SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
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APPLICATION OF GEOSPATIAL TECHNIQUE IN THE EVALUATION OF FLOOD RISK AND VULNERABILITY

Abstract

Floods in Nigeria have done more harm without any notice of benefits. In the last 30 years, Nigerian cites have experienced great physical development, in terms of building, manufacturing industries and others without any appreciable infrastructures such as drainage's, roads and canals to support them. These have made floods to be a very serious challenge that plague many Nigerian cities.The result of the research will expose Nigerian government to the strategies of mitigating any occurrence of flood, as well as enlighten the public on how to guide against the occurrence of flood. This research work covers the eleven local governments in Ibadan.Various methods were adopted in this work and they are in two phases in order to arrive at a flood vulnerability map. multi criteria evaluation (MCE) was carried out in a GIS environment. In the MCE, Weighted Linear Combination (WLC) approach which involves the ranking of each contributing factor was used. The datasets used are satellite images (Both high and medium resolution), topographic maps, soil map and meteorological data. Different maps were generated, drainage map of the study area, mean annual rainfall map, soil map, landuse map, and flood vulnerability model map and also bar chart showing the level of flood vulnerability was generated. Seven contributing factors were examined. These include mean annual rainfall, slope, soil types, and relief, land use, drainage order level and drainage density. The impact of each of the above contributing factors was examined by introducing them one after the other in the model. The result shows a false representation of the observable pattern in reality when all other contributing factors participated in the model without mean annual rainfall and relief. After the introduction of mean annual rainfall and relief to the model, the result shows a very close representation of the reality. This is because the flood vulnerability class progression in the model coincide with the areas of observable impact as earlier visited on the field when compared with the model .The contributing percentage for the factors are Mean Annual Rainfall (20