A Geo-Spatial Analysis of Ekiti Health Facilities.

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The Problem Statement:

In every Government Administration, The health sector is an essential aspect that is always being looked into for improvement because all people, everywhere, deserve the right care, right in their community. One important factor that can greatly help improve the health sector of any community is availability of health facilities and resources made readily available and easily affordable to the citizens. This project aims to help determine areas short of health facilities within the state (Ekiti) and hence serve as a suitability analysis for potential hospital site in order to help better direct the incoming resources to where they are most needed.

Stakeholders that would be interested in the Solution:

This project will particularly be of most benefit to the state Government administration to help make good and data-informed decisions on where to invest incoming health resources and funds within the state.

The project can also be of benefit to Private Stakeholders/investors willing to establish health facilities within the state for either profit or Non-profit purposes.

Methodology:

The workflow for the project took place in two steps viz: Data Collection/Processing and Data analysis

Data Collection/Gathering and Processing:

Two main data-sets were used for the analysis. The two datasets are: a Geojson file of Ekiti State boundaries and a Geojson file of the Health facilities within the state. The datasets were downloaded from Grid3 website@ grid3.gov.ng. The Datasets also had to be processed by being converted from a geojson file to a shapefile for the analysis; a web-based application@ https://mapshaper.org/ was used in doing this.

Data analysis:

The Data analysis to solve the problem statement was performed using primarily two software packages: ArcGIS and python (Pandas library).

The workflow involves importing the datasets into ArcMap and using different ArcMap Geoprocessing tools (Buffer and Spatial Join tools) in order to get the results that gives solutions to the problem statement. The pandas library was used for further data query, insight generations and visualizations.

Result and Discuss:

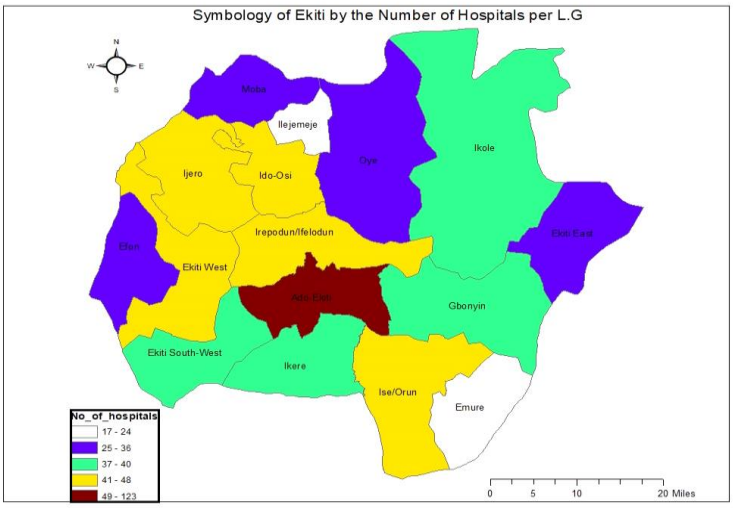

Figure 1: A map showing the distribution of health facilities by local government, the local government with the highest number of hospitals is the Ado L.G while the local governments with least number of hospitals are: ilejemeje and Emure.

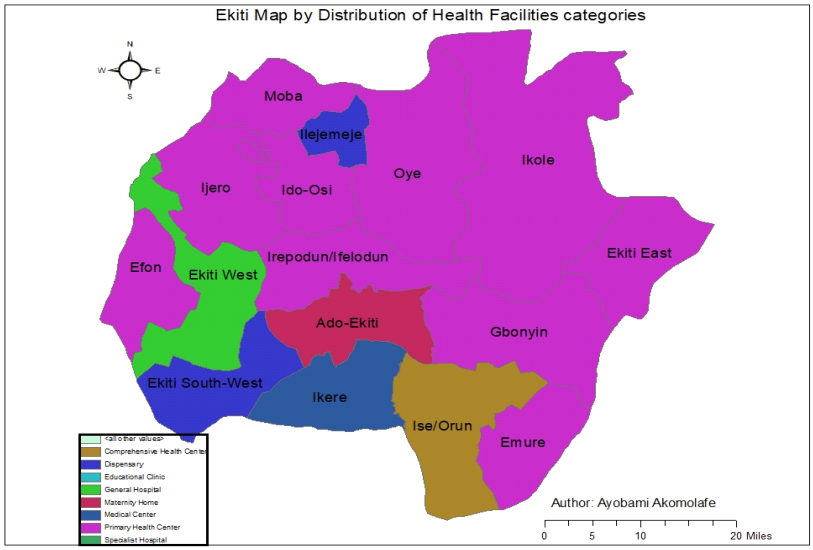

Figure 2: A map showing the distribution of the different categories of health facilities in the state by L.G, the map shows that majority health facilities in the state are Primary Health Centers.

Similar information is displayed below as a Bar Chart:

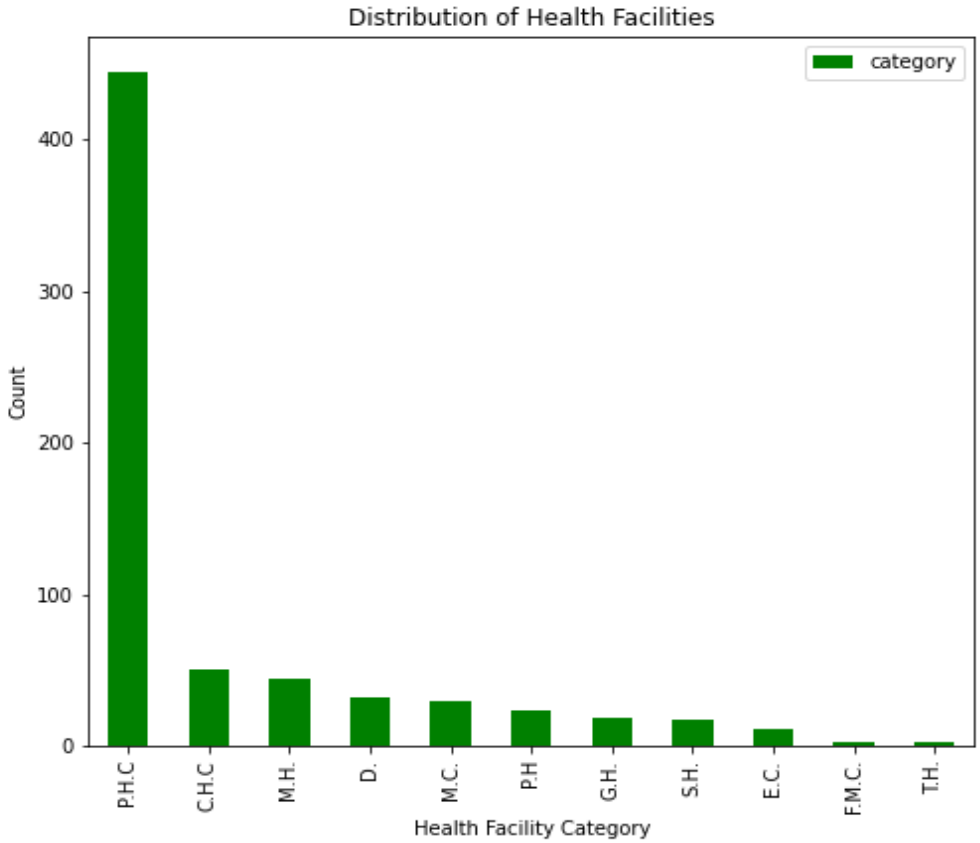

Figure 3: P.H.C: Primary Health Center, C.H.C: Comprehensive Health Center, M.H.: Maternity Home, D:Dispensary, M.C.: Medical Center, P.H: Private Hospitals, G.H.: General Hospital, S.H.: Specialist Hospital, E.C.: Educational Clinic, F.M.C.: Federal Medical Center, T.H.: Teaching Hospital.

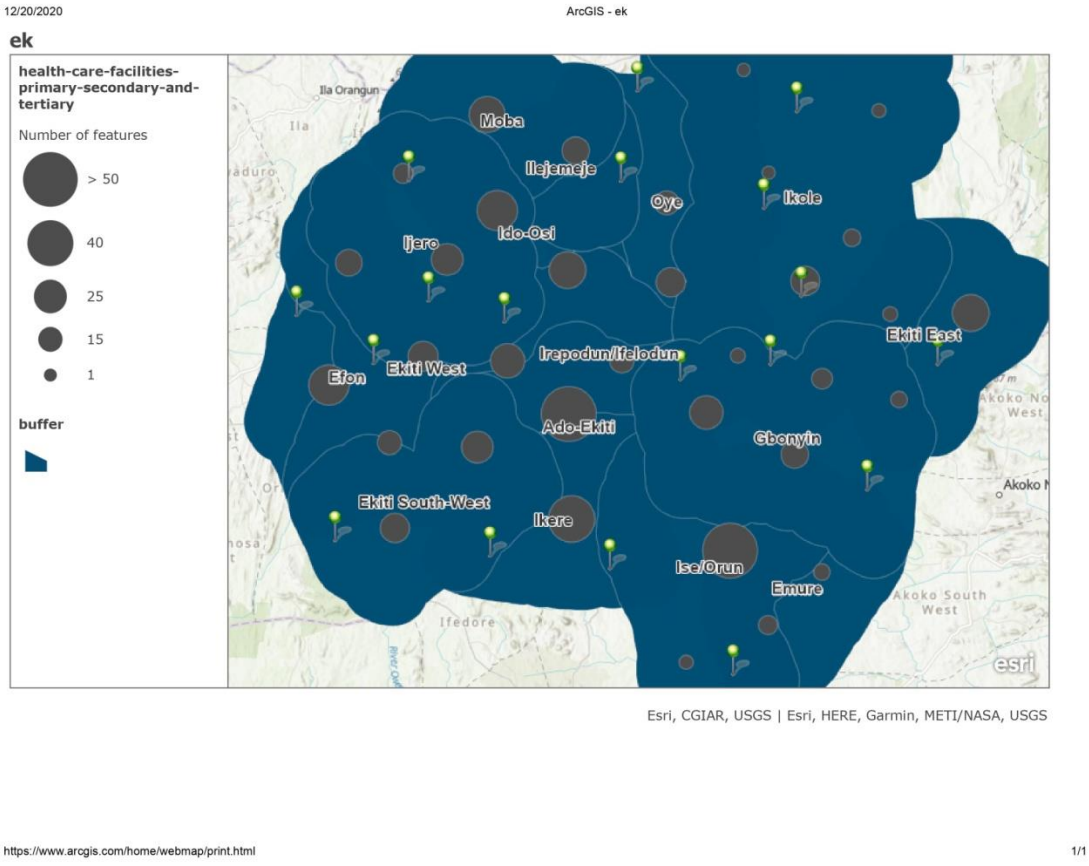

Figure 4 : Shows the map of Ekiti buffered to 5km and grouping of the health facilities into clusters.

Conclusion:

From Fig 1: Ilejemeje and Emure have the least number of Hospitals and hence more resources should be directed there.

From Fig 2 & 3: Majority of the health Facilities within the state are Primary health Centers, more resources should be directed into the building of other categories of health facilities.

From Fig 3: Based on a buffering of Distance 5km, New Health Facilities should also be built in areas that have been pin-pointed.