

Summary

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This poster aims to increase the awareness of environmental and infrastructure struggle faced by urban population in Low- or Middle-Income Countries (LMIC) to advance the Sustainable Development Goal 6 - clean water and sanitation. It shows where population in a city would experience urban heat island effects, and whether they have access to clean water. Eight cities, Aba, Abaialiki, Awka, Enugu, Nnewi, Onitsha, Owerri, and Umuahia, being major cities in the South East region of Nigeria, were selected in the visualization. In each city, urban heat islands were calculated using thermal band from Landsat 8 [1]. Population data were downloaded from high resolution settlement layer [2], and water points data and boundary data in Nigeria were extracted from GRID3 [3]. Global land cover map data were extracted from [4]. All raster data were aggregated to H3 grids [5] at the resolution of 8. QGIS was used for zonal statistics of raster to H3 grids and creating visual outputs. Python was used to generate H3 grids and grid data calculation (getting land surface temperature and population within access to water points).

Reference

- [1] Landsat8, EarthExplorer, USGS. <https://earthexplorer.usgs.gov/>
- [2] Nigeria: High Resolution Population Density Maps + Demographic Estimates. HDX.
<https://data.humdata.org/dataset/highresolutionpopulationdensitymaps-nga>
- [3] GRID3. <https://data.grid3.org/>
- [4] Global land cover and land use 2019. Global Land Analysis & Discovery.
<https://glad.umd.edu/dataset/global-land-cover-land-use-v1>
- [5] H3: Uber's Hexagonal Hierarchical Spatial Index <https://www.uber.com/blog/h3/>