

Urbanization and Water Supply in Lagos State, Nigeria: The Challenges in a Climate Change Scenario

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Abstract : Studies have shown that spatio-temporal distribution and variability of climatic variables, urban land use, and population have had substantial impact on water supply. It is based on these facts that the impacts of climate, urbanization, and population on water supply in Lagos State Nigeria remain the focus of this study. Population and water production data on Lagos State between 1963 and 2006 were collected, and used for time series and projection analyses. Multi-temporal land-sat images of 1975, 1995 and NigeriaSat-1 imagery of 2007 were used for land use change analysis. The population of Lagos State increased by about 557.1% between 1963 and 2006, correspondingly, safe water supply increased by 554%. Currently, 60% of domestic water use in urban areas of Lagos State is from groundwater while 75% of rural water is from unsafe surface water. Between 1975 and 2007, urban land use increased by about 235.9%. The 46years climatic records revealed that temperature and evaporation decreased slightly while rainfall and Relatively Humidity (RH) decreased consistently. Based on these trends, the Lagos State population and required water are expected to increase to about 19.8millions and 2418.9ML/D respectively by the year 2026. Rainfall is likely to decrease by -6.68mm while temperature will increase by 0.950C by 2026. Urban land use is expected to increase by 20% with expectation of serious congestion in the suburb areas. With these results, over 50% of the urban inhabitants will be highly water poor in future if the trends continue unabated.

Keywords : challenges, climate change, urbanization, water supply

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