

Improving Enugu Urban Water Sourcing and Distribution Using Geospatial Technologies

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SUMMARY

For many decades, the city of Enugu has rarely boasted of adequate and good quality water supply. This has given rise to increased child labour and high infant mortality rate in the State; as children are used to fetch water from contaminated shallow water-wells for drinking and other domestic uses. There have however, been continuous efforts by successive governments to proffer solution to this problem. Such efforts resulted to greater Enugu Water Scheme with sources from Ajalli River, Oji Augmentation, the commissioning of the crash programme bore-holes at 9th mile and the recent rehabilitation and extension of water facilities in Enugu urban area in 2014. All these efforts have not resolved the existing problem because the various governments have not employed relevant geospatial technologies in the acquisition of basic information needed for the resolution of the problem, such as; the quantity of water available at the sources at different season of the year the determination of the nature of the topography of the urban area and its application in the design of the water distribution network. This research work is set to employ geospatial technologies to produce the hydrograph of the surface water sources controlled by State's Water Corporation to determine the periodical discharge available for supply to consumers at various seasons of the year, re-designing the existing distribution network using EPANET software to achieve a robust network that will include suitable locations for water reservoirs, pressure brake tanks and pumps etc. This is going to be achieved by seasonal determination of discharge of the surface water source using water current measuring instruments, the application of topographic information obtained from LiDAR satellite imagery in the design of a new network and the determination of locations of possible sources of underground water within the urban area through geophysical survey with ABEM Terrameter system. The integrated applications of these technologies will be employed to augment the quantity of piped water supplied to residents of Enugu Urban area.

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