Lighting Energy Sources in Kenya

Mapping Scenario

The Kenyan government is investing in a program to provide electric lighting to rural areas of the country. They want to see a spatial distribution of lighting energy usage across Kenyan counties. Specifically, they are interested in learning which counties are primarily using electric lighting and which counties are primarily using traditional lighting (pressure lamps, lanterns, tin lamps, solar, etc.). They would like to know the prevalence of each lighting energy source in each county, so they can ultimately determine the feasibility, cost, and benefits of providing electric lighting to more parts of the country.

Kenya lighting energy usage data from 2009 is available on the Kenya Open Data Portal (https://www.opendata.go.ke/Distribution-and-Consumption/Main-Lighting-Energy-Sources-averaged-to-Counties-/g9hi-bs9n), but it is only available in tabular format. An interactive map would allow the Kenyan government to determine lighting energy usage patterns more clearly.

Why am I making this product?

I am making this product to provide the customer with an interactive map showing lighting energy usage patterns across Kenyan counties, so that they can see the prevalence of electric and traditional lighting energy sources in each county.

What do I want to get out of this product?
- Create an intuitive web mapping interface that visually represents lighting energy data in Kenya in a meaningful way and allows users to interact with the map to explore the data more deeply
- After seeing areas where traditional lighting is the most prevalent, I would like for the customer to support an enhancement to add additional infrastructure data (such as the electric utility network) to the map, so they can better determine the feasibility, cost, and benefits of providing electric lighting to more parts of the country

What do our users want to get out of this product?
- Learn the counties in Kenya where electric lighting is the most and least prevalent
- Learn the counties in Kenya where traditional lighting is the most and least prevalent
- See the percentage and number of households in each county using each lighting energy source (electricity, pressure lamp, lantern, tin lamp, gas lamp, fuel/wood, solar, and other lighting energy sources) in each county
- Consider the feasibility, cost, and benefits of providing electricity to areas largely using traditional lighting energy sources

Content Requirements

- All lighting energy sources besides electricity (pressure lamp, lantern, tin lamp, gas lamp, fuel/wood, solar, and other lighting energy sources) will be aggregated to represent traditional lighting sources
- The percentage of households using electric vs. traditional lighting will be encoded in a choropleth map of Kenyan counties. The color of each county will indicate the percentage of households in that county using electric lighting. The higher the percentage, the more electric lighting usage; the lower the percentage, the more traditional lighting is used.
- The number of households using electric lighting and the number of households using traditional lighting will be represented as proportional circle symbols in each county
- The raw data will be available to the user, so they can see the percentage and number of households in each county using each type of lighting energy source (electricity, pressure lamp, lantern, tin lamp, gas lamp, fuel/wood, solar, and other lighting energy sources)
- Data will be displayed on a standard basemap, so that users can locate the counties in a wider geography and see the road network (seeing the road network can help users determine the feasibility of providing electric lighting to an area)
- A legend will inform users of the relative magnitude of the circles

Functional Specifications

- The map will be limited to Kenya
- The map will load Kenyan counties dynamically from a GeoJSON file
- The map will load the lighting usage data dynamically from a CSV file
- A choropleth map of Kenyan counties will indicate the percentage of electric lighting usage in each county
- Two data layers of proportional symbols will be created from the data file: one for the number of households in each county using electric lighting one for the number of households in each county using traditional lighting sources
- The counties and the proportional symbol data layers will be drawn to the map
- Users will be able to hover over a county to see an info panel showing the percentage and total number of households in that county using each specific lighting energy source (electricity, pressure lamp, lantern, tin lamp, gas lamp, fuel/wood, solar, and other lighting energy sources)