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CRIME MAPPING AND MANAGEMENT OF OWERRI MUNICIPALITY USING GEOSPATIAL
INTELLIGENCE TECHNIQUES

Abstract

Criminal activities are common features of urban areas in Nigeria. Factors such as presence of tertiary institutions are known to have further promoted the likelihood of crimes globally, and indeed, in Nigeria. Owerri, covering the area of 104 km² and a population of 401873, is the capital of Imo State of Nigeria, and hosts five tertiary institutions each with a population of over 30,000 students. Owerri do not have a highly developed crime surveillance and monitoring system/network, while the local police and other security agencies appear ill-equipped to face the dynamism and complexity of the crimes like terrorism, armed robbery, kidnapping, immorality and sex abuses, child abuse and other organized crimes. Corresponding deficiencies in crime fighting manpower and facilities are majorly contributing to crime increase in the University communities. As a result of these, there have been an increase in crimes and criminal activities, at alarming rate, in Owerri metropolis. Geospatial technologies are adding interesting features to crime analysis by increasing the accuracy of information and broadening the overall horizon of actions taken to identify, monitor and curb the illegal and criminal activities around the globe. Availability of maps is a key tool and may be vital and helpful in crime reduction. This study applied spatial data, Ikonos satellite image of 0.6m GeoEye resolution extracted from Google Earth Inc.. It was geocoded using the geographic coordinate system, after georeferencing. The image was integrated into raster mosaic environment, using ArcGIS10.0 before further analysis. Other data acquired for the study included the street map of the Owerri metropolis, the city master plan and other ancillary data and police reports. A map of crime hotspots were generated using the criteria in the hotspots analyst tool from spatial statistics and kernel density from spatial analyst tool. The results also revealed the point distance analysis and which presented the shortest route to all the crime hotspots.

These results were presented using a geodatabase to visualize the various applicable route networks, closeness, and other relationships between socio-economic activities in the metropolis. The results also showed the service area of the security agencies from the buffer generalization and the proximity or distance from each security office or checkpoints to all crime hotspots. The project recommends citing police stations at identified locations to ensure quick and prompt response by security agencies.