Analyzing Flash Flood Risk in a Section of Ntawogba Creek, Port Harcourt City, Rivers State

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SUMMARY

Flood is a natural disaster and occurred in different forms. It is also a factor of climate change. Flash flood is a type of flood that occurs within few hours of intensive precipitation. It poses serious threat to urban areas, particularly in less developed countries. Geospatial technology has been very useful in mapping spatial extent and quantified damages associated with flash flood events. Proximity analysis and AHP has been widely utilized in modeling flash flood vulnerable zones. Little was known about MCA ranking method which is considered appropriate for few parameters in making complex decisions. This study utilized MCA ranking method to analyzed flash flood risk within Ntawogba Creek, Port Harcourt, Rivers State. Rainfall, slope model, impervious surface and distance to river were used in the decision making. The datasets were processed into common spatial referenced system. Each criterion was scaled from 5 to 1, with 5 being very high risk and 1 very low risk area. Weights were assigned to the criteria based on the importance, with higher weight to criterion that is more important in the decision making process. The weights are; distance to water channel 48, impervious surface 25, slope 22 and rainfall 5. The results obtained showed area of 93.0ha as very high flash flood risk representing 6% of the area. This zone was located along Ntawogba Creek and on major roads. Total area of high risk zone was 864.1ha representing 56%, moderate risk and low risk zone was 452.2ha and 134.7ha with 29.3 5 and 8.7% respectively. For further study, drainage density and soil infiltration should be included in the flash flood risk analysis.