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Author: Mr. Damilola Oladeji
Nigeria

URBAN FLOOD MAPPING IN AKURE USING GEOSPATIAL TECHNIQUES

Abstract

Flood has been recognized not only within the rural but also in the urban environments in Nigeria and in many other parts of the world as one of the environmental degradation problems causing serious loss to both human and the environment. It is estimated that with the ongoing carnage of climate change, flood risks will not subside in the future, rather, the intensity and frequency of floods will threaten many regions of the world particularly urban areas. Current spatial plans used for guiding the development of urban areas have also been criticized for failing to match dynamism and unpredictable manifestations, for instance climate change and flooding. Given this premise, there is a growing call for the need to integrate flood risks management strategies and spatial planning, which represents a proactive approach to dealing with both the probability and consequences of flooding in cities. As an important step towards this integration, this study sought to delineate flood potential areas around River Ala in the city of Akure, Ondo State using Remote Sensing and GIS. The landuse/landcover change detection was done for the catchment using 1984, 2000 and 2015 Landsat images and vegetative lands were found to be decreased in areal extent while built ups were increased. Field survey was conducted to validate the positional accuracy of the river and landuse/landcover classes using GPS. The results showed 554 buildings were at risk of being inundated. The areas at risk were at the core of the city and they fall within the range of 30m buffer zone which is the minimum standard setback. The study recommends the restocking of depleted forests through proactive reforestation, as well as afforestation among others as some flood mitigation strategies.