

An Assessment of Drainage Network System in Nigeria Urban Areas using Geographical Information Systems: A Case Study of Bida, Niger State

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Abstract : In view of the recent limitations faced by the township concerning poorly constructed and in some cases non-existence of drainage facilities that resulted into incessant flooding in some parts of the community poses threat to life, property and the environment. The research seeks to address this issue by showing the spatial distribution of drainage network in Bida Urban using Geographic information System techniques. Relevant features were extracted from existing Bida based Map using un-screen digitization and x, y, z, data of existing drainages were acquired using handheld Global Positioning System (GPS). These data were uploaded into ArcGIS 9.2, software, and stored in the relational database structure that was used to produce the spatial data drainage network of the township. The result revealed that about 40 % of the drainages are blocked with sand and refuse, 35 % water-logged as a result of building across erosion channels and dilapidated bridges as a result of lack of drainage along major roads. The study thus concluded that drainage network systems in Bida community are not in good working condition and urgent measures must be initiated in order to avoid future disasters especially with the raining season setting in. Based on the above findings, the study therefore recommends that people within the locality should avoid dumping municipal waste within the drainage path while sand blocked or weed blocked drains should be clear by the authority concerned. In the same vein the authority should ensure that contract of drainage construction be awarded to professionals and all the natural drainages caused by erosion should be addressed to avoid future disasters.

Keywords : drainage network, spatial, digitization, relational database, waste

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