Kakum Conservation Area in the Assin South District of Ghana, 1991-2015

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Abstract

Kakum Conservation Area is roughly 1187km², extending over large portions of forest reserves in the Assin South District of Ghana. The district hosts the remaining biodiversity hotspots within highly fragmented rainforest of West Africa. Although the conservation has been gazetted as protected area, it has since been impacted by illegal chainsaw logging, expanding agricultural land use and built construction to meet the housing needs of the rapidly growing population of the district. However, there is paucity of data on the magnitude, rate and types of land cover change occurring in the district. This study seeks to address these by examining the magnitude, the rate and direction of change in land cover between 1991 and 2015. The study objective was achieved using supervised classification and post classification change detection of remotely sensed Landsat satellite imagery of the district taken in 1991, 2001 and 2015. The results show that, within the study period, the population of the area increased by 2.9%, thick forest decreased by 8.2km², light forest increased by 5.3km² and built environment increased by 2.9km² per annum. These results are considered potential hindrance to sustainable development, including biodiversity conservation in the forest reserves and climate change mitigation in general. There is therefore need for measures to end deforestation and stimulate reforestation of the lost forest cover. The district needs to initiate an enquiry into the effectiveness of the current forest reserve management practices and sustainability of land use systems in the district.