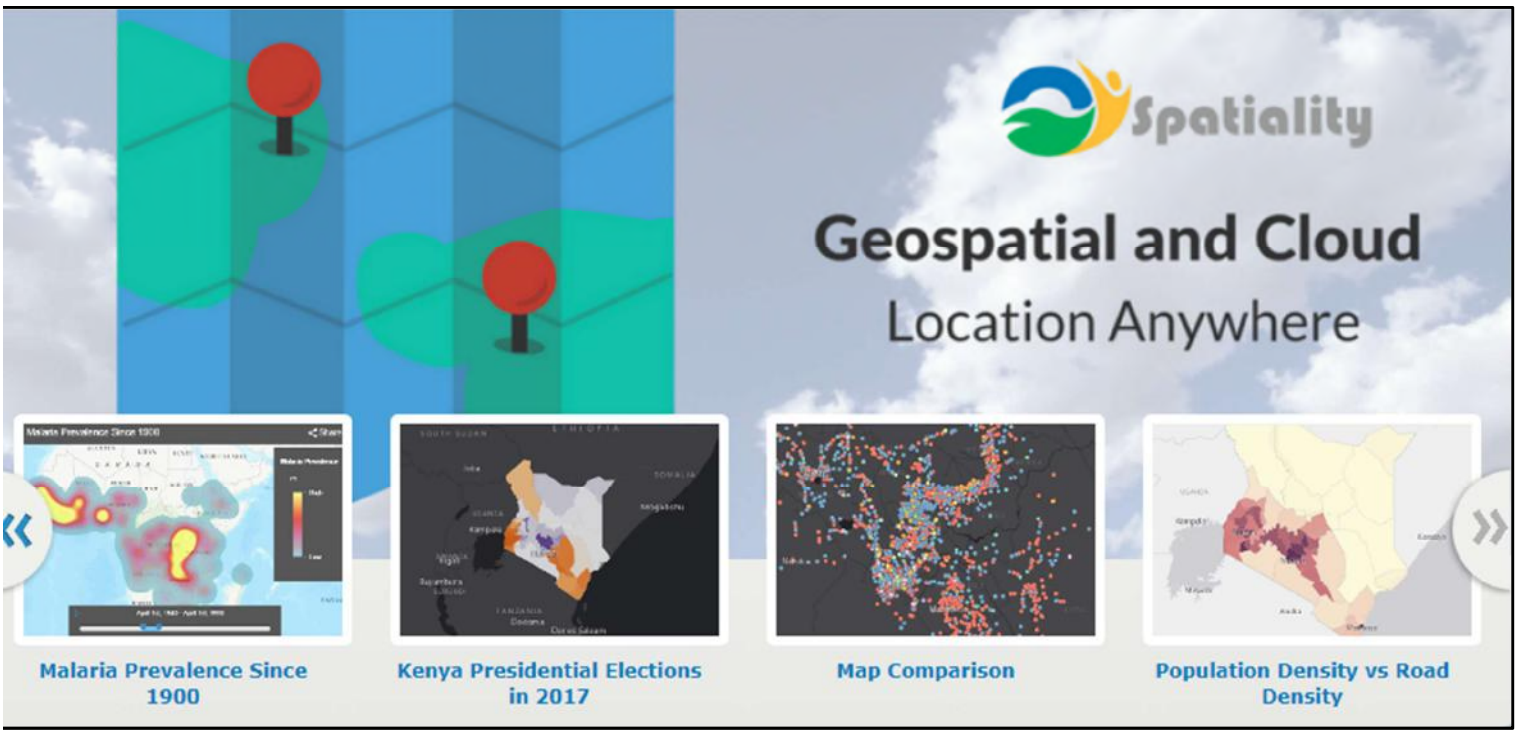

Introduction to ArcGIS Pro & ArcGIS Online

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Spatiality
Geospatial and Cloud 'Location Anywhere'

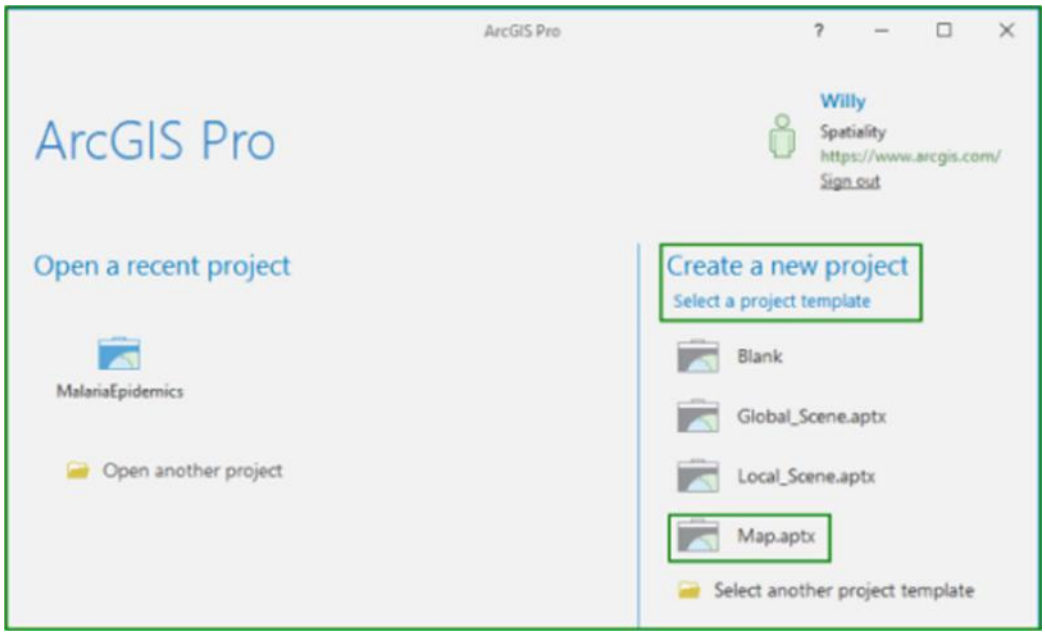
Step 1: Create a Project

In this project you'll explore poverty across Kenya's 47 counties in support of **SDG goal 1: No Poverty**. Poverty will be assessed with the Multi Poverty Index (MPI) developed in 2010 by the Oxford Poverty & Human Development Initiative (OPHI) and the United Nations Development Programme. To further understand poverty, you'll explore how poverty relates to the number of Financial Service Providers (FSPs). For this you'll use a dataset compiled by the Bill and Melissa Gates Foundation with the Central Bank of Kenya (CBK).

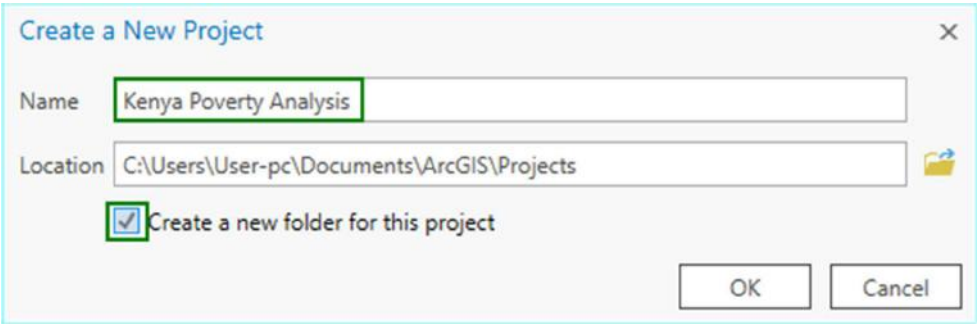
1. Start ArcGIS Pro. If prompted sign in using your licensed ArcGIS account.

ArcGIS Pro opens. It contains a list of project templates under the heading **Create a New Project**. If you've created a project before, it will include a list of recent projects under the heading **Open a Recent Project**.

2. **Create a new project** using the **Map.aptx** template.

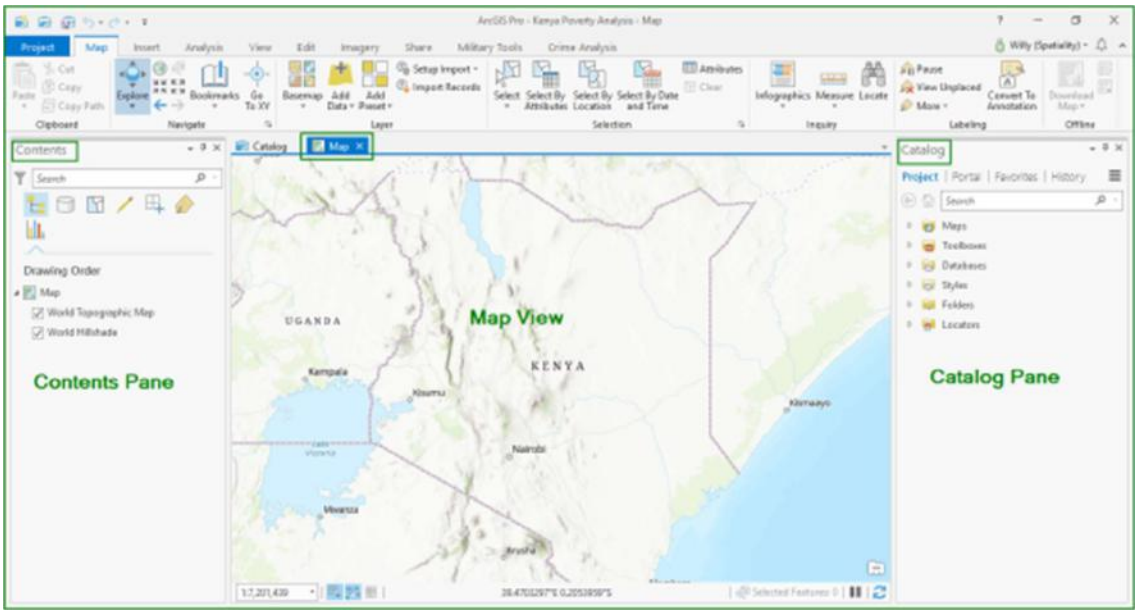


3. Save the project as `Kenya Poverty Analysis`**.** Ensure that the **Create a new folder for this project** checkbox is ticked.

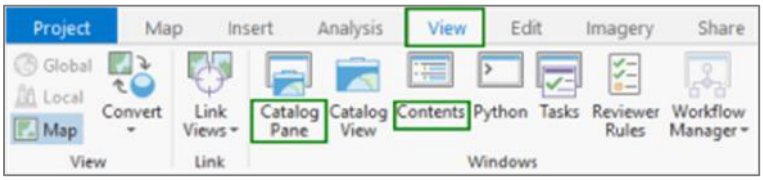


By default, the project is saved to the ArcGIS folder, located in the Documents folder on your computer's C: Drive. To save the project elsewhere, browse to a different location.

The **Kenya Poverty Analysis** project opens with a new **Map** view in the center, a **Contents** pane on the left and a **Catalog** pane on the right.

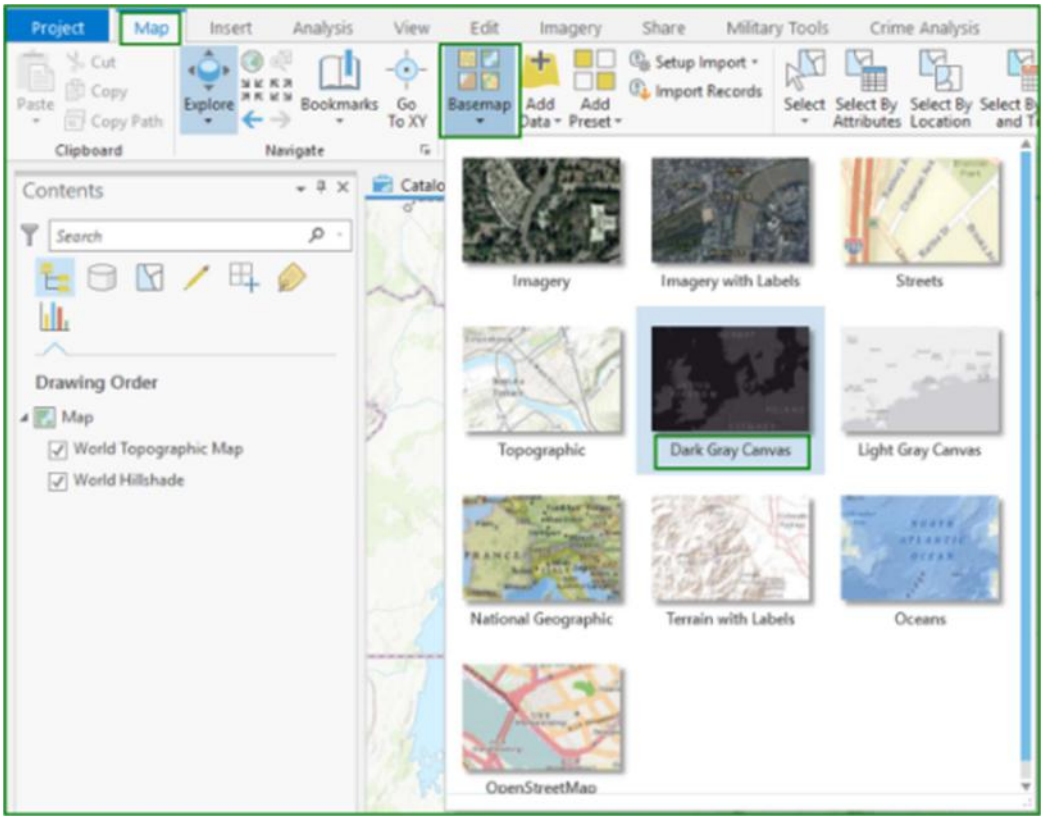


Hint: If the Content or Catalog pane are invisible, click the **View** tab on the ribbon. In the **Windows** group click **Contents** or **Catalog Pane** to make them visible.



By default, ArcGIS Pro uses the Topographic basemap, but for this project we want to use a **Dark Gray Canvas.**

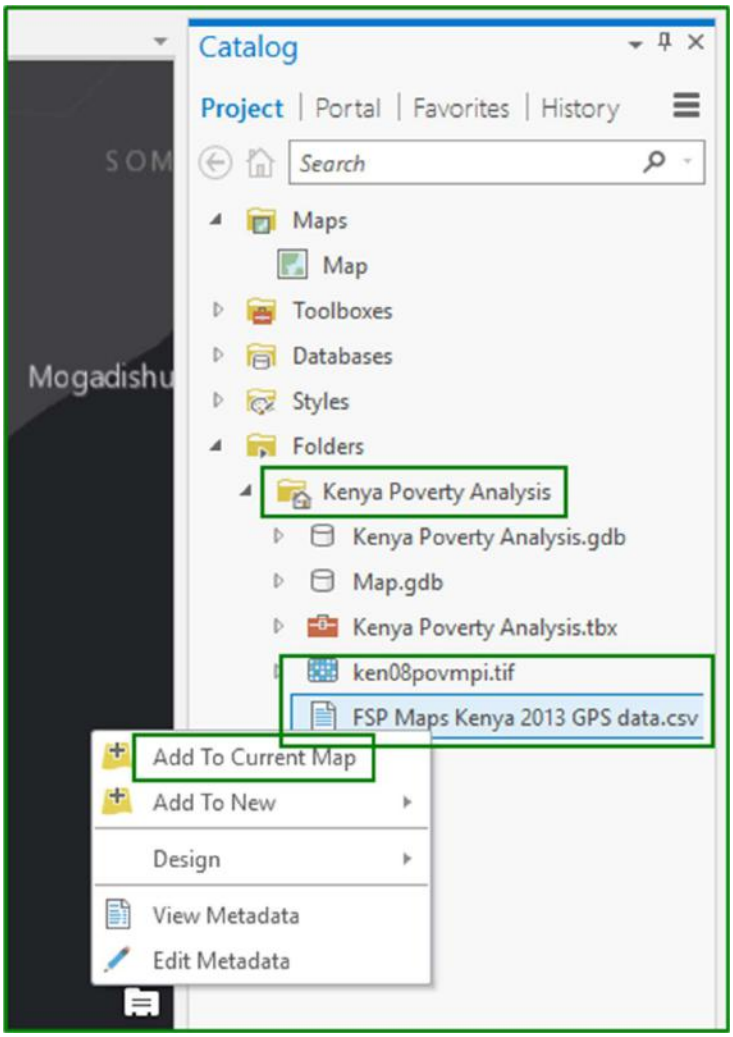
4. On the **Map** tab, in the **Layer** group, click **Basemap** and choose **Dark Gray Canvas** from the dropdown.



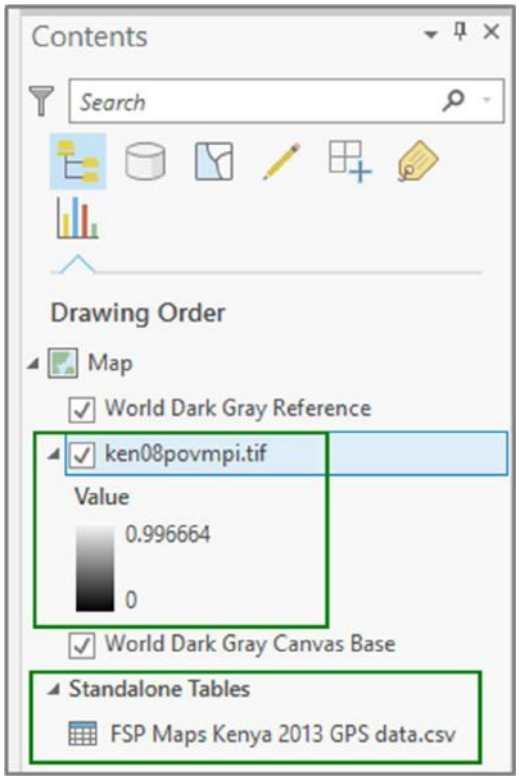
Step 2: Adding Data

The datasets that you need for our project are hosted on ArcGIS Online. The MPI poverty map of 2008 which estimates the proportion of people living in poverty per grid square is available as a TIF-file, and the FSP data collected in 2013 is hosted as a CSV file.

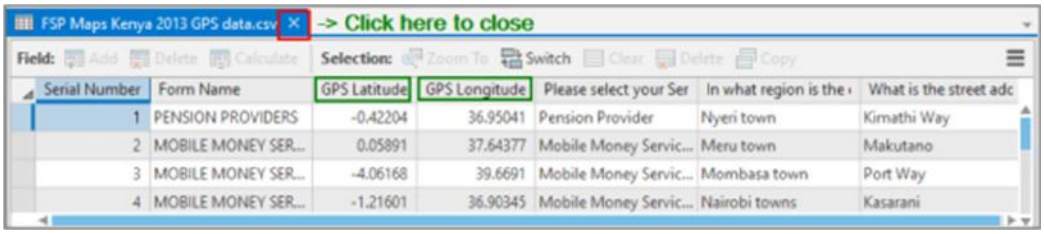
1. Download the Kenya MPI Poverty Map for 2008 and the FSP Maps Kenya 2013 GPS Data to your computer and move them to the Kenya Poverty Analysis project folder.
2. In the Catalog pane, browse to the **Kenya Poverty Analysis** folder. Refresh the contents if you don't see the files that you just downloaded. Right-click both datasets in turn and click **Add To Current Map**.



Both datasets now appear in the **Contents** pane. The TIF is added to the **Map** with default symbology, while the CSV-file appears under **Standalone Tables**.



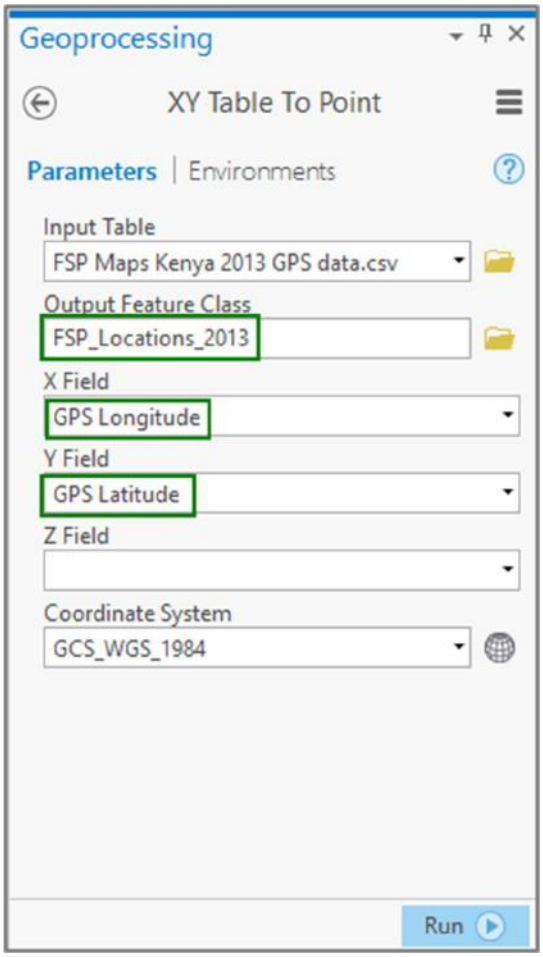
3. Right-click **FSP Maps Kenya 2013 GPS data.csv** and choose **Open**. The csv-file opens in a new window. Briefly inspect its contents and confirm the existence of **GPS Latitude** and **GPS Longitude**, before closing the window.



4. In the **Contents** pane, right-click **FSP Maps Kenya 2013 GPS data.csv**, and click **Display XY Data**.

The **XY Table to Point** tool opens in the **Geoprocessing** pane

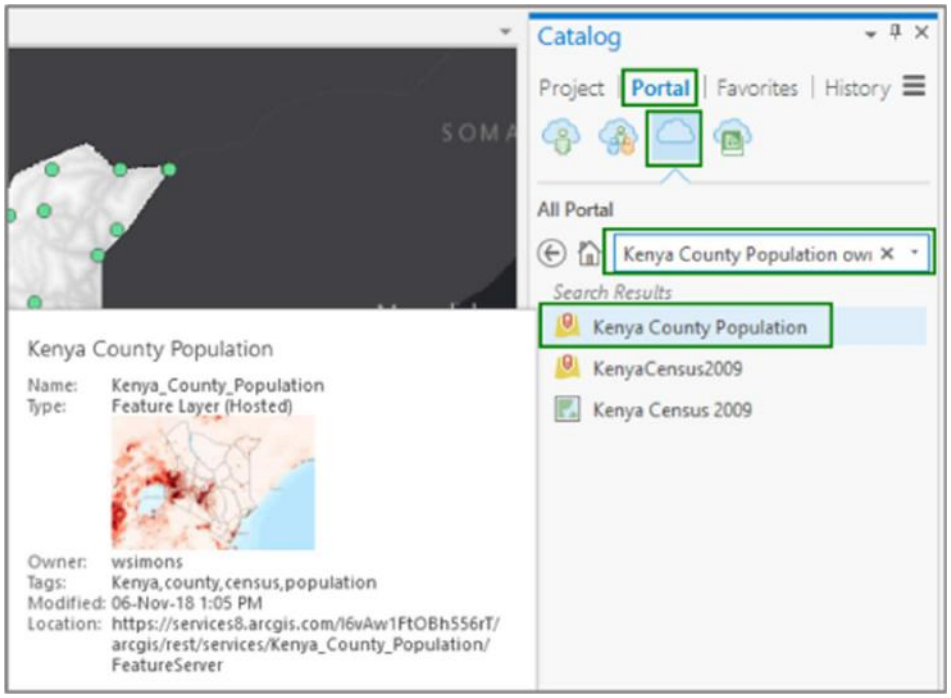
5. Change the name of the **Output Feature Class** to **FSP_Locations_2013**, confirm that the **X Field** and **Y Field** are set to **GPS Longitude** and **GPS Latitude** respectively and hit the **Run** button.



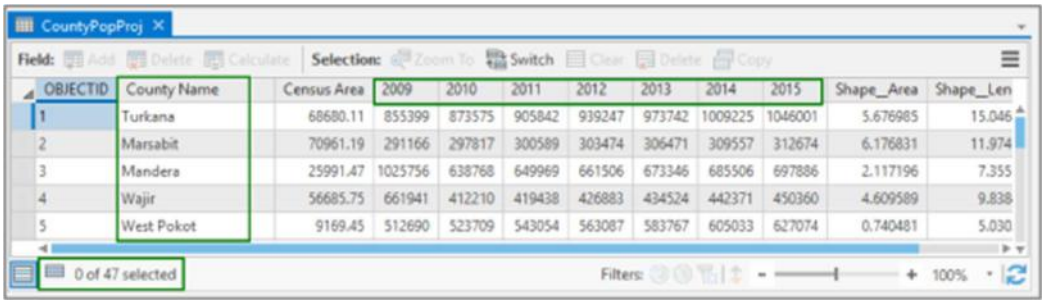
When the tool finishes, a new feature class is created in the **Kenya Poverty Analysis** file geodatabase and the locations of the FSPs are added to the map.

Several versions of Kenya's 47 counties have been published to ArcGIS Online, but International versions exclude the Ilemi triangle and most national versions lack accurate population estimates. You'll use a published feature service that has all the information needed for this lesson.

6. Activate the **Contents** pane, click the **Portals** tab and click the **All Portals** icon.
7. In the **Search** bar type `Kenya County Population owner:wsimons`
8. Right-click **Kenya County Population** in the results list and click **Add To Current Map**.

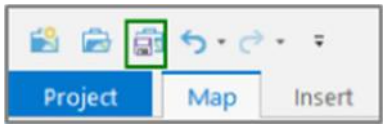


The feature layer **CountyPopProj** is displayed on the **Map** and listed in the **Content** pane. Open its attribute table to confirm that it has population estimates from 2009 until 2015 for all Kenya's 47 counties.



OBJECTID	County Name	Census Area	2009	2010	2011	2012	2013	2014	2015	Shape_Area	Shape_Len
1	Turkana	68680.11	855399	873575	905842	939247	973742	1009225	1046001	5.676985	15.046
2	Marsabit	70961.19	291166	297817	300589	303474	306471	309557	312674	6.176831	11.974
3	Mandera	25991.47	1025756	638768	649969	661506	673346	685506	697886	2.117196	7.355
4	Wajir	56685.75	661941	412210	419438	426883	434524	442371	450360	4.609589	9.838
5	West Pokot	9169.45	512690	523709	543054	563087	583767	605033	627074	0.740481	5.030

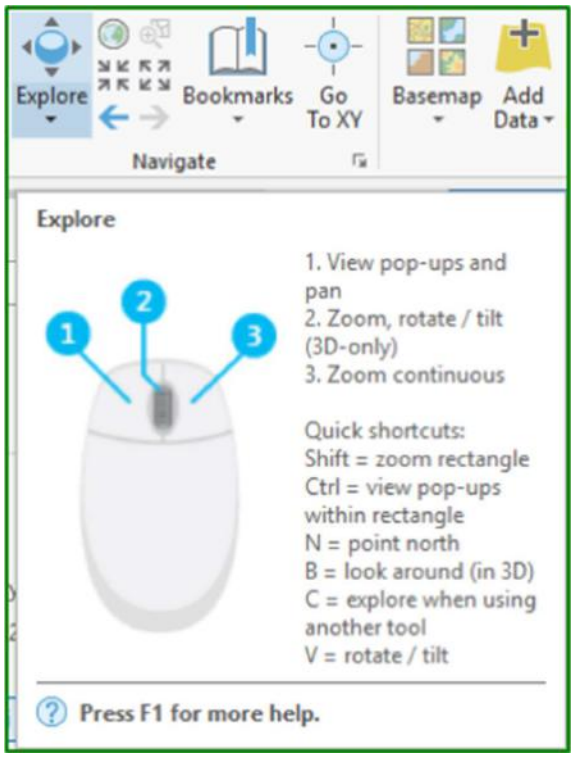
9. On the **Quick Access Toolbar**, click **Save** to save the project.



Step 3: Navigate the Map

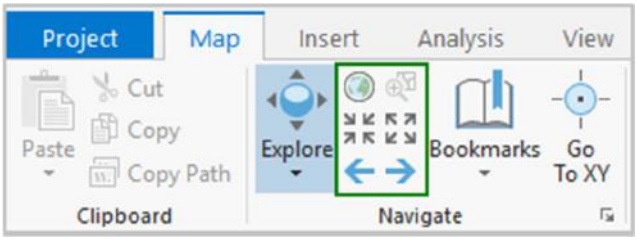
In this step you'll learn to navigate the map, create bookmarks to quickly return to places of interest and conduct map queries.

1. On the **Map** tab, in the **Navigate** group, click the **Exlore** button, if it is not already active. Hover over it with the mouse pointer and carefully read the instructions for the use of the mouse.



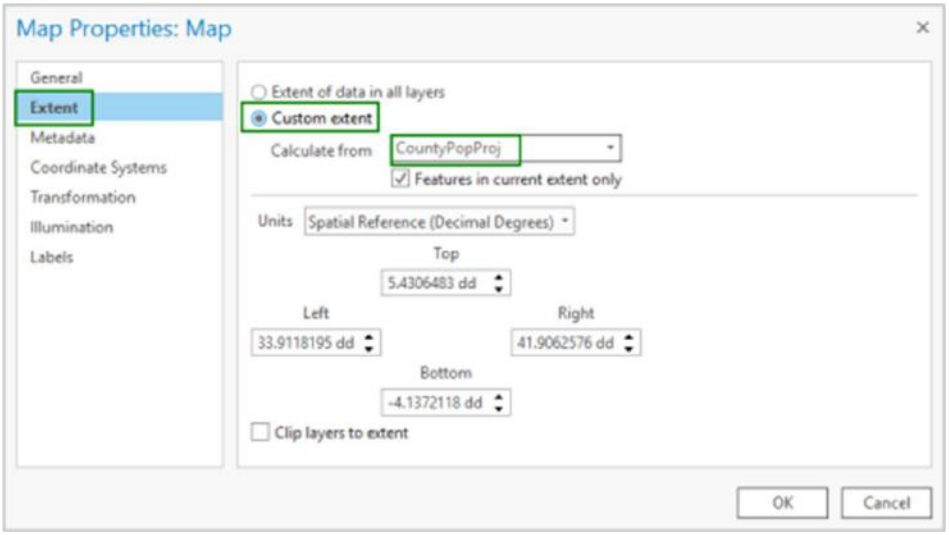
2. Click and drag the map to pan in different directions.
3. Now use your mouse to zoom in and zoom out of the map. Move the scroll wheel forward to zoom in and move it backward to zoom out.
4. Right-click any layer in the **Contents** pane and click **Zoom To Layer** to zoom to the extent of any layer.

Next to the **Explore** button in the **Navigation** group you find other useful buttons such as **Full Extent**, **Fixed Zoom In**, **Fixed Zoom Out**, **Previous Extent** and **Next Extent**.



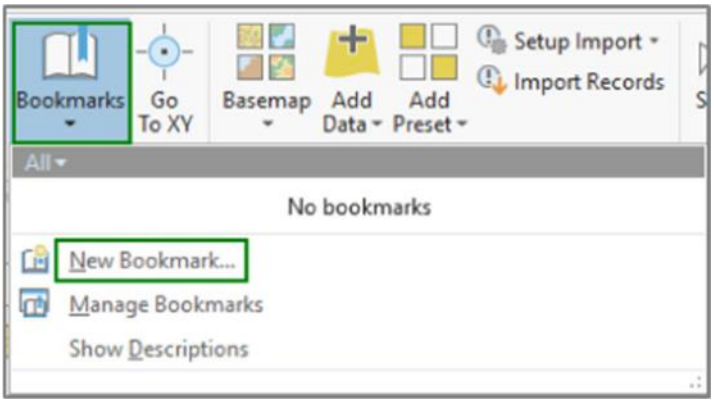
When you click **Full Extent**. the **Map** zooms out to the extent of the world. You'll fix that now.

5. Double-click **Map** in the **Contents** pane to open the **Map Properties** window. Select **Extent** in the left pane, change to **Custom Extent** and select **CountyPopProj** to set the extent to the extent of Kenya's 47 counties.

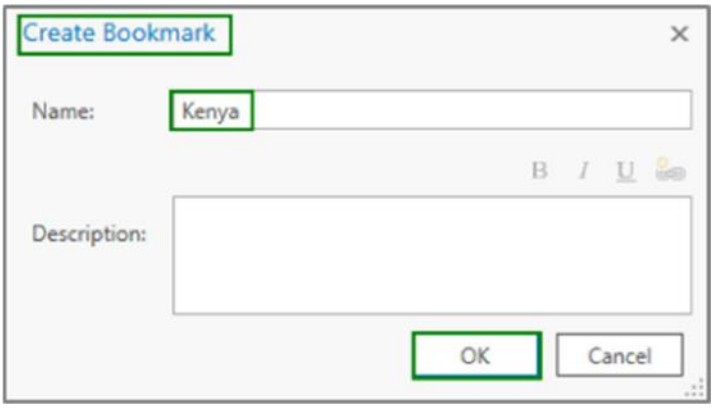


When you click the **Full Extent** button now, the map will zoom to the extent of Kenya. Now you'll create bookmarks to quickly navigate to Kenya and the cities of Nairobi, Mombasa and Kisumu.

6. Zoom to the extent of Kenya. On the **Map** tab, in the **Navigation** group, click **Bookmarks** and choose **New Bookmark**.

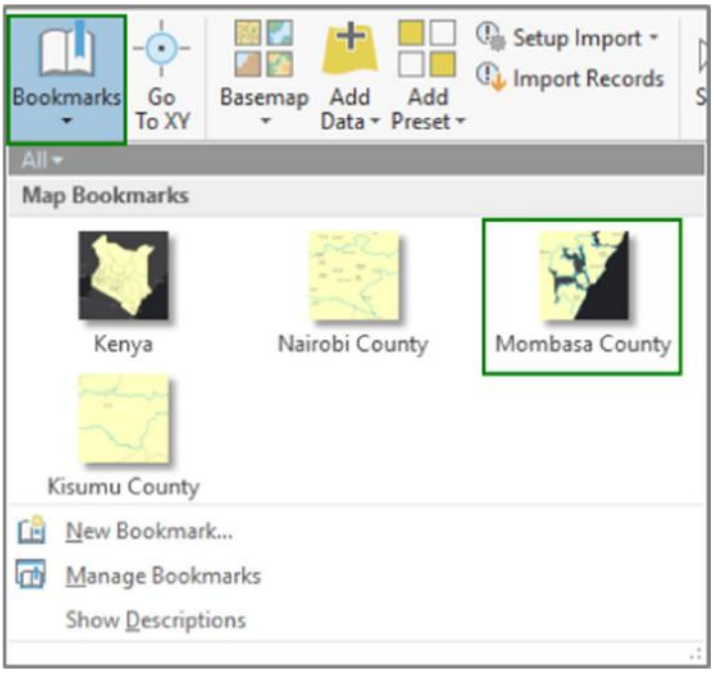


7. For **Bookmark Name** type `Kenya` and click **OK**.



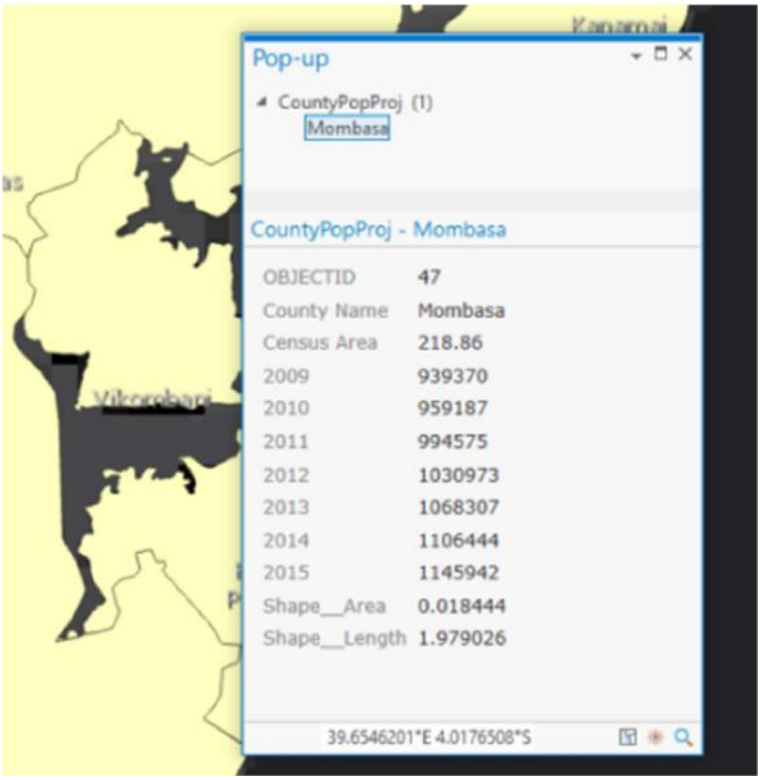
8. Zoom to the Counties of Nairobi, Mombasa and Kisumu and create an additional bookmark for each one of them.

9. Click the **Bookmarks** button and click the **Mombasa** bookmark to zoom to the extent of Mombasa County.



You'll learn more about configuring pop-ups later in this lesson. To access a pop-up, simply query a map feature by clicking on it.

10. Click anywhere in Mombasa County and review the information displayed in the pop-up.



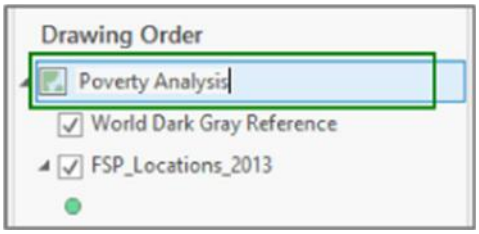
11. On the **Quick Access Toolbar**, click **Save** to save the project.

Step 4: Exploratory Data Analysis

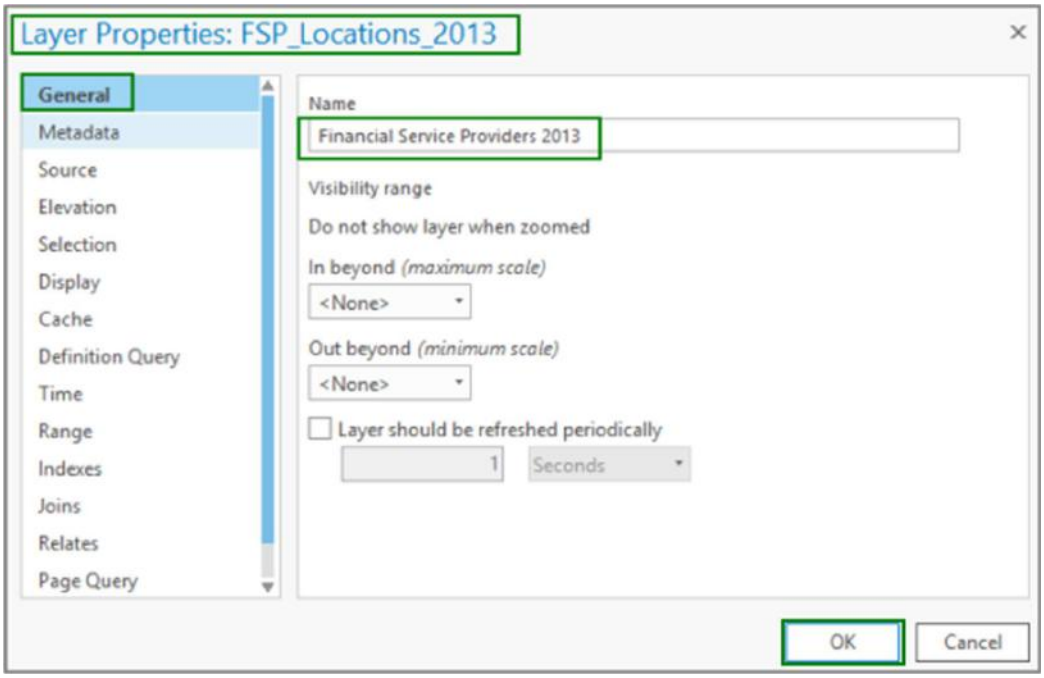
In this step you'll first give more meaningful names to objects and layers in your ArcGIS Project. You will then explore your data through map and chart visualizations.

To change the name of the **Map** and the layers in the map you can double-click them in the **Contents** pane. This opens the item's property window allowing you to change the **Name** in the **General** tab. Alternatively you can select an item and click the highlighted item to edit its name.

1. Select **Map** in the **Contents** pane, click the text, and enter `Poverty Analysis` as a more meaningful name.

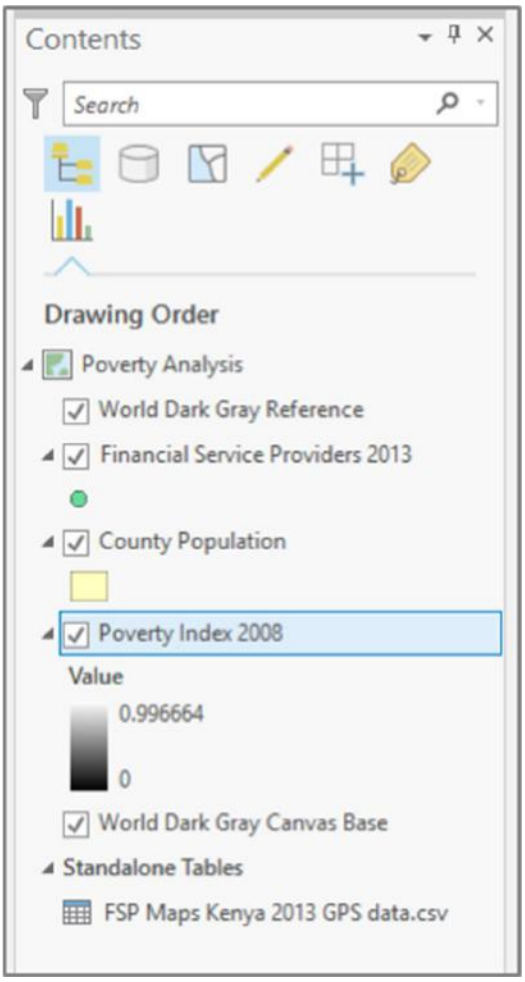


2. Double-click the **FSP_Locations_2013** layer to open its **Layer Properties** window. In the General tab change the name to `Financial Service Providers 2013`. Feel free to explore some of the other tabs before clicking **OK**.



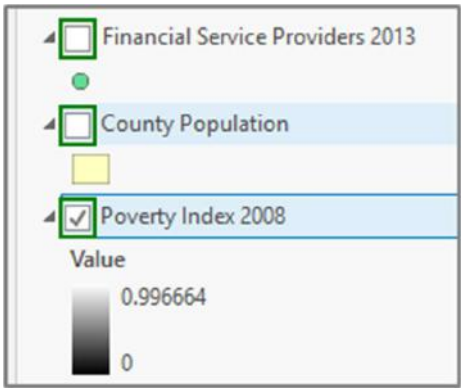
3. Now rename **CountyPopProj** to `County Population` and **ken08povmpi.tif** to `Poverty Index 2008` using either of the methods you just learned.

You **Contents** pane now looks like this:

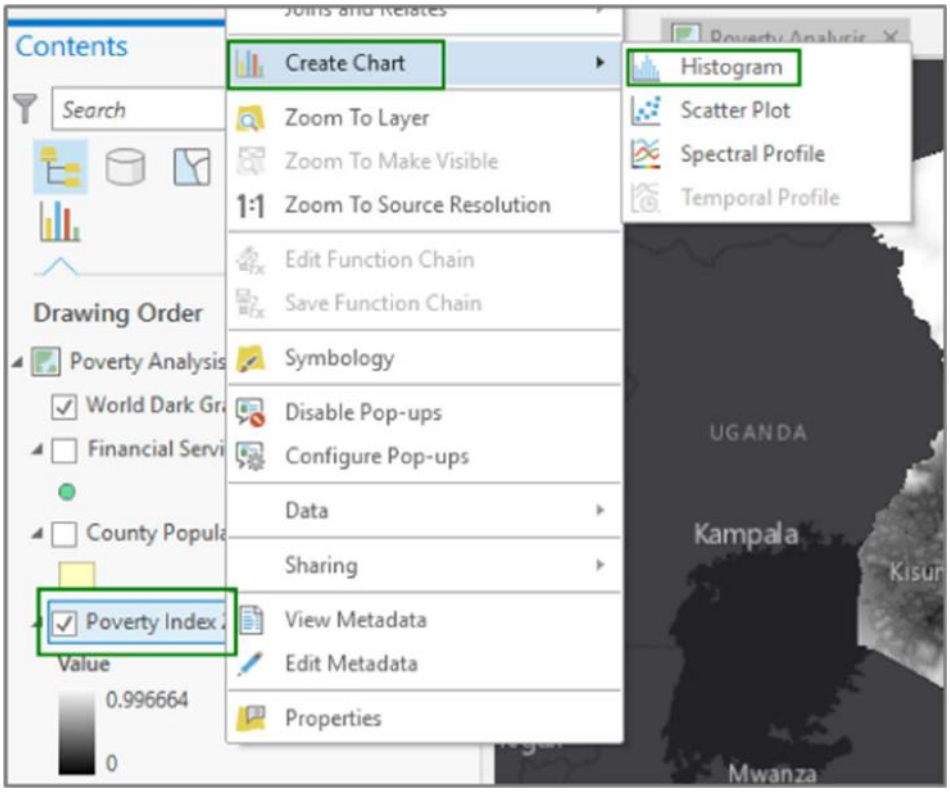


To further explore data layers, you can open the attribute table with **Attribute Table**, view statistics and create graphs with **Create Chart**, and create map visualizations with **Symbology**. You'll use each of these methods to explore the data in your project. First you'll explore **Poverty Index 2008**, a raster dataset that has been added from a TIF file.

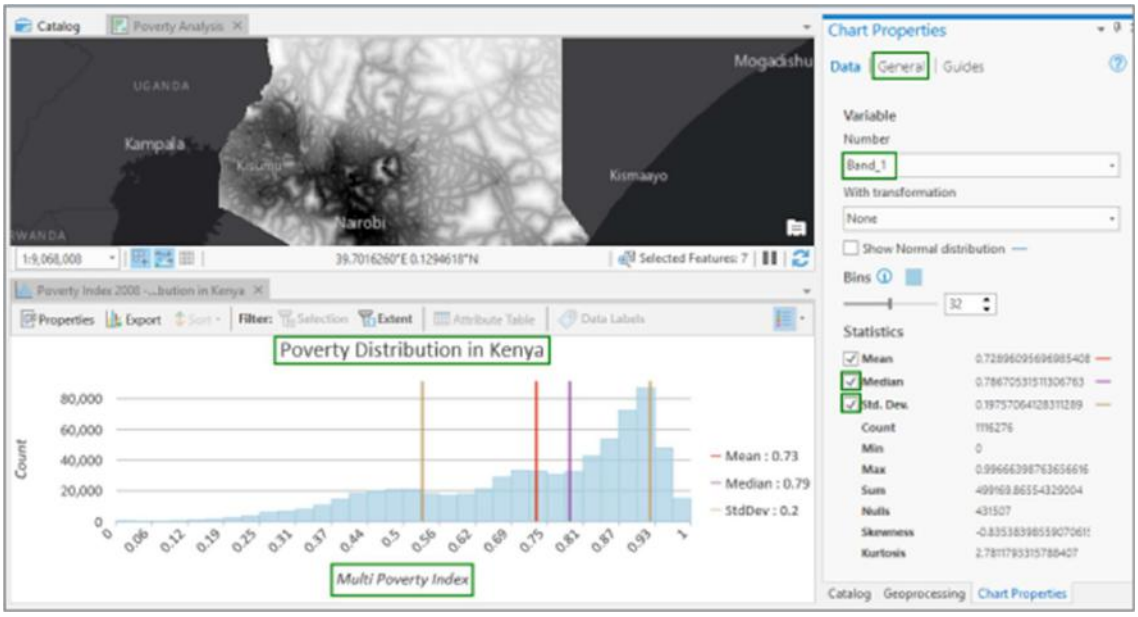
4. Uncheck the visibility of **County Population** and **Financial Service Providers 2013** to better see **Poverty Index 2008** in the **Poverty Analysis** map.



5. Right-click **Poverty Index 2018**, click **Create Chart**, and click **Histogram** to explore the distribution of MPI values in Kenya.

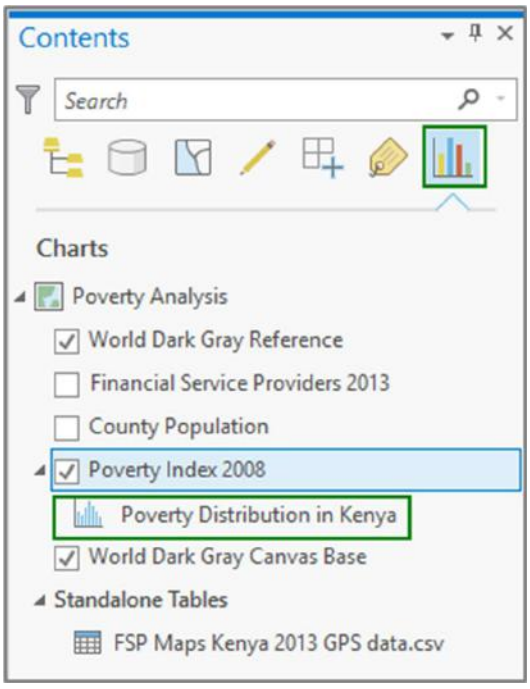


6. To configure the histogram, select **Band_1** as the number, and tick the checkboxes for **Mean**, **Median**, and **Std. Dev.** Click the **General** tab and change the **Chart Title** to `Poverty Distribution in Kenya` and the **X axis title** to `Multi Poverty Index`.



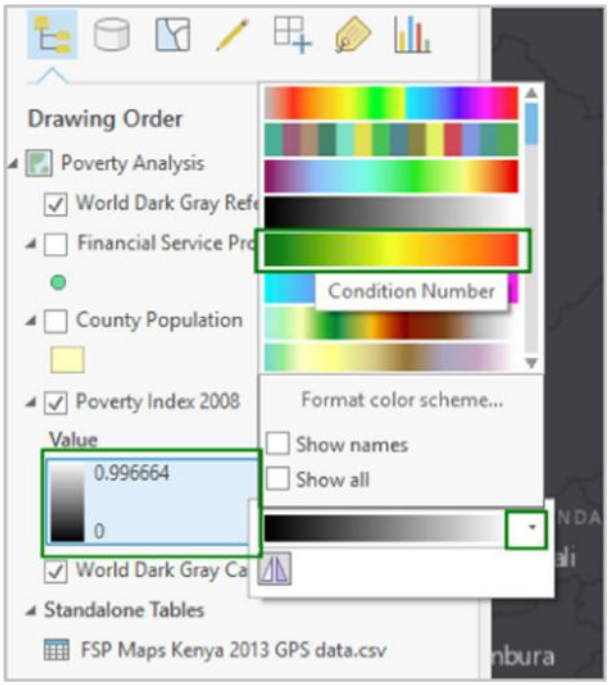
The histogram tells that poverty in Kenya has a left-skewed distribution with higher frequencies of high poverty. The **Mean** indicates that the average MPI value is 0.73, and the **Median** indicates that 50% of the country has an MPI above 0.79.

7. Close the **Poverty Distribution in Kenya** chart. Click the List by Charts icon in the Contents pane and notice that the chart is now included in your project.

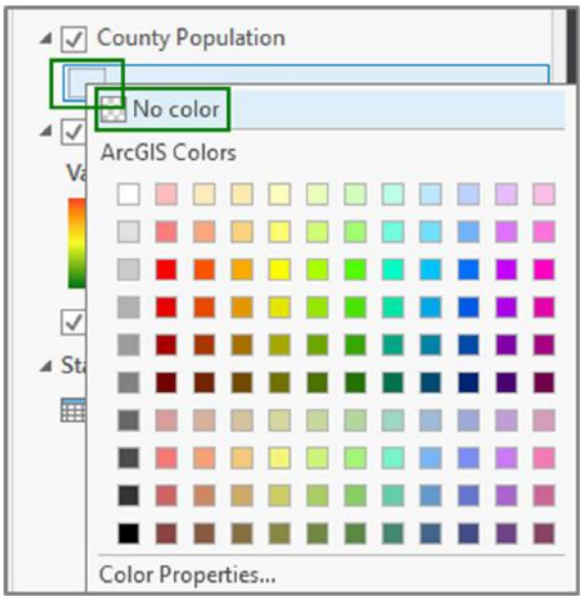


8. Click **List by Drawing Order** in the **Contents** pane to return to the original view of your data.

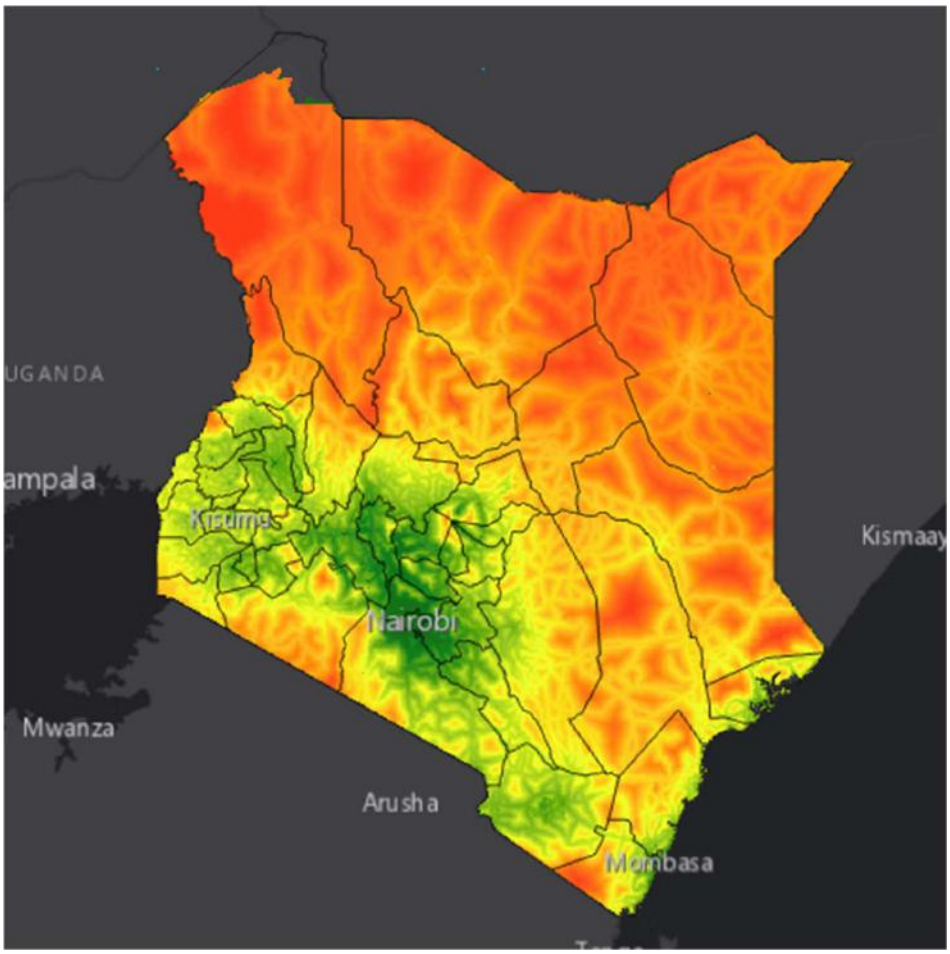
9. To better accentuate areas of high and low poverty, right-click the symbol for **Poverty Index 2008,** and select **Condition Number** as the new **Color scheme** from the drop-down list.



10. Check the visibility for **County Population**. Right-click the fill symbol and change the color to **No color**.



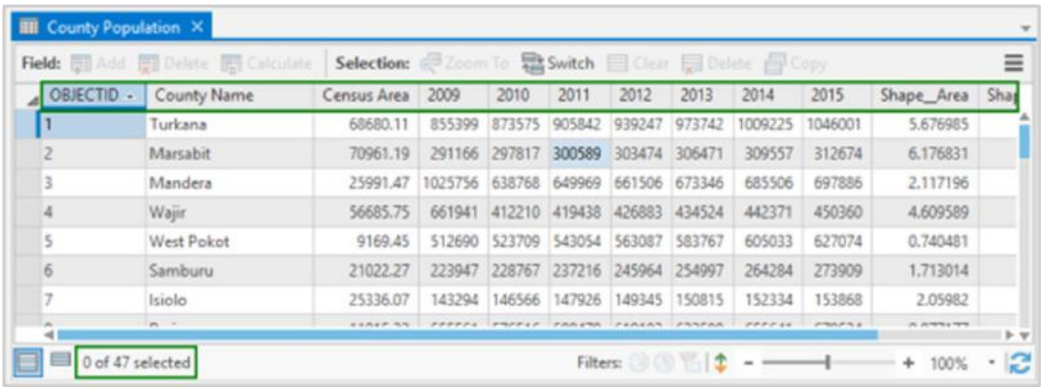
The **Poverty Analysis** map is updated and you can now see how poverty is distributed across Kenya's 47 counties.



You'll now explore the **County Population** dataset, a vector dataset with polygon features.

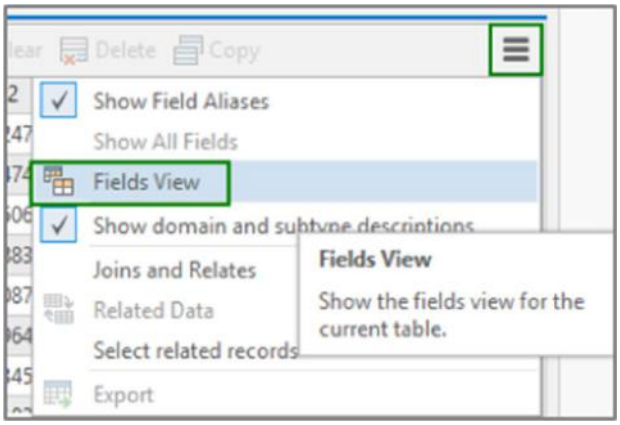
11. Right-click **County Population** and click **Attribute Table**.

The attribute table for **County Population** opens and is docked under the **Poverty Analysis** map.

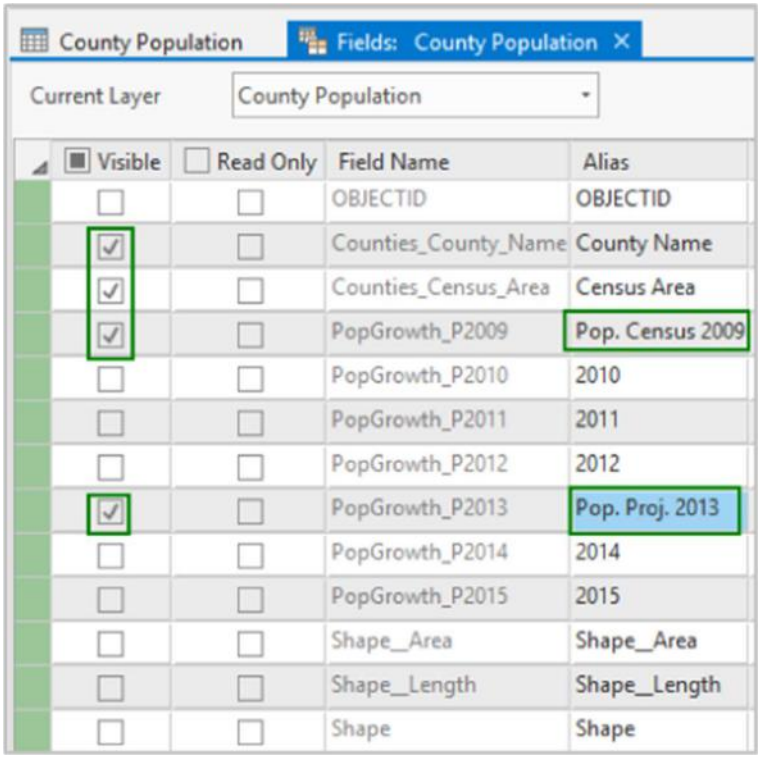


Each row in the table represents a county and each column stores the values for a unique county attribute. For instance, 2009 stores the population census count of 2009 and 2013 stores the population projections for the year 2013.

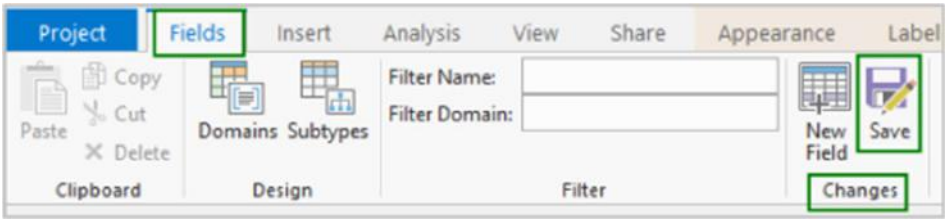
12. Click the **Menu** button in the top-right corner of the **County Population** attribute table and click **Fields View**.



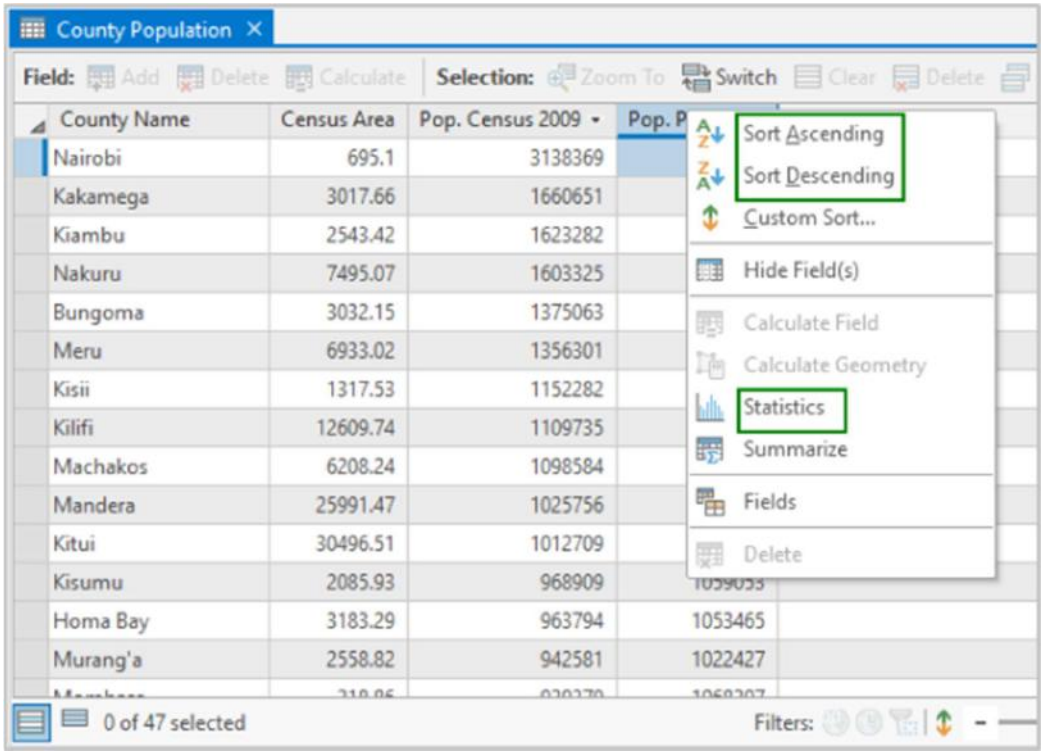
13. In the **Fields View** uncheck all fields apart from **County Name, County Area**, **2009**, and **2013**. Change the alias for **2009** to **Pop. Census 2009** and the alias for **2013** to **Pop. Proj. 2013**.



14. To save your changes, click the **Save** button, in the **Changes** group on the **Fields** tab.



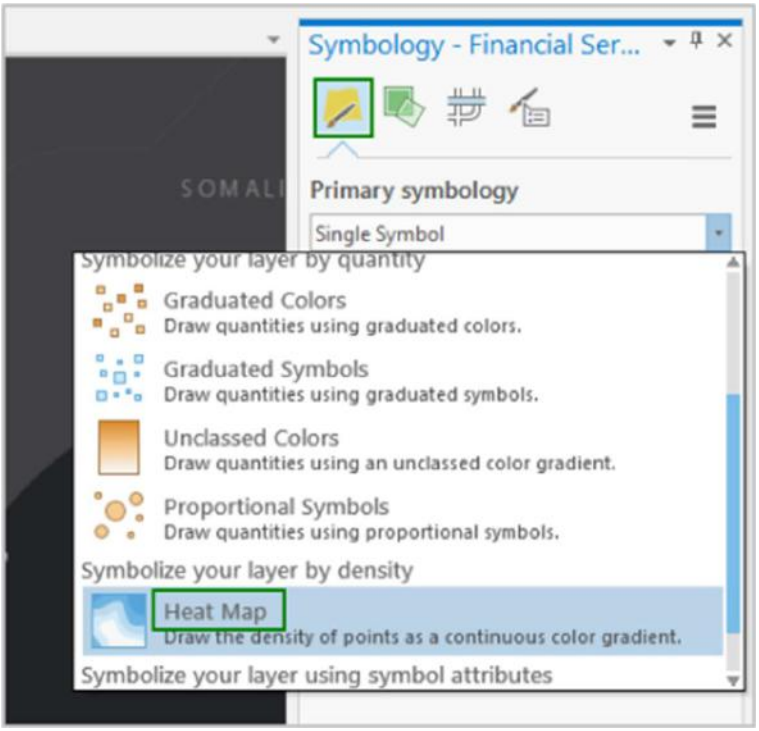
15. Close the **Fields View**. In the County Population attribute table, right-click the **Pop. Census 2009** and **Pop. Proj. 2013** headers to open the context menu. Experiment with **Sort Ascending**, **Sort Descending** and **Statistics** to gain insights into your data.



16. When done exploring close the **County Population** attribute table.

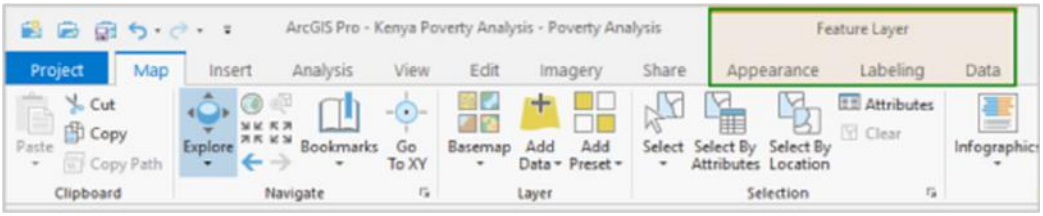
Finally you'll explore the **Financial Service Providers 2013**, a vector dataset with point features that was added from a CSV-file with Lat/Long coordinate pairs.

17. Turn on **Financial Service Providers 2013**. Notice that this clutters the map, since the dataset has many features.
18. Right-click **Financial Service Providers 2013** and click **Symbology**. This opens the **Symbology** pane on top of the **Catalog** pane.
19. In the **Symbology** pane, select the **Primary Symbology** icon. Open the dropdown list, scroll down to the bottom of the list and change the symbology from **Single Symbol** to **Heat Map**.

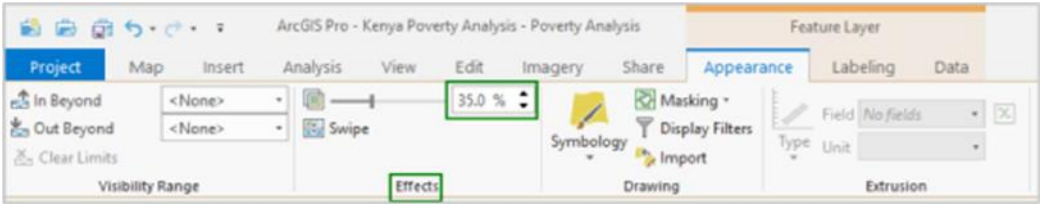


The **Poverty Analysis** map updates and shows that most financial service providers are found in Nairobi, Mombasa and Kisumu. You'll add transparency to the heat map, so that it doesn't obscure **Poverty Index 2008**.

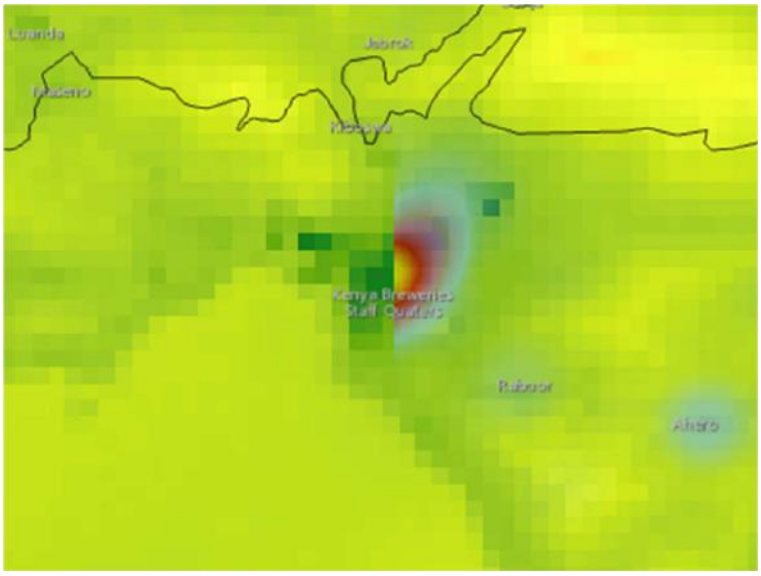
20. Select **Financial Service Providers 2013** in the Contents pane and notice the additional contextual **Feature Layer** tabs on the ribbon.



21. Click the **Appearance** tab and in the Effects group change the value in the **Transparency** box from 0 to 30%.



22. Click the **Swipe** button in the **Effects** group and zoom to the extent of Kisumu County using its saved **Bookmark** in the **Navigation** group under the **Map** tab. Move the **Swipe** tool in a vertical or horizontal direction in the **Poverty Analysis** view and notice the areas of low poverty tend to have a high density of financial institutions.



23. When done swiping, click the **Explore** button in the **Navigate** group under the **Map** tab to deactivate the **Swipe** tool.
24. On the **Quick Access Toolbar**, click **Save** to save the project.

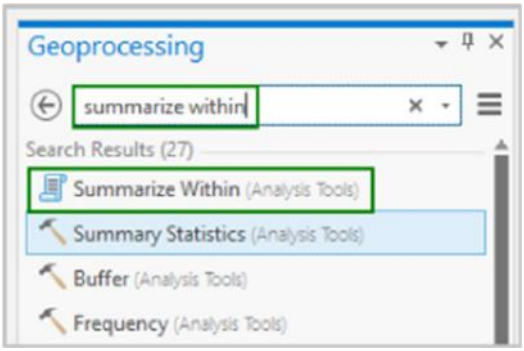
This concludes the visual analysis of your data. In the next step you will perform analysis using just a few of the many analytical tools that are available in ArcGIS Pro.

Step 5: Perform Quantitative Analysis

The visual analysis that you performed in the previous step suggests a strong negative relationship between poverty and number of financial service providers. In this step you will quantify this relationship using a few of the many spatial analysis tools in ArcGIS Pro.

First you'll summarize the number of financial service providers within each county using the **Summarize Within** tool. To enable a fair comparison between counties, you will normalize the number of financial service providers by county population.

1. Activate the **Geoprocessing** pane, or open it by clicking **Tools** in the **Geoprocessing** group under the **Analysis** tab.
2. In the **Geoprocessing** pane, search for and click the **Summarize Within (Analysis Tools)** tool.



3. When the tool opens specify the following parameters:

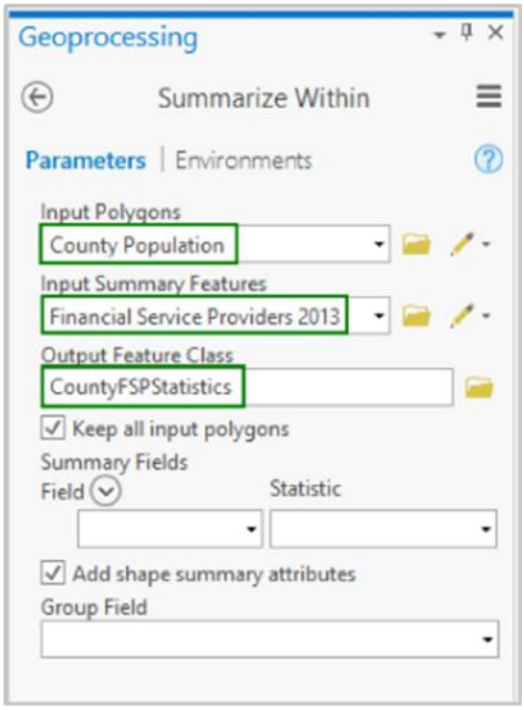
a. For **Input Polygons** choose **County Population**.

b. For Input **Summary Features** choose **Financial Service Providers 2013**.

c. For **Output Feature Class** change the default name to `CountyFSPStatistics`.

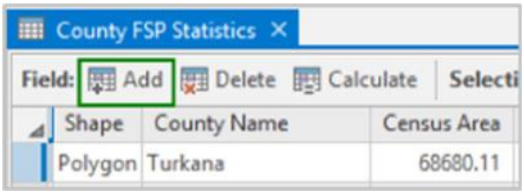
Be aware that this tool doesn't accept spaces in the output name.

d. Leave the defaults for all the other parameter and hit **Run**.



CountyFSPStatistics is added to the **Contents** pane and displayed in a default single color. You'll change its name and review its attribute table.

4. Change the name of **CountyFSPStatistics** to **County FSP Statistics**.
5. Right-click **County FSP Statistics** and choose **Attribute Table** to open it.
6. Scroll to the right of the attribute table and notice the addition of the **Count of Points** field representing the number of financial service providers within the county.
7. Click the **Field: Add** button in the top-left corner of the attribute table to add a new field.



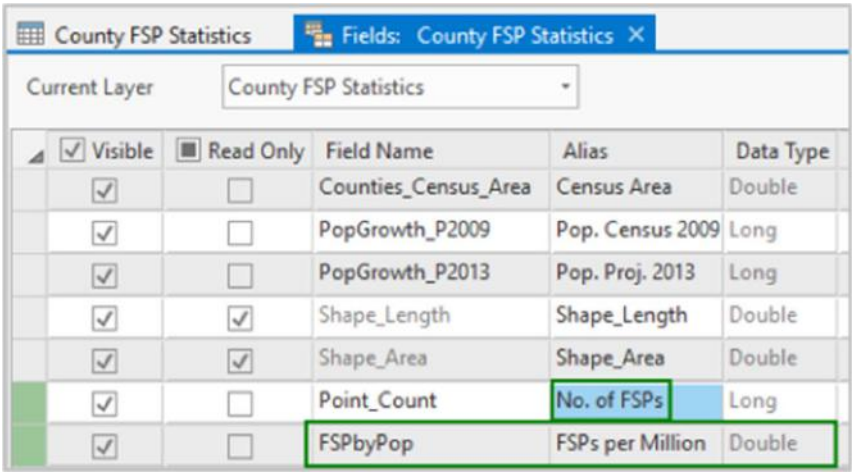
8. In the **Fields** table add a new field by populating the first empty row like this:

a. For **Field Name** type `FSPbyPop`

b. For **Alias** type `FSPs per Million`

c. For **Data Type** choose **Double**

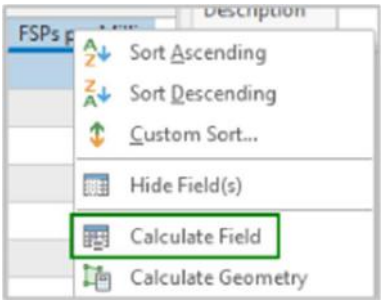
9. Change the **Alias** for **Point_Count** from **Count of Points** to `No. of FSPs`.



10. Make sure you save your changes by clicking the **Save** button in the **Changes** group before closing the **Fields** table.

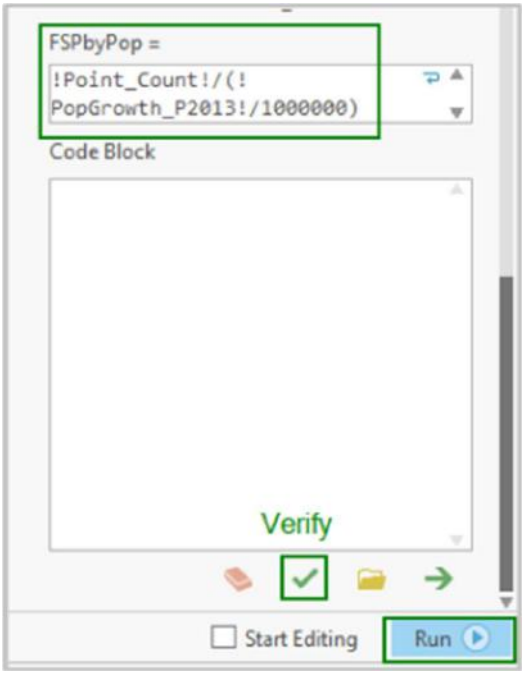
Observe that the **County FSP Statistics** attribute table now has a new **FSPs per Million** field, but it contains Null values.

11. Right-click the heading of the **FSPs per Million** field and click **Calculate Field**.



The **Calculate Field** tool opens in the **Geoprocessing** pane.

12. Scroll down to build the expression for **FSPbyPop** by dividing the **No. of FSPs** by **Pop. Proj. 2013** in millions.

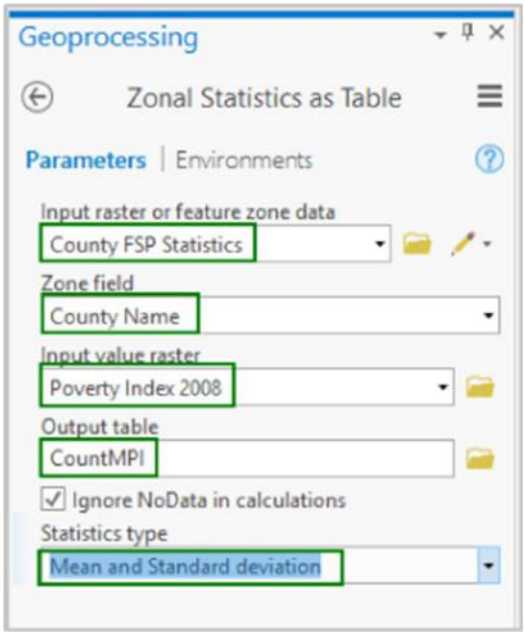


Notice that Nairobi has the highest number of FSPs per million people with a value of around 3983. Mandera has the lowest density with a value of around 178.

As a next step you'll calculate the mean poverty rate per county with the **Zonal Statistics as Table** tool. The tool creates a standalone table that you will join to **County Population**.

13. Close the **County FSP Statistics** attribute table and move back from the **Calculate Field** tool to the **Geoprocessing** pane.

14. In the **Geoprocessing** pane, search for `Zonal Statistics` and click the **Zonal Statistics as Table (Spatial Analyst Tools)** tool.
15. When the tool opens specify the following parameters:
    a. For **Input raster or feature zone data** choose **County FSP Statistics**.
    b. For **Zone field** ensure that **County Name** is selected.
    c. For **Input value raster** choose **Poverty Index 2008**.
    d. For **Output table** type `CountyMPI`.
    e. For **Statistics type** choose **Mean and Standard deviation**.
    f. Leave **Ignore NoData in calculations** checked and hit **Run**.



The tool runs and adds **CountyMPI** as a standalone table to the **Contents** pane.

16. Right-click **CountyMPI** and click **Open** to explore the table.

CountyMPI

Field: Add Delete Calculate Selection: Zoom To Switch Clear

OBJECTID	Counties_County_Name	ZONE_CODE	COUNT	AREA	MEAN	STD
46	Kwale	46	9587	0.665763	0.645757	0.167878
40	Kajiado	40	25366	1.761526	0.494727	0.14687
34	Narok	34	20796	1.444166	0.652919	0.144248
26	Nyeri	26	3904	0.271111	0.348905	0.13817
43	Lamu	43	7068	0.490833	0.605621	0.137618
11	Bungoma	11	3525	0.244791	0.525536	0.13761
8	Baringo	8	12630	0.877083	0.659891	0.135391
17	Meru	17	8064	0.56	0.579739	0.131685
9	Elgeyo Marakwet	9	3534	0.245416	0.533314	0.126356

Notice that Kwale has the highest standard deviation with a value of around 0.16. You'll now join the **CountyMPI** table to the **County FSP Statistics** feature layer.

17. Close the **CountyMPI** table and in the **Geoprocessing** pane search for and choose **Join Field (Data Management Tools)**.

18. When the **Join Field** tool opens specify the following parameters:

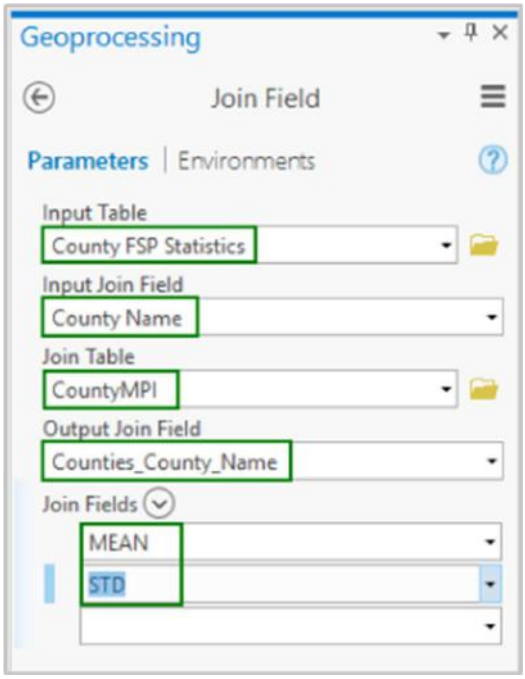
    a. For **Input Table** choose **County FSP Statistics**.

    b. For **Input Join Field** choose **County Name**.

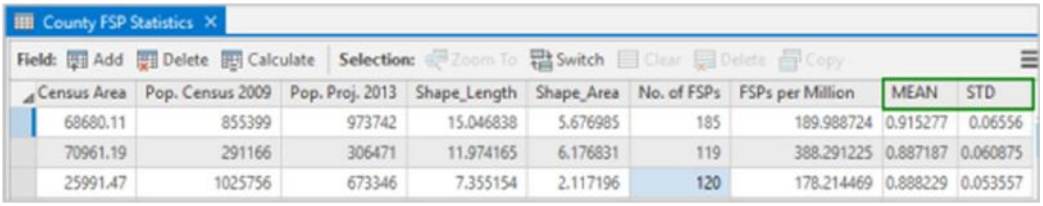
    c. For **Join Table** choose **CountyMPI**.

    d. For **Output Join Field** choose **Counties_County_Name**.

    e. For **Join Fields** choose **MEAN** and **STD** and hit **Run**.



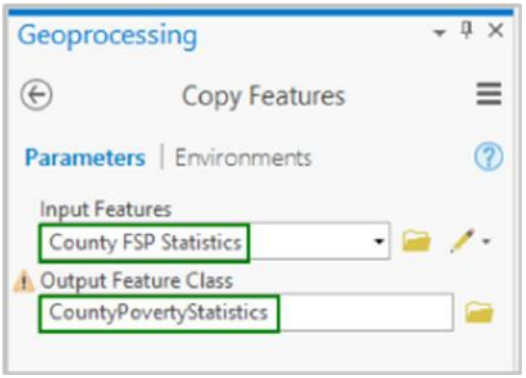
19. Open the attribute table for **County FSP Statistics** and confirm that **MEAN** and **STD** appear as joined fields.



Census Area	Pop. Census 2009	Pop. Proj. 2013	Shape_Length	Shape_Area	No. of FSPs	FSPs per Million	MEAN	STD
68680.11	855399	973742	15.046838	5.676985	185	189.988724	0.915277	0.06556
70961.19	291166	306471	11.974165	6.176831	119	388.291225	0.887187	0.060875
25991.47	1025756	673346	7.355154	2.117196	120	178.214469	0.888229	0.053557

Joined fields can't be used in charts so you'll export **County FSP Statistics** to **County Poverty Statistics**.

20. Right-click **County FSP Statistics** click **Data** and then click **Export Features** to open the **Copy Features** tool.
21. Change the name of the **Output Feature Class** to `CountyPovertyStatistics` and hit **Run**.

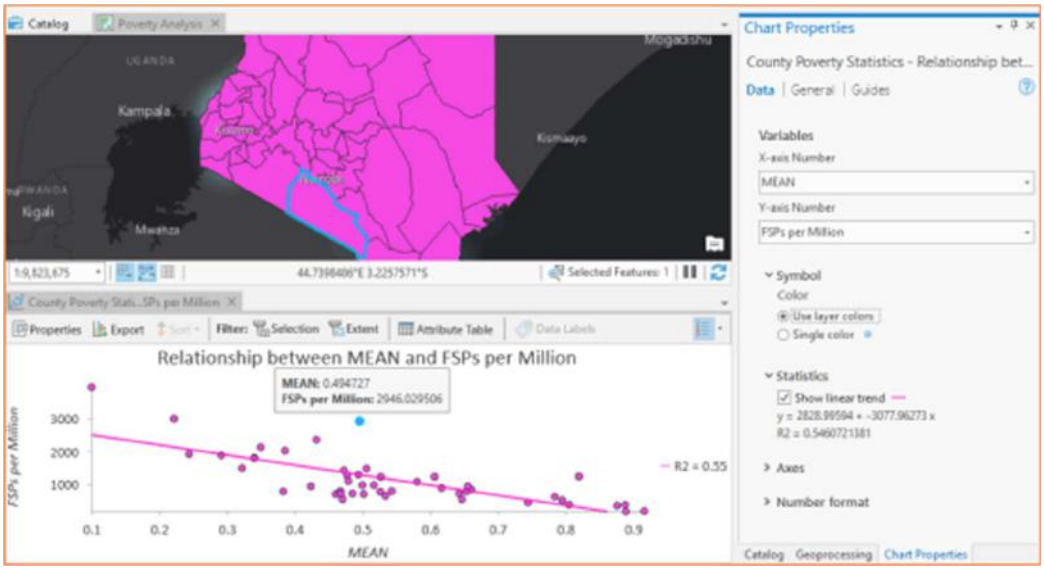


22. When **CountyPovertyStatistics** is added to the Content pane change its name to `County Poverty Statistics`.

23. Now you no longer need the **County Population** and **County FSP Statistics** feature layers, so right-click them and choose **Remove** to remove them from the **Contents** pane.

Finally you are ready to verity the relationship between the mean MPI and FSP density with a scatter plot.

24. Right-click **County Poverty Statistics** and click **Create Chart.** From the list choose **Scatter Plot** as the chart type.
25. In the Chart Properties pane, choose **MEAN** as the **X-axis Number** and **FSPs per Million** as the **Y-axis Number**. Change the change the Chart and Axis titles, if you remember how.
26. In the scatter plot click some of the outliers to locate them in the map. Notice that Kajiado has many FSPs in relation to its mean MPI.

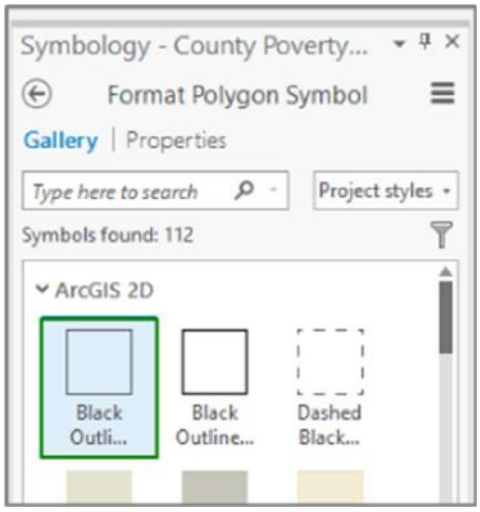


27. On the **Quick Access Toolbar**, click **Save** to save the project.

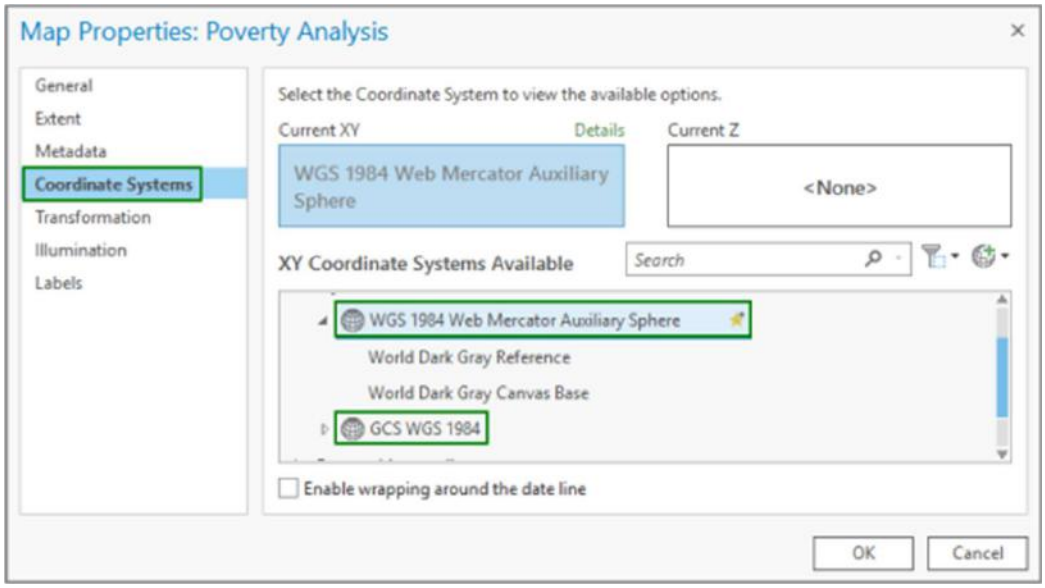
Step 5: Publish to ArcGIS Online

As the final step in your ArcGIS Pro project, you'll publish the analysis results to ArcGIS Online. First you'll prepare your data for ArcGIS Online.

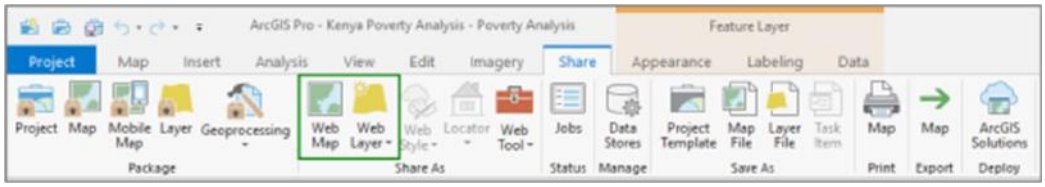
1. Click the symbol for **County Poverty Statistics** and pick **Black Outline (1pt)** from the Gallery.



2. Double-click the **Poverty Analysis** map in the Contents pane. Click the **Coordinate Systems** tab and change the XY Coordinate System from **GCS WGS 1984** to **WGS 1984 Web Mercator Auxiliary Sphere**.

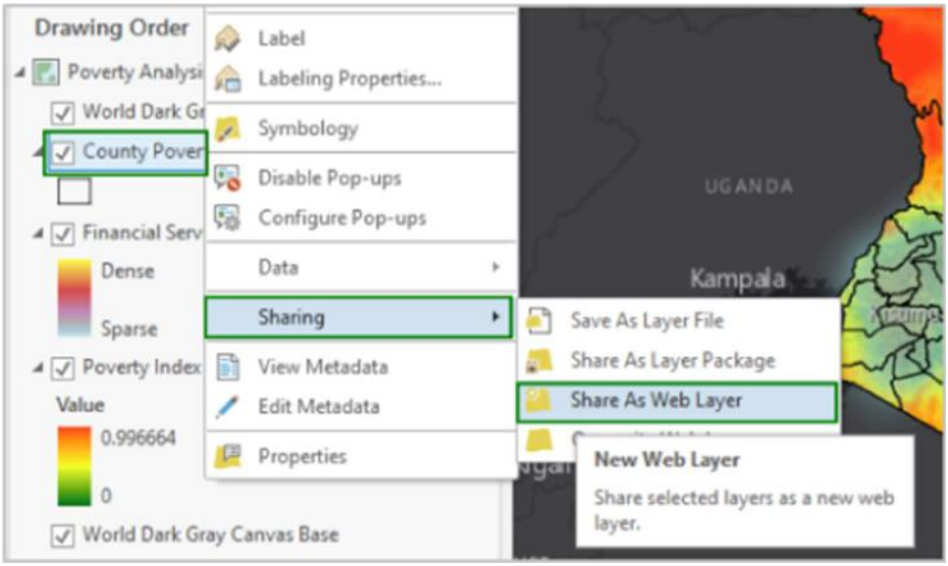


3. Activate the **Map** tab on the ribbon and take note of the many ways in which you can share your work.



You can publish your work on ArcGIS Online by sharing the **Poverty Analysis** map as a Web Map. Instead you will just share **County Poverty Statistics** as an individual web layer.

4. Right-click **County Poverty Statistics** click **Sharing** and choose **Share As Web Layer**.



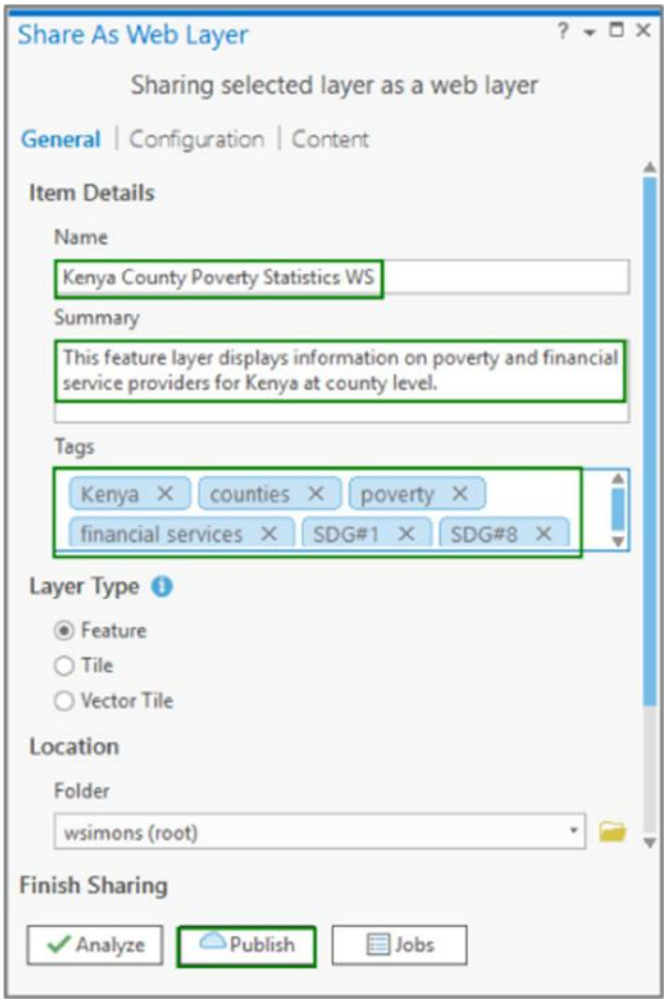
5. In the **Share as Web Layer** window that opens specify the following parameters:

    a. For **Name** type `Kenya County Poverty Statistics <Your Initials>.`

    b. For **Summary** type `This feature layer displays information on poverty and financial service providers for Kenya at county level.`

    c. For **Tags** type `Kenya, counties, poverty, financial services, SDG#1, SDG#8.`

    d. Click **Publish**.



A confirmation message will appear when the web layer has been successfully published on ArcGIS Online.

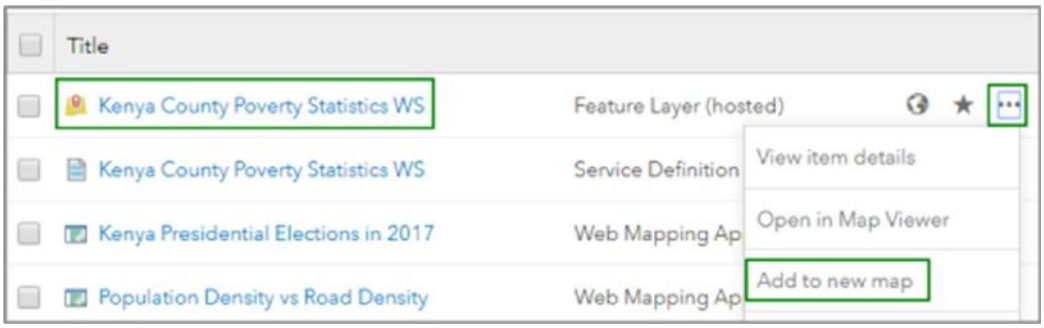
6. Click **Manage the web layer** and sign in to your ArcGIS Online organizational account when prompted. The **Item Details** page of the web layer opens.
7. Click the thumbnail to open the web layer in the ArcGIS Online Map Viewer

8. Confirm that the web layer has been correctly published. When done, return to ArcGIS Pro.
9. Close the **Share As Web Layer** window, **Save** the project and close ArcGIS Pro.

Step 6: Build a Web Map in ArcGIS Online

You'll now return to ArcGIS Online to style a web map that can be viewed by others online with an ArcGIS Online account.

1. Switch back to ArcGIS Online and click the **Contents** tab.
2. Click your **Kenya County Poverty Statistics** hosted feature layer under the **Contents** tab and click **Add to new map**.



3. In the **Contents** pane point to the **Kenya County Poverty Statistics** layer and click **Change Style**.

Smart Mapping in ArcGIS Online picks smart defaults for the visualization of your data. You'll change the smart defaults to show the relationship between Mean MPI and No. of FSPs.

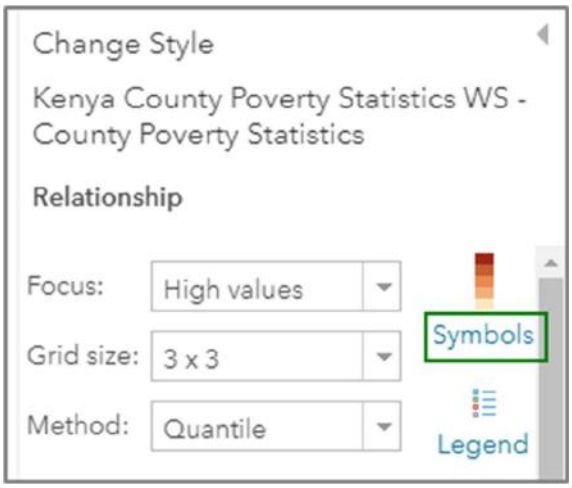
4. In the Change Style window set the following parameters:
    a. Under **Choose an attribute to show** choose **MEAN** from the drop-down list.
    b. Click Attribute and choose **FSPs per Million** as the second attribute.

    ArcGIS Online now picks **Color and Size** as the default drawing style, but you'll change it.

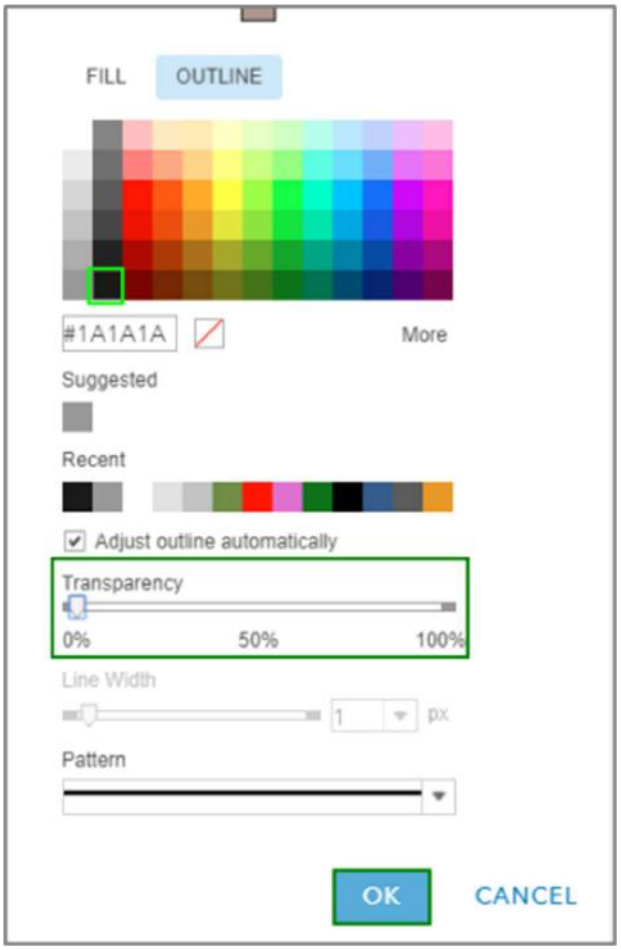
    c. Under **Select a drawing style** scroll down and select **Relationship**.

    In the preview the county boundaries are hardly visible. You'll now fix this.

    d. Click **OPTIONS** within the **Relationship** drawing style.
    e. Review the different styling options before clicking symbols



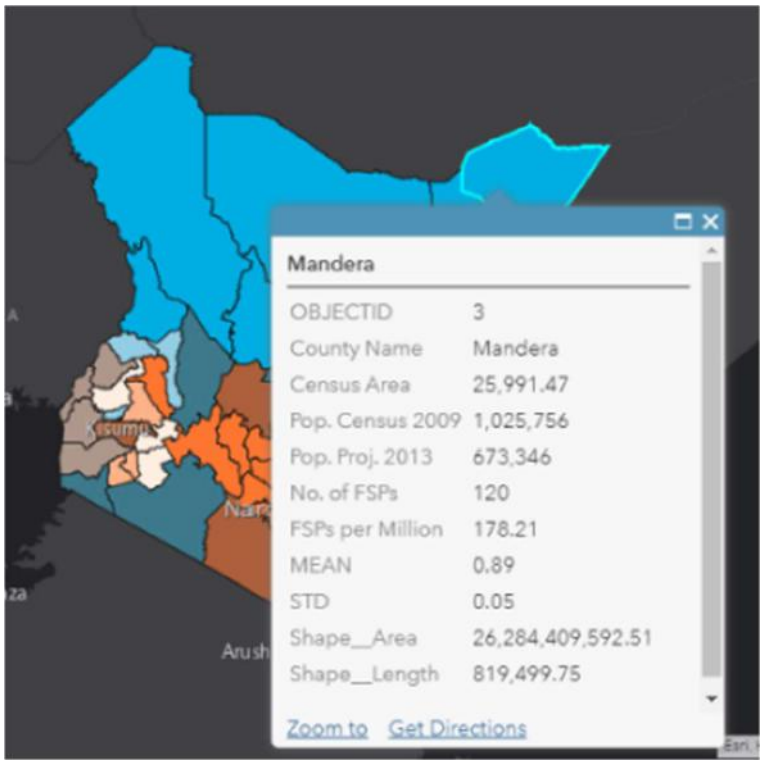
f. In the window that opens, click the **OUTLINE** tab. Change the color to Black and move the Transparence slider to 0%. Scroll to the bottom of the window and click OK.



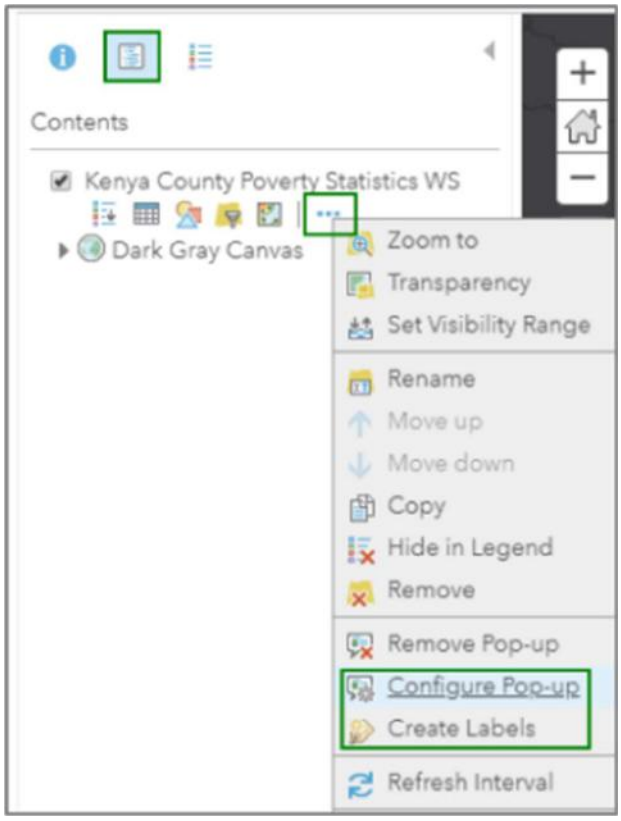
g. Click **OK** to close the **OPTIONS** and **DONE** to accept **Change Style**.

5. On the ribbon click **Basemap** and choose **Dark Gray Canvas** to change to a neutral basemap.

Your Web Map is beginning to look good, but the pop-ups which appear when you click a feature on the map contain too much information. Notice also that labels are missing for most of the counties.



6. Close the pop-window.
7. In the **Contents** pane, point to the **Kenya County Poverty Statistics** layer, and click **More Options**.

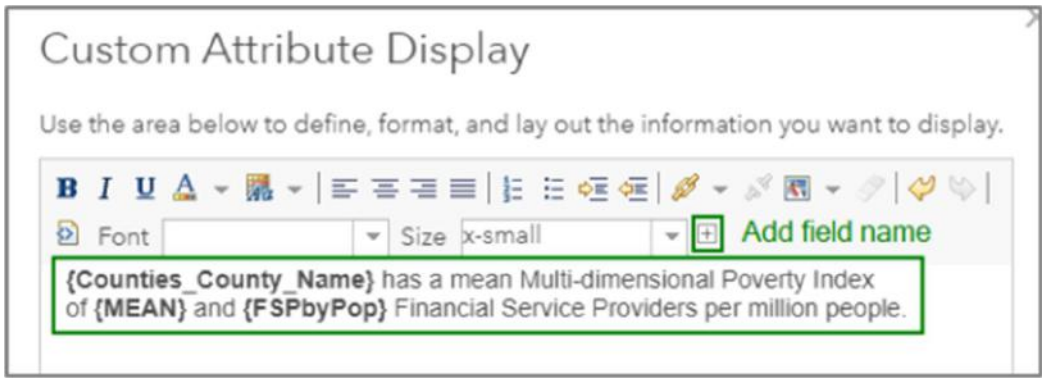


You will use **Configure Pop-up** and **Create Labels** in the next steps.

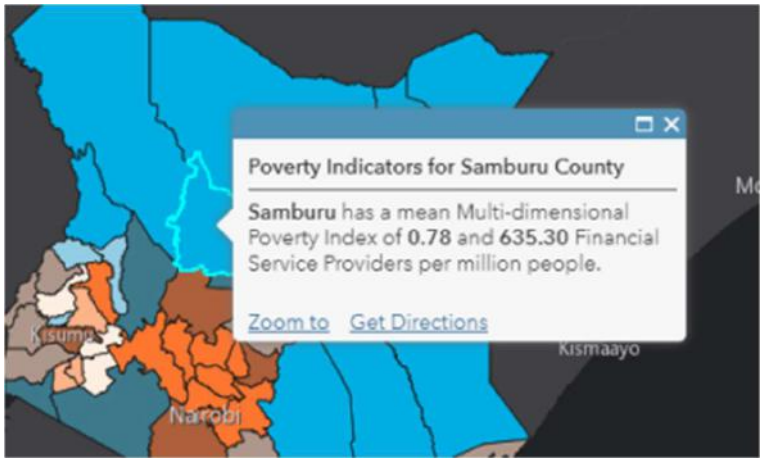
8. Click **Configure Pop-up** to open the Configure Pop-up dialog.
9. Edit the text of the **Pop-up Title** so that it reads `Poverty Indicators for {Counties_County_Name} County`.

10. For **Pop-up Contents** choose **A custom attribute display** from the drop-down list and click CONFIGURE.

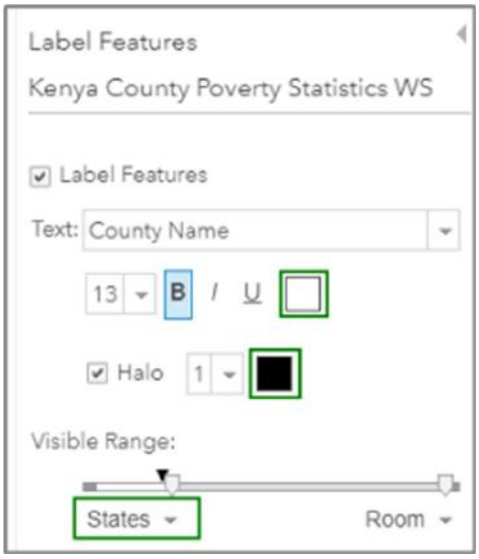
11. In the **Custom Attribute Display** window enter the text shown below. Use the +-button to choose the field names (in bold) from a drop-down list. Click **OK** when done.



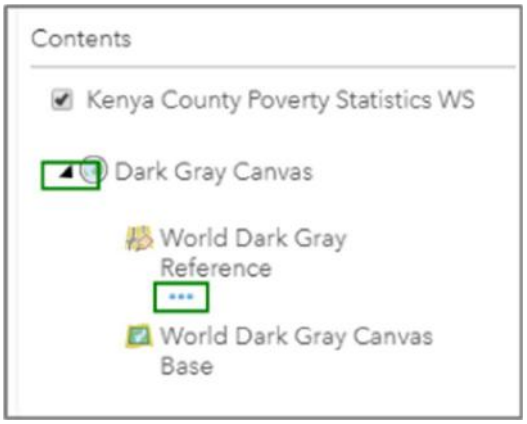
12. In the Configure Pop-up dialog click **OK**.
13. Click one of the counties to confirm that your pop-up is now properly configured.



14. In the **Contents** pane, point to the **Kenya County Poverty Statistics** layer. Click **More Options** and choose **Create Labels**.
15. In the Create Labels dialog specify the following parameters:
    a. Confirm the text comes from **County Name**.
    b. Change the label color to **White**
    c. Tick the **Halo** checkbox and change the color to **Black**.
    d. Change the minimum **Visible Range** from **World** to **States/Provinces (1:6,000,000)**.



16. Open the **Dark Gray Canvas** group layer. Click **More Options** for **World Dark Gray Reference** and change the maximum Visible Range from **Room** to **States/Provinces (1:6,000,000)**.



17. Zoom in to the map to confirm that the labels change from **World Reference** to **County Name**.

18. Click  to zoom to the **Default Extent,** click **Save** on the ribbon and choose **Save**.

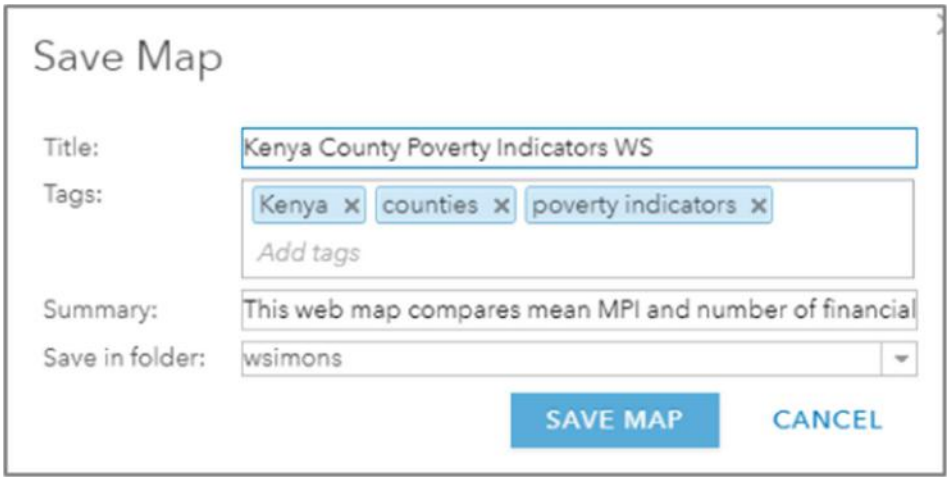
19. In the Save Map window enter the following information:

    a. For **Name** type `Kenya County Poverty Indicators <Your Initials>.`

    b. For **Summary** type `This web map compares mean MPI and number of financial service providers in Kenya at county level.`

    c. For **Tags** type `Kenya, counties, poverty indicators.`

d. Click **SAVE MAP**.

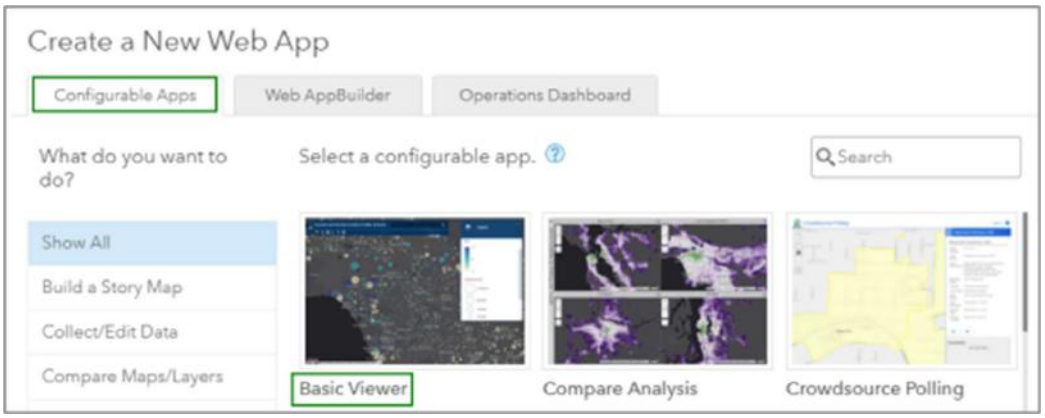


Step 7: Create a Web App in ArcGIS Online

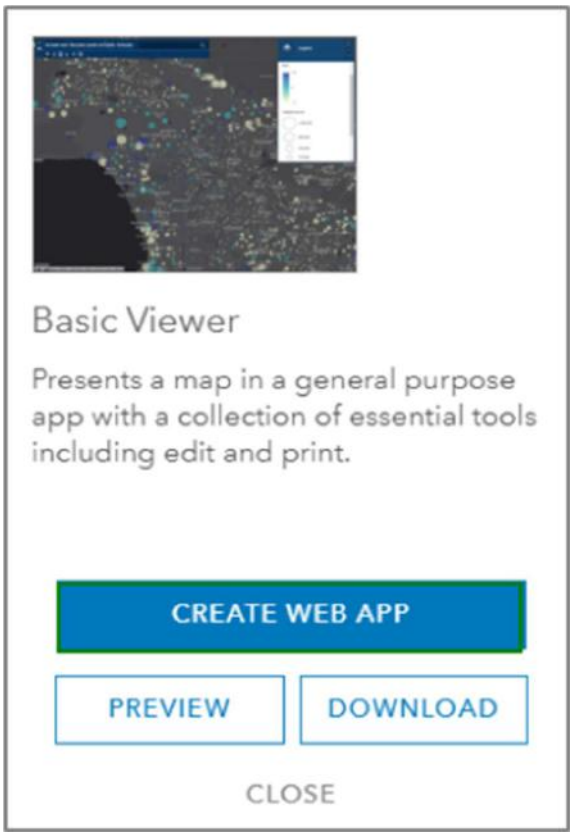
In this final step you'll share your web map with the public through a web app that can be accessed within a web browser.

1. On the ribbon click **Share**.
2. In the **Share** window, share the map with **Everyone**.
3. If the **Update Sharing** window pops up, click **UPDATE SHARING**. The window closes.
4. In the **Share** window, click **CREATE A WEB APP**.

5. In the **Create a New Web App** window under **Configurable Apps** select the **Basic Viewer**.



6. In **the Basic Viewer** preview window click **CREATE WEB APP.**

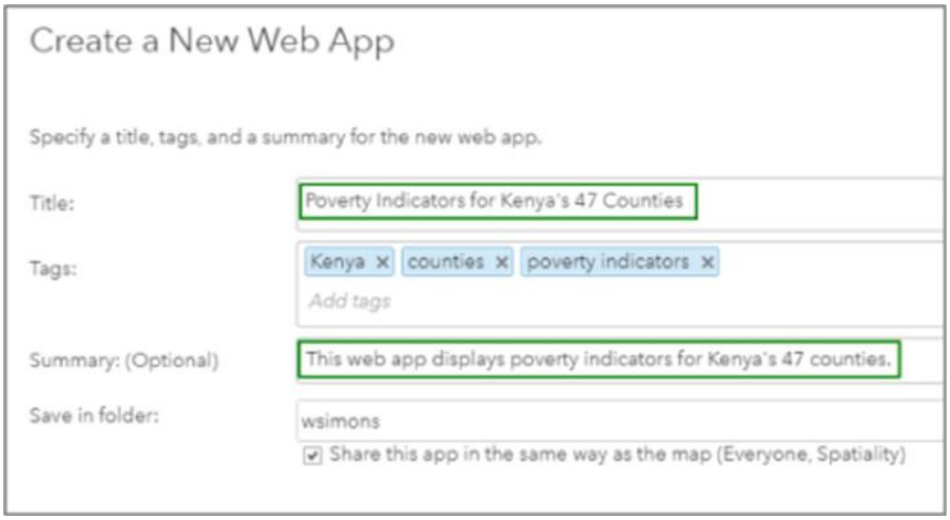


7. In the **Create a New Web App** window:

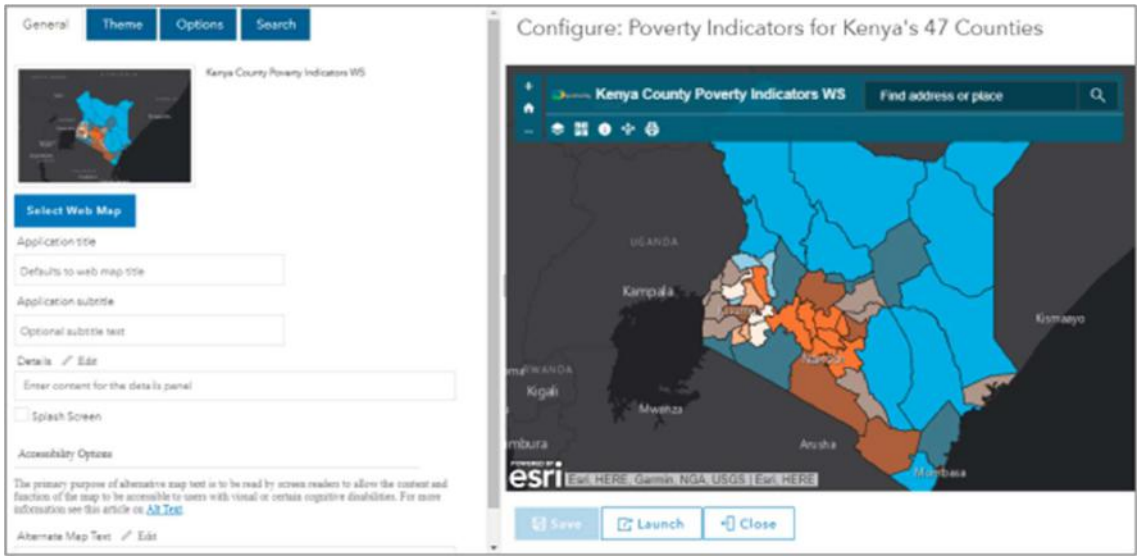
   a. Change the **Title** to `Poverty Indicators for Kenya's 47 Counties`.

   b. For **Summary** type `This web app displays poverty indicators for Kenya's 47 counties.`

   c. Scroll down and click **DONE**.



The Web App now opens in a configurable state.

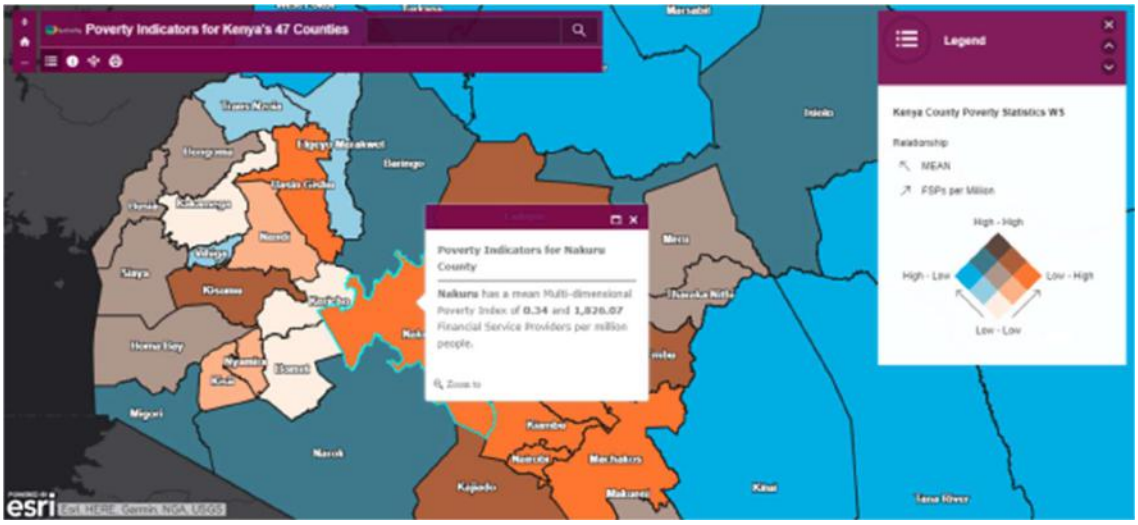


8. In the **General** tab for **Application title** type `Poverty Indicators for Kenya's 47 Counties`.
9. In the **Theme** tab change the **Header color** to a dark purple.

10. In the **Options** tab under Toolbar Options, uncheck **Basemap Gallery,** check **Legend,** and uncheck **Display layer list**.

11. Click **Save** to save your changes and **Launch** to view and test the application.

An example of how your application might look like is given below.



Congratulations you have come to the end of the lesson!

In the first steps you became familiar with ArcGIS Pro, learned to add data from a variety of sources, navigated the map and conducted exploratory data analysis. You then used some of ArcGIS Pro's analytical tools and published the results of your analysis as a hosted feature layer to ArcGIS Online.

In ArcGIS Online, you styled a beautiful web map using ArcGIS Online innovative 'Smart Mapping' method. Finally, you shared the web map with everyone through a web app that was built from a configurable template.

Along the way you learned how to carry out a spatial data project and analyzed the distribution of poverty in Kenya and how it relates to the distribution of financial service providers. You might be well on your way in becoming one of Kenya's pioneering spatial data scientists!