Urban Hotspots is a Geoportal extension which simplifies the process of hotspots mapping and data analytics. Using Urban Hotspots is straightforward:

1. Log in to the Geoportal.
2. Select Urban Hotspots from the Geoportal's Tools menu icon in the top right corner.
3. Select a study area.
4. Select which layers to include in the analysis and click "Evaluate".

You should see a hotspot map on the screen after a few seconds. The total computation time depends on the size of the selected layers.

Now, let's have a more detailed look at each step and describe all required inputs. In the example above we have considered that data is already available at the Geoportal, and that someone has set up Urban Hotspots before. In the following section we will describe how to set it up from scratch.

To use Urban Hotspots you will need:

Study area: A Geoportal layer which describes the study area for your analysis. Frequently this a state, a municipality or a metropolitan area boundary. You can select any name for this layer, as long as it contains the string "study area".

Layers: A set of Geoportal layers with data to be analyzed. Layers must have at least two attributes, one with the MMU (minimum mapping unit) identifier and one with the numeric values which will be mapped.

Filters (optional): A set of Geoportal layers containing values of 1 or 0, which will be used for filtering data.

If required data is not yet available in the Geoportal, upload it. Once that you have all layers in the Geoportal, follow these steps:

1. Log in to the Geoportal.
2. Select Urban Hotspots from the Geoportal's Tools menu icon in the top right corner.

3. Select the Geoportal layer that describes your study area.

4. Select "Advanced". From the layer panel select the layer that will be included in the analysis.

5. Match which attributes in the selected layer relate with the Layer value, and Minimal mapping unit ID.

6. Type a name for the layer. This will be the one displayed in the Urban Hotspots menu.

7. Click on "Save". Urban Hotspots is ready for analysis.

Optionally, select Filters or Settings from the "Advanced" section to add Filter layers or to modify weighs and normalization options.

Normalization options include the following fields.

Layer: Name of the layer in the Geoportal

Normalization Method: Describes the method that will be used for normalization. Options include one of the following options: "Standardize" or "Benchmark".

Lowest value: The lowest value to process, when using the Benchmark method.

Highest value: The highest value to process, when using the Benchmark method.

Weight: A numeric value describing the amount in which each layer should contribute more than others to the final results.

Smaller better?: True or false values, describing whether lower values should be considered optimal or not.

Dealing with messy data

You might need to use the "Clean data" icon at the mid-right of the Geoportal screen to perform basic cleanup operations to the Layer before importing to Urban Hotspots.
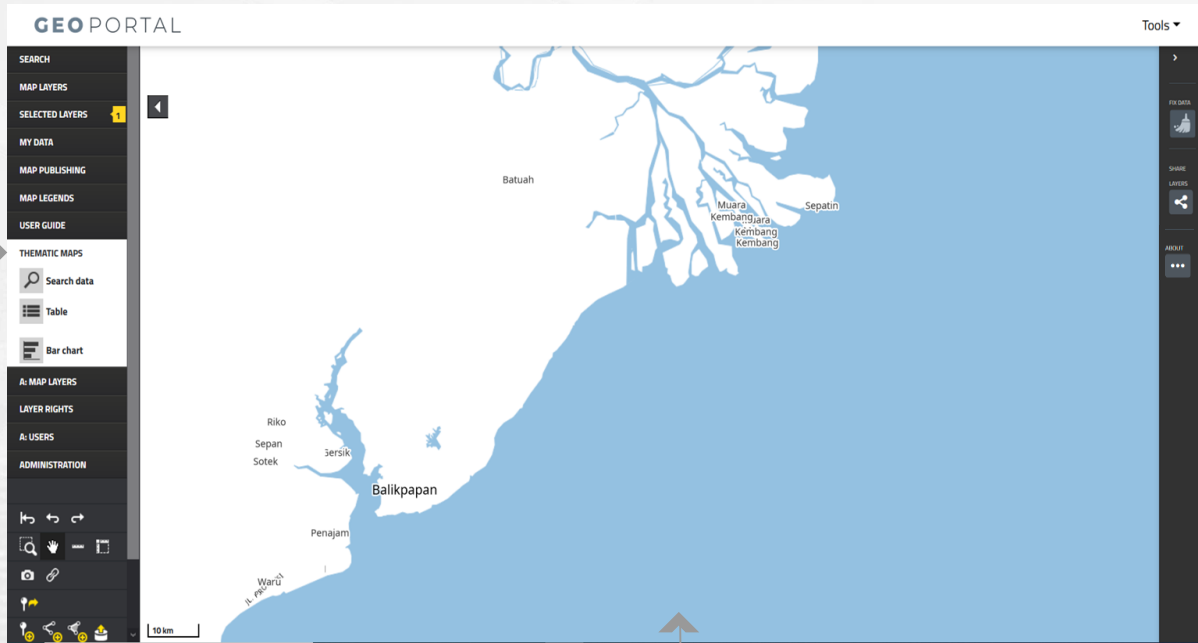
Euclidean distance calculator

If you have amenities-point or -polygon layers, you can use the "Advanced > Manage data > Evaluate distances" calculator to estimate euclidean distances to each MMU.

Content

Geoportal at a glance

Using Urban Hotspots

Geoportal
at a glance

The Geoportal is composed of two main elements: a panel in the left, where users can select existing layers or upload their own data into the Geoportal, and a data frame.

1. The left panel is where users can select the preloaded layers or upload new ones. There will be information uploaded in advance or users can upload their own data sets.

2. In the data frame users can visualize spatial information. The selected layers will be displayed in the data frame area.

UPTUser

UPTAdmin

The geoportal has specific roles that grants users access to the UPT. If a user doesn't have any of these roles, they will not be able to use the UPT.

1. UPT stands for Urban Planning Tools, and refers to **Urban Hotspots** and **Urban Performance.**

2. UPTUser: A user who will handle evaluations and calculations in the UPT.

3. UPTAdmin: A user who can handle not only the evaluations and calculations, but can also manage certain data that will be shown to other users, thus has access to more modules.

Any modules that require this role will be marked as **UPTAdmin only** in this document. These modules will also not be visible to users who only have the **UPTUser** role.
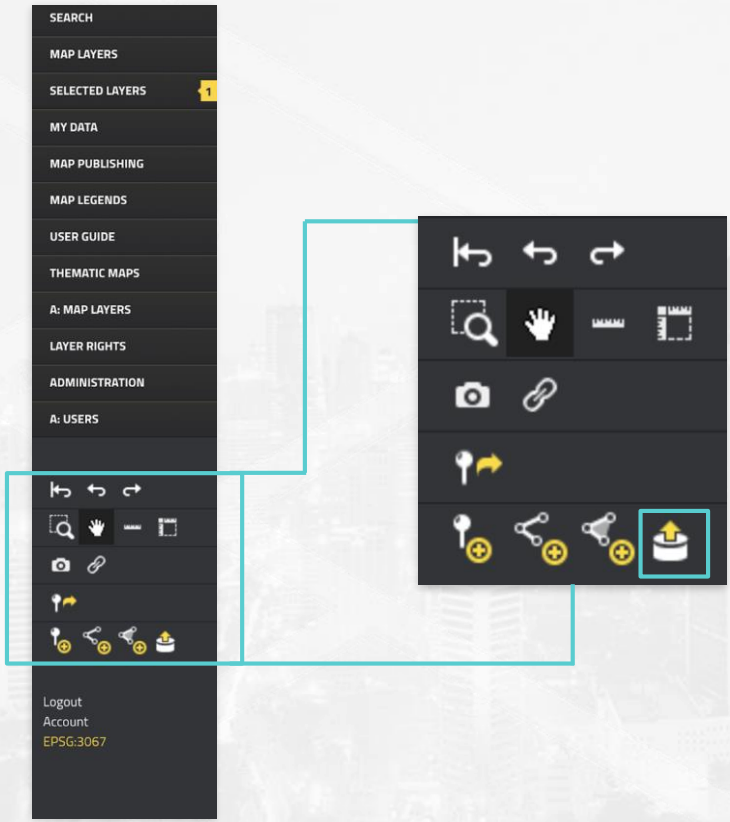
Login to have access to layer management functionalities.

1. Upon first accessing the Geoportal, log in using any of the following credentials:

For a user with the **UPTUser** role:
Username: demouser
Password: test2020

For a user with the **UPTAdmin** role
Username: demoadmin
Password: test2020

Uploading a new layer as a shapefile.

SEARCH

MAP LAYERS

SELECTED LAYERS 1

MY DATA

MAP PUBLISHING

MAP LEGENDS

USER GUIDE

THEMATIC MAPS

A: MAP LAYERS

LAYER RIGHTS

ADMINISTRATION

A: USERS

Logout
Account
EPSG:3067

1. Once logged in, click on the import datasets icon found on the left panel.

BOX #1: LAYER FILE FORMAT

To upload layers, users must use a zipped shapefile (.shp, .shx, .dbf, and .prj).

The file MUST be a .ZIP

For more information on layer requirements for use in UH, please go to Box #1 of the technical report.

Uploading a new layer as a shapefile.

Dataset Import

Upload a dataset from your computer as a zipped file which contains all required files from one of the following file formats:

- Shapefile (.shp, .shx, .dbf and .prj, optionally .cpg)

The zipped file can contain only one dataset and it can be at most 99 Mb.

Drag a file here or select by browsing.

Map layer name

Description

Data source

Style definitions

Import

2. On the new window, users can either **drag their .zip file from their filesystem to the indicated area**, or click on 'select by browsing' to manually look for the file.

3. Once the file has been uploaded, users must **assign a name and a description to the layer.** Adding a data source is optional to the process.
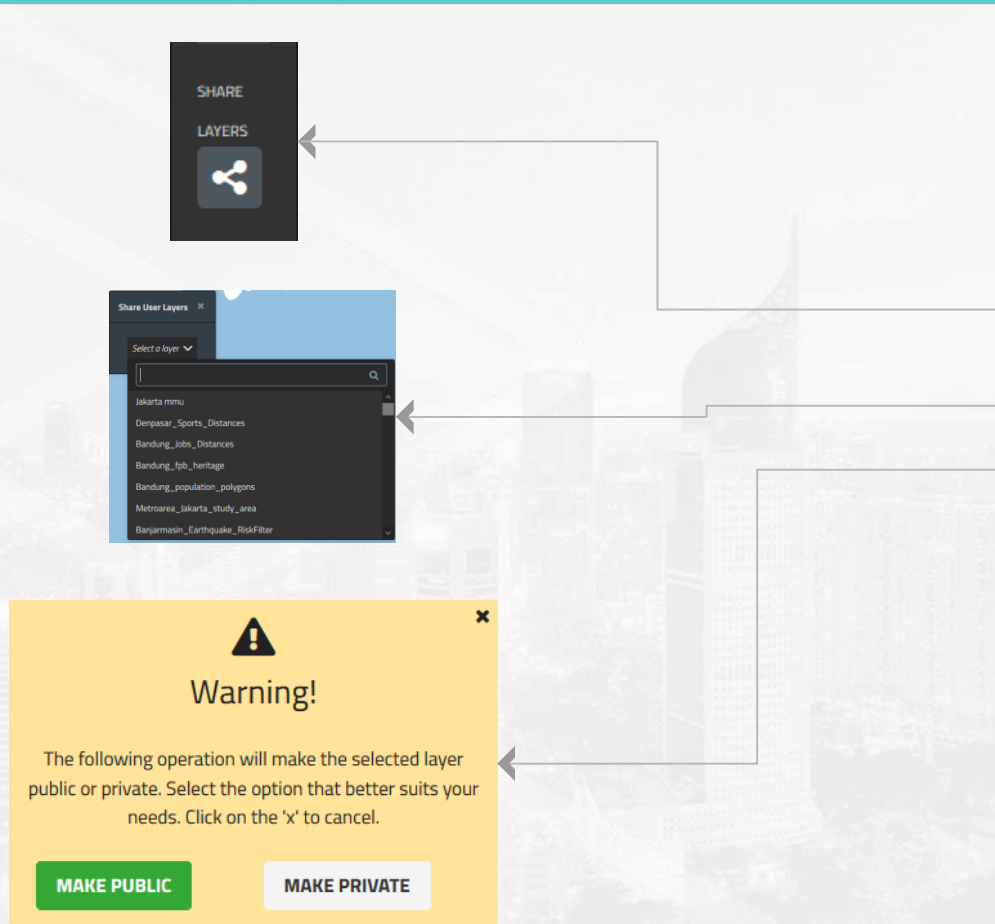
4. Depending on the type of geometry of the new layer, users can **customize the style and color of the layer and markers** with the style definition buttons.

5. Once done, simply click on the **import button**.

Recommendations: Before a shapefile is uploaded, it is highly recommended that the user makes sure the layer:
- Does not have **z-coordinates** in its data.
- Has a **projection** property for the whole layer and not one for **each feature** that forms it.

Additionally, it is highly recommended that all layers (except for the study area, footprint and population layers) use **polygons/multipolygons,** especially if they are to be used to **evaluate distances.**

SHARE

LAYERS

Share User Layers ✕

Select a layer ▾

Jakarta mmu
Denpasar_Sports_Distances
Bandung_Jobs_Distances
Bandung_fpb_heritage
Bandung_population_polygons
Metroarea_Jakarta_study_area
Banjarmasin_Earthquake_RiskFilter

⚠️
Warning!

The following operation will make the selected layer public or private. Select the option that better suits your needs. Click on the 'x' to cancel.

MAKE PUBLIC   **MAKE PRIVATE**

Any user can share layers so that other UPT users may use them as their own in the tools.

6. Click on the **Share Layers** button to activate the module located on the left sidebar.

7. Select a layer from the list.

8. A prompt will ask whether you wish to make the layer **public** or **private**.
- **Public** allows other users to view and use the layer in the tools.
- **Private** only allows the current user to view and use the layer in the tools.
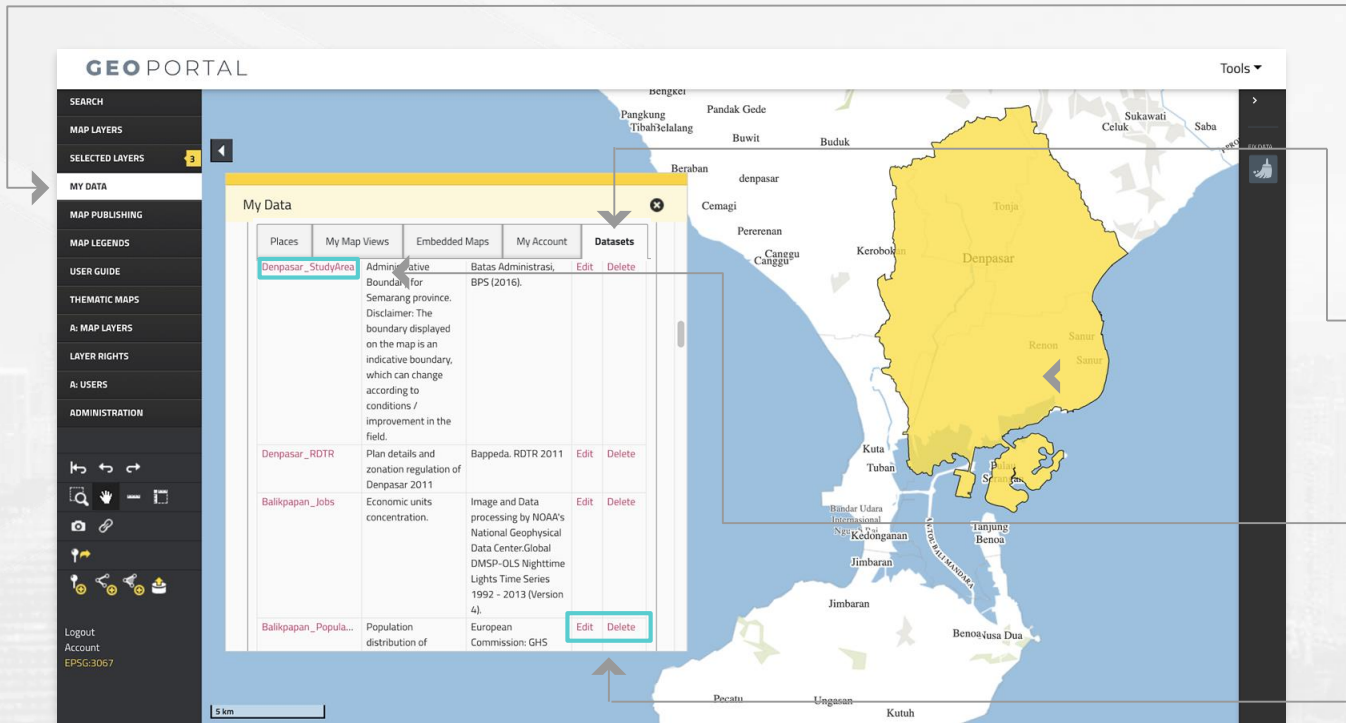
Simply click on the one that better suits your needs, or click on the '**x**' to cancel the process.

Important: Shared layers only work in the UPT, not in the Geoportal itself.

9. After logging in, the left panel will display a **brush icon.** Clicking on the icon will fix the layers in the geoportal by removing the individual **projection** property of features. This is because the **projection** property is only expected to be applied to the whole layer, and not to every single feature that forms it. It will also remove the **z-coordinates** in the data, as **Urban Hotspots** expects coordinates for 2 dimensions, not 3; sending **z-coordinates** would therefore make the calculations fail.

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Visualize spatial layers on the data frame.

GEOPORTAL

Tools ▾

SEARCH
MAP LAYERS
SELECTED LAYERS | 3
MY DATA
MAP PUBLISHING
MAP LEGENDS
USER GUIDE
THEMATIC MAPS
A: MAP LAYERS
LAYER RIGHTS
A: USERS
ADMINISTRATION

Logout
Account
EPSG:3067

My Data

Places	My Map Views	Embedded Maps	My Account	**Datasets**		
Denpasar_StudyArea	Administrative Boundary for Semarang province. Disclaimer: The boundary displayed on the map is an indicative boundary, which can change according to conditions / improvement in the field.	Batas Administrasi, BPS (2016).			Edit	Delete
Denpasar_RDTR	Plan details and zonation regulation of Denpasar 2011	Bappeda. RDTR 2011			Edit	Delete
Balikpapan_Jobs	Economic units concentration.	Image and Data processing by NOAA's National Geophysical Data Center.Global DMSP-OLS Nighttime Lights Time Series 1992 - 2013 (Version 4).			Edit	Delete
Balikpapan_Popula...	Population distribution of	European Commission: GHS			Edit	Delete

5 km

1. To visualize a layer recently loaded to the system or loaded in advance, first select "MY DATA" from the left panel.

2. Then, on the yellow window select "Datasets" from the top panel.

There, users will **find their new layers or the ones loaded in advance.**

3. Select the layer (s) you want to **visualize in the data frame.**

In this example, the administrative boundaries of the city of Denpasar was selected.

4. Users can also **edit the details about a layer or delete a layer.**

SEARCH

MAP LAYERS

SELECTED LAYERS   3

MY DATA

MAP PUBLISHING

MAP LEGENDS

USER GUIDE

THEMATIC MAPS

A: MAP LAYERS

LAYER RIGHTS

A: USERS

ADMINISTRATION

Logout
Account
EPSG:3067

Selected Layers

Denpasar_StudyArea

Administrative Boundary for Semarang province. Disclaimer: The boundary displayed on the map is an indicative boundary, which can change according to conditions / improvement in the field.

Hide   37 %   Publication permitted   Feature data

Bandung_Transit_Stations

Public transport stations.

The map layer has no features at the map view area. Move to a suitable location.

Change the opacity or remove a layer from the data frame.

5. Once a layer has been selected, users can **choose the opacity level, hide or delete a layer** from the data frame by selecting "SELECTED LAYERS" from the left panel.

6. Then, **adjust the opacity level** with the slider or % input.

7. To **delete a layer** from the data frame click on the corresponding **X** icon of the desired layer (s).

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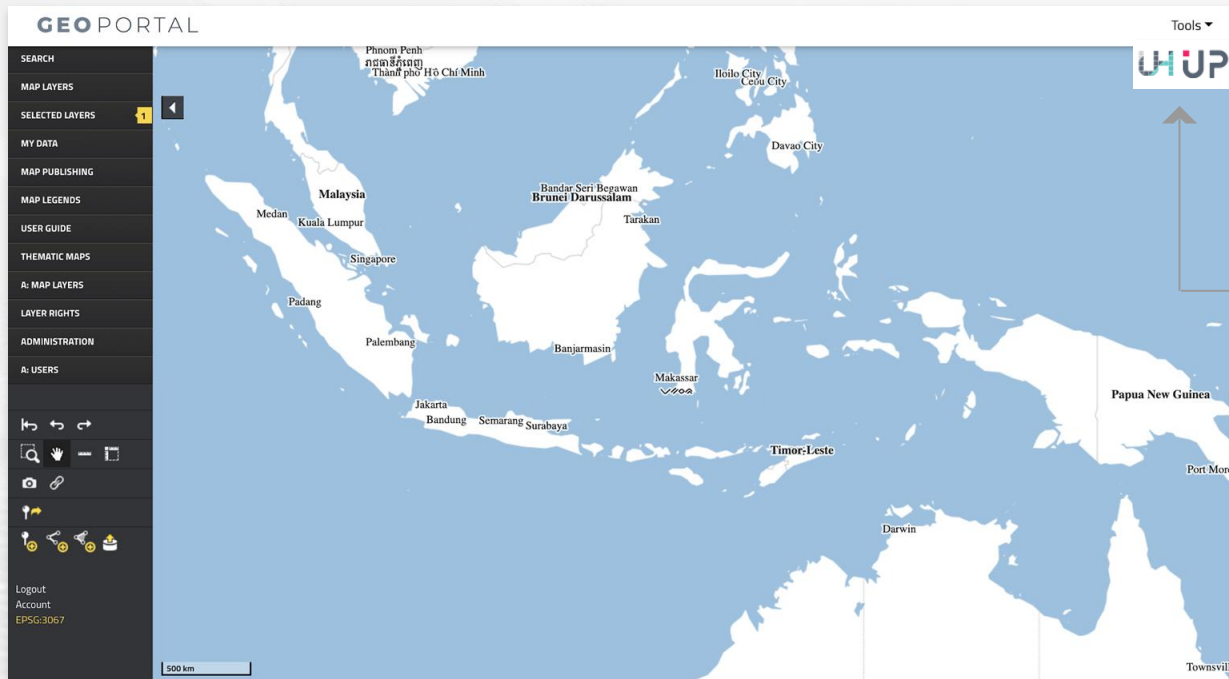
Accessing the Urban Hotspots tool is fast and easy: it is located along with other Geoportal's tools in the upper right corner.

1. Click on the Tools menu. A pop down menu will be displayed with the Geoportal's tools.

2. Click on the Urban Hotspots icon (UH) to access the tool.

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Using
Urban
Hotspots

Urban Hotspots

Urban Hotspots is an urban planning tool that identifies optimal locations for a specific activity within a city. Through the use of multicriteria analysis techniques, it creates heat maps of access to urban services and finds the optimal location for an activity in the city.

Urban Hotspots will support national urban planning agencies and city governments in Indonesia to perform land suitability assessments and prioritize investment projects at the city and local levels, enable inter-departmental coordination, disrupt siloes and usher a shift to a strategic planning approach.
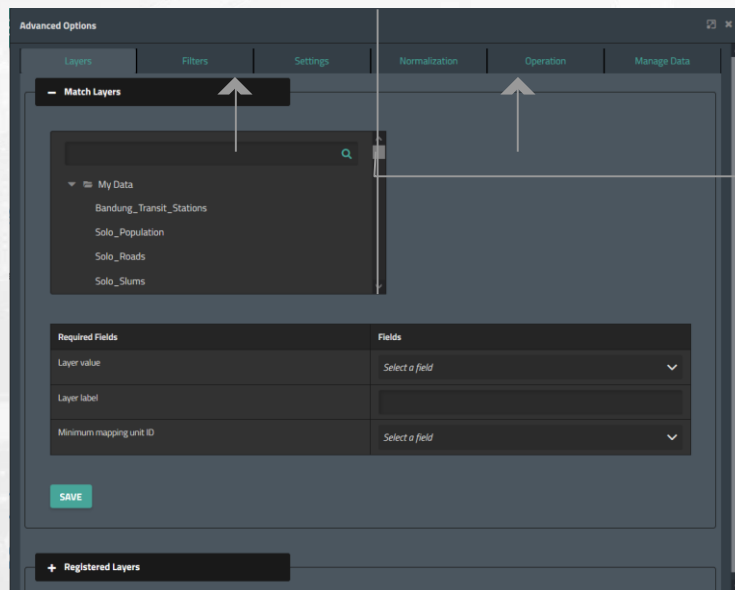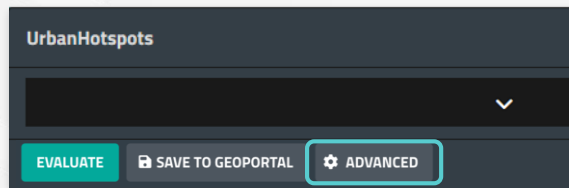
Advanced options focuses on managing (creating/editing/deleting) data that Urban Hotspots uses.

1. To access the module, **click on the ADVANCED button on Urban Hotspots's footer section.** This will open up a new dialog.

2. The **Advanced Options** module consists of several sections, which handle their own sets of data to be used by the **Urban Hotspots** tool. Each of these can be accessed by clicking on their respective **tab.**

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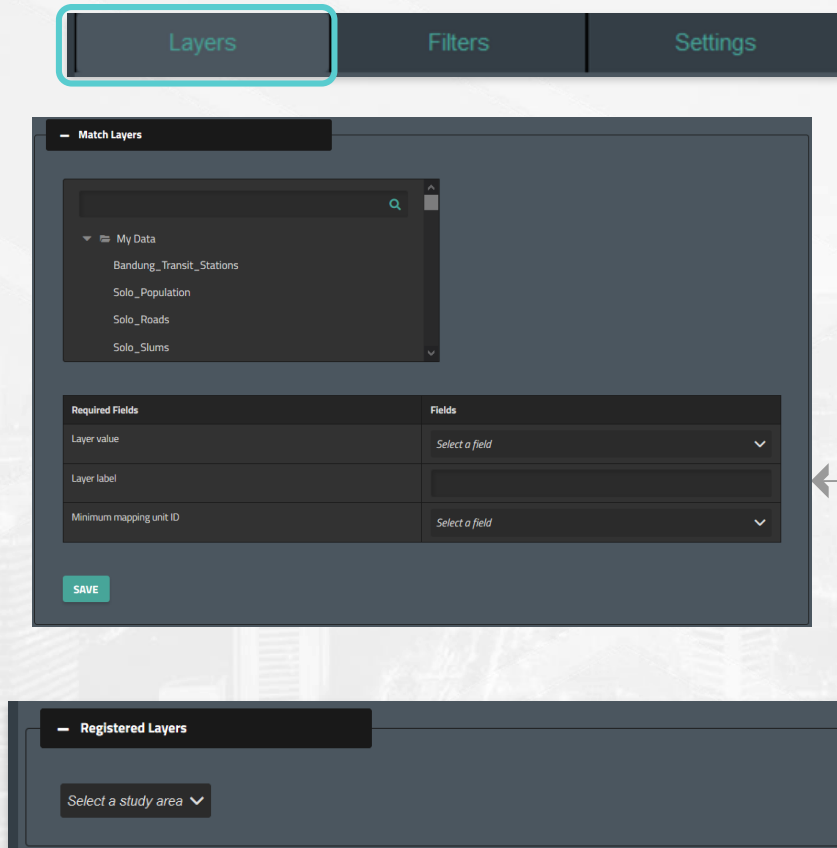
The **Layers** section allows users to match layers from the Geoportal to a layer format that Urban Hotspots can use, as well as manage layers already matched in Urban Hotspots.

Layers

Filters

Settings

— Match Layers

My Data
Bandung_Transit_Stations
Solo_Population
Solo_Roads
Solo_Slums

Required Fields	Fields
Layer value	Select a field
Layer label	
Minimum mapping unit ID	Select a field

SAVE

— Registered Layers

Select a study area

1. Upon first opening the **Advanced Option** module, Layers should be the first section to be displayed. Otherwise, simply **click** on the **Layers** tab to access it.

2. Layers is divided in two sections (Match Layers & Registered Layers). The **Match Layers** section allows users to select layers from the Geoportal and adjust them to a format that is usable by **Urban Hotspots**.

3. The **Registered Layers** section allows users to visualize the layers that they have already matched beforehand in the **Match Layers** section.
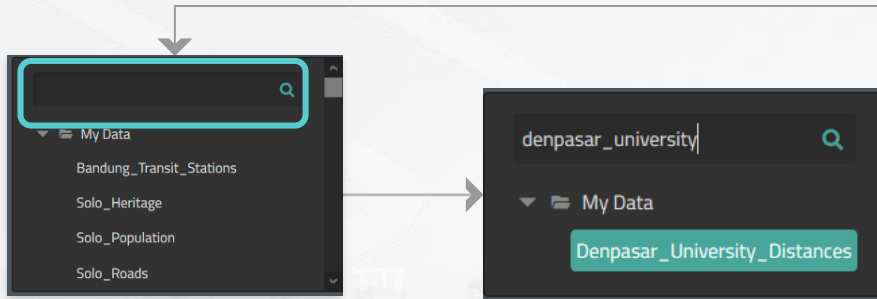
To Match Layers for use on Urban Hotspots, the following steps are required.

1. The **list** shows the layers which are registered in the Geoportal. We can use the search function on the list to easily search for a layer. To select the one we wish to match, we must **click** on its name to load data for the following **table.** Our chosen **layer** will be highlighted. This will load the dropdown contents in the table below.

2. The **table** below allows asks for three fields: **Field, Minimum mapping unit ID) and Label.**

- **Field:** The column in the Geoportal's table which contains the layer's value.
- **Minimum mapping unit ID:** The column in the Geoportal's table which contains the identifiers for the MMU.
- **Label:** The name which will be displayed on Urban Hotspots once the match is done.

*IMPORTANT: The layers shown in the list are those that exist in the Geoportal. When uploading layers into the Geoportal, it is highly recommended that fields are named in easy to understand terms so other users can correctly match them in this section. Otherwise, the matched layers may n[ot] work correctly on Urban Hotspots.

My Data
- Bandung_Transit_Stations
- Solo_Heritage
- Solo_Population
- Solo_Roads

denpasar_university

My Data

Denpasar_University_Distances

Required Fields	Denpasar_University_Distances Fields
Layer value	Select a field ⌄
Layer label	
Minimum mapping unit ID	Select a field ⌄

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To Match Layers for use on Urban Hotspots, the following steps are required.

Required Fields	Denpasar_University_Distances Fields
Layer value	Select a field
Layer label	
Minimum mapping unit ID	mmu_id
	value
	geometry

Minimum mapping unit ID	Select a field
SAVE	mmu_id
	value
	geometry

Layer label	Universities Proximity

Required Fields	Denpasar_University_Distances Fields
Layer value	value
Layer label	University Proximity
Minimum mapping unit ID	mmu_id
SAVE	

3. Layer value and Minimum mapping unit ID are selected through a dropdown element each. To use them, simply click on the dropdown to show the list of columns. To select a column, click on its name

4. Layer Label requires a text input. It's recommended that the layer is labeled according to what the layer represents.

5. Once all fields are filled, simply **click** on the **Save** button to start matching layers. Once the process is completed, the layer will have successfully been registered in Urban Hotspots.

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Registered Layers gives us access to layers that have been successfully matched in the prior section for management purposes.

Registered Layers

Select a study area ⌄

denpasar_study 🔍

Denpasar_StudyArea

Select a study area ⌄
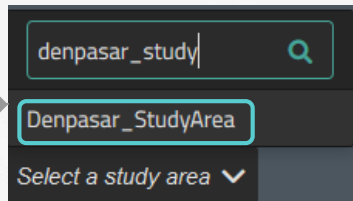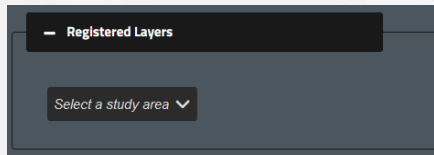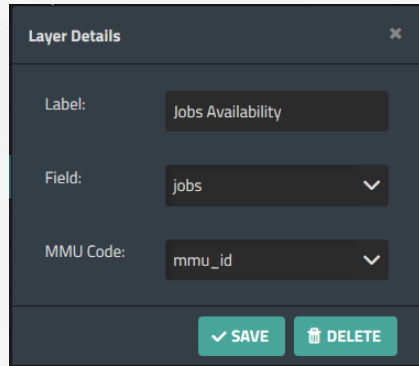
Denpasar_StudyArea ⌄

🔍 Search

Layer Label ⇅	Layer Value ⇅	MMU ID ⇅
Elementary School Proximities	value	mmu_id
Health Proximities	value	mmu_id
High School Distances	value	mmu_id
Jobs	jobs	mmu_id
Market Proximity	value	mmu_id
Population	population	mmu_id
Public Space Proximity	value	mmu_id
Secondary School Proximity	value	mmu_id
Sport Proximity	value	mmu_id
Transit Proximity	value	mmu_id
University Proximity	value	mmu_id
Worship Distances	value	mmu_id

|◁ ◁ 1 ▷ ▷|

There are 12 layers

1. The **Registered Layers** section displays layers that have been matched in the previous section pertaining to a **Study Area.** This can be selected through a **dropdown** element. This also has a filter functionality for an easier search for a **Study Area.**

2. Once a **Study Area** has been selected, a **table** will show the layers registered under it. The table allows us to select a layer by **clicking** on its corresponding row, prompting a dialog which allows us to both **edit** and **delete** layers.
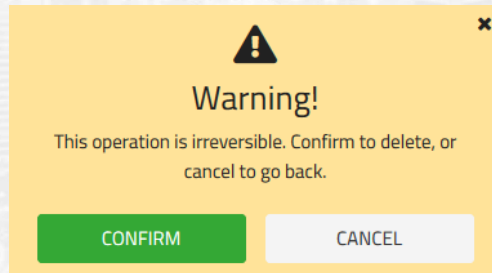
Layer Details

Label: Jobs Availability

Field: jobs

MMU Code: mmu_id

✓ SAVE 🗑 DELETE

Editing and deleting layers is an easy processes.

Warning!

This operation is irreversible. Confirm to delete, or cancel to go back.
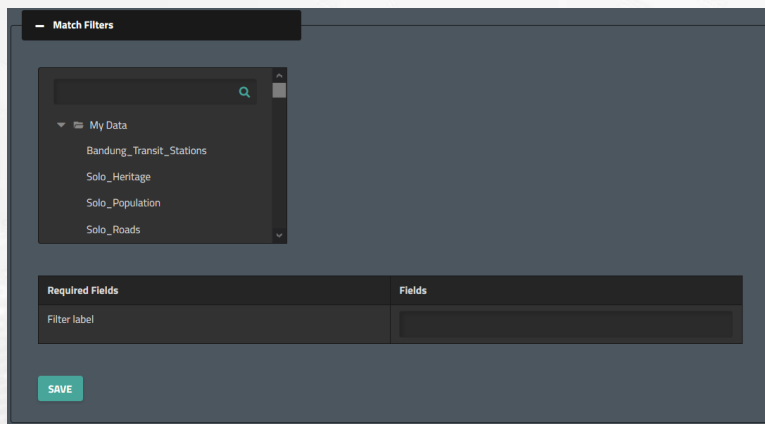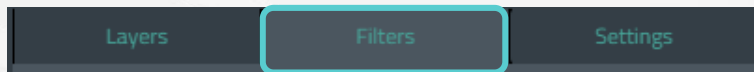
CONFIRM CANCEL

*** .** To cancel the process at any point, **click** on the '**x**' icon.

1. Editing a layer is as simple as changing the values in the new dialog and clicking on the '**SAVE**' button.

2. Deleting a layer is also a simple process. Simply click on the '**DELETE**' button. The system will prompt for confirmation. Click '**CONFIRM**' to proceed, or click '**CANCEL**' to go back.

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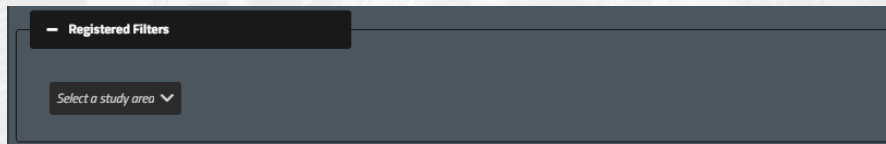
The Filters section allows users to match filters (spatial information) from the Geoportal to a format that Urban Hotspots can use, as well as manage filters that are already included in Urban Hotspots.

1. To access the **Filters** section please **click** on the **Filters** tab. **Filters** is divided in two sections (Match Filters & Registered Filters).

2. The **Match Filters** section allows us to select filters from the Geoportal and match them to a format that is usable by Urban Hotspots.

3. The **Registered Filters** section allows us to visualize the filters that we have already matched beforehand in the **Match Filters** section.
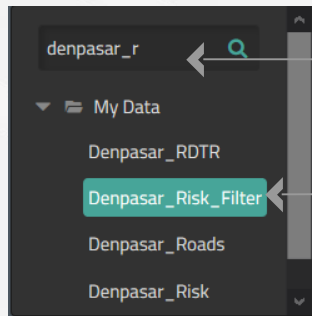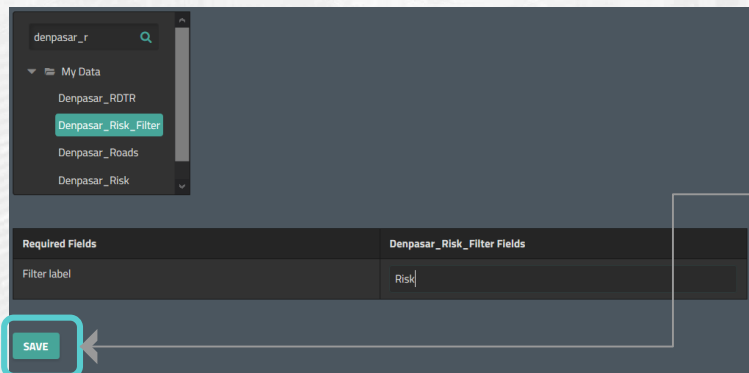
The following steps are required to Match Filters for use on Urban Hotspots.

denpasar_r

My Data
- Denpasar_RDTR
- Denpasar_Risk_Filter
- Denpasar_Roads
- Denpasar_Risk

Required Fields	Denpasar_Risk_Filter Fields
Filter label	Risk

denpasar_r

My Data
- Denpasar_RDTR
- Denpasar_Risk_Filter
- Denpasar_Roads
- Denpasar_Risk

Required Fields	Denpasar_Risk_Filter Fields
Filter label	Risk

SAVE
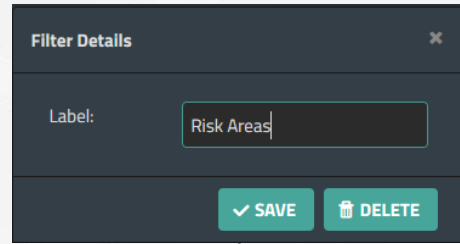
1. The list shows the **filters** which are registered in the Geoportal. We can use the **search function** on the list to easily search for a filter.

2. To select the one we wish to match, we must **click on** its name to load data for the following **table.** Our chosen **filter** will be highlighted. This will load the dropdown contents in the table below.

3. The **table** below only requires a label through text input, which will be used in Urban Hotspots to identify the filter. It's recommended to use a label according to what the filter represents.

4. Once the label was filled, **click** on the **SAVE** button to start matching filters. Once the process was completed, the filter will have successfully been registered in Urban Hotspots.

Registered Filters
— Registered Filters

Select a study area ▾

denpasar_study 🔍

Denpasar_StudyArea

Select a study area ▾

Registered Filters gives us access to filters that have been successfully matched in the prior section for management purposes.

Denpasar_StudyArea ▾
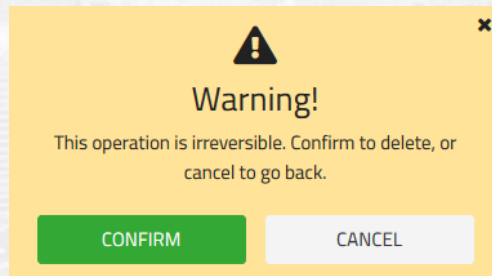
🔍 Search

Filter Label ⇵

Risk

⏮ ◂ 1 ▸ ⏭

There are 1 filters
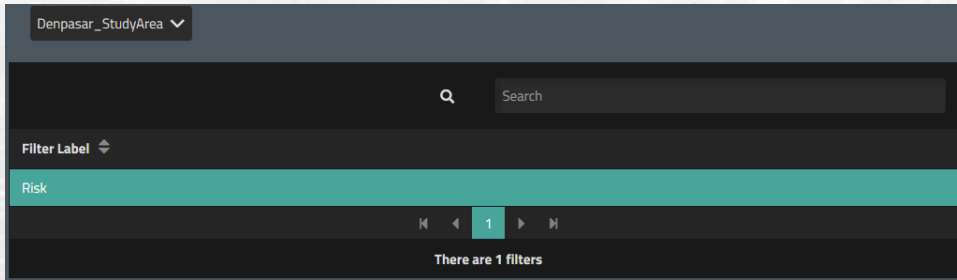
1. The **Registered Filters** section displays filters pertaining to a **Study Area** that has been matched in the previous section. This can be selected through a **dropdown** element. This also has a filter functionality to a more easily search for a **Study Area.**

2. Once a **Study Area** has been selected, a **table** will show the filters registered under it. The table allows us to select a filter by **clicking** on its corresponding row, prompting a dialog which allows us to both **edit** and **delete** filters.

Editing and deleting filters is an easy process.

Filter Details ✕

Label: Risk Areas

✓ SAVE 🗑 DELETE

⚠

Warning!

This operation is irreversible. Confirm to delete, or cancel to go back.

CONFIRM CANCEL

1. Editing a filter is as simple as changing the values in the new dialog and clicking on the '**SAVE**' button.

2. To delete a filter click on the '**DELETE**' button.

3. The system will prompt for confirmation. Click '**CONFIRM**' to proceed, or click '**CANCEL**' to go back.

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When choosing layers to be used by Urban Hotspots, the tool provides default settings however, settings can only be saved through the Settings section. Saved settings will be loaded on Urban Hotspots thereafter as default settings.

Layers	Filters	Settings

Select a study area ⌄

Select a study area ⌄

🔍

worship
vocational_school
recreation
traditional_market
post_office
police_station
mini_bus

Select a study area ⌄

denpasar_st 🔍

Denpasar_StudyArea

1. To access the **Settings** section **click** on the **Settings** tab.

2. To visualize settings on this section, select a **Study Area** through the **dropdown** element. The element has a search function to ease the process.

3. Once a **Study Area** is selected, a table listing settings pertaining to the study area will appear. As mentioned previously, if no settings have been saved before, default settings will be provided.

		Search

Layer ⇕	Normalization Method ⇕	Lowest Value ⇕	Highest Value ⇕	Weight ⇕	Smaller better? ⇕	Is saved? ⇕
Elementary Proximities	Standardize	0	1	1	1	✓
Health Proximities	Benchmark	0	1500	1	1	✓
High School Proximities	Standardize	0	1	1	1	✓
Market Proximities	Standardize	0	1	1	0	✗
Public Space Proximities	Standardize	0	1	1	0	✗
Secondary School Proximities	Standardize	0	1	1	0	✗
Sport Proximity	Standardize	0	1	1	0	✗
Transit Proximities	Standardize	0	1	1	0	✗
University Proximity	Standardize	0	1	1	0	✗
Worship Proximities	Standardize	0	1	1	0	✗
Population	Standardize	0	1	1	0	✗

|◁ ◁ 1 ▷ ▷|

There are 11 settings

28

The Settings section not only allows us to save settings, but also edit and delete previously saved settings.

1. To save settings, **click** on the corresponding row on the **table**. If a setting has default values, its '**Is saved?**' column will have an '**x**'. If it's been saved, it will have a **checkmark** instead

2. A dialog with the **Settings** details will appear, in which we can edit most of the fields:
  Normalization Method: The standardization that will be applied to the layer.
  Lowest Value: The least desirable value for the layer. (This value isn't used when the normalization method is 'Standardize').
  Highest Value: The most desirable value for the layer. (This value isn't used when the normalization method is 'Standardize').
  Weight: To weigh the importance of some layers over others and their
  adjustment in the suitability index.
  Smaller better?: Whether a smaller value will yield higher results or not.

3. To complete the process, **click on** the '**Save**' button.

The Settings section not only allows us to save settings, but also edit and restore previously saved settings to their default values.

Settings Details

Layer Name: | Market Proximities

Normalization Method: | Benchmark

Lowest Value: | 0

Highest Value: | 1500

Weight: | 1

Smaller better?

✓ SAVE   ⟳ RESTORE TO DEFAULTS

Warning!

This operation is irreversible. Confirm to delete, or cancel to go back.

CONFIRM   CANCEL

1. If a Setting has been saved before, a '**RESTORE TO DEFAULTS'** button will appear.

2. After clicking on the '**RESTORE TO DEFAULTS'** button, the system will prompt for confirmation. Click on **CONFIRM** to proceed, or click **CANCEL** to go back.

Normalization methods can be managed through the Normalization section, which allows us to list, create, edit and delete the labeling of existing methods in the system.

Normalization | Operation
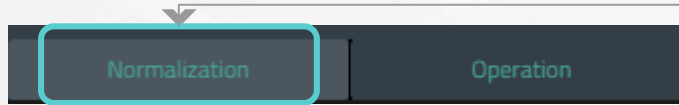
1. To access the section click on the **Normalization** tab.

2. We can visualize all the **normalization methods labeling** registered in the Urban Hotspots tool.

3. To create a new labeling for a method **click** on the **CREATE** button.

4. To edit or delete a normalization method **click** on its corresponding row on the table.

+ CREATE

Search

Label ⬍	Language ⬍	Method ⬍
Benchmark	english	reference
Standardize	english	standardize

|◀ ◀ 1 ▶ ▶|

There are 2 methods

31

Create labeling for normalization methods through the panel.

Normalization Method Details ✕

Label:

Estandarizar

Language:

spanish

Method:

standardize ⌄

✓ SAVE
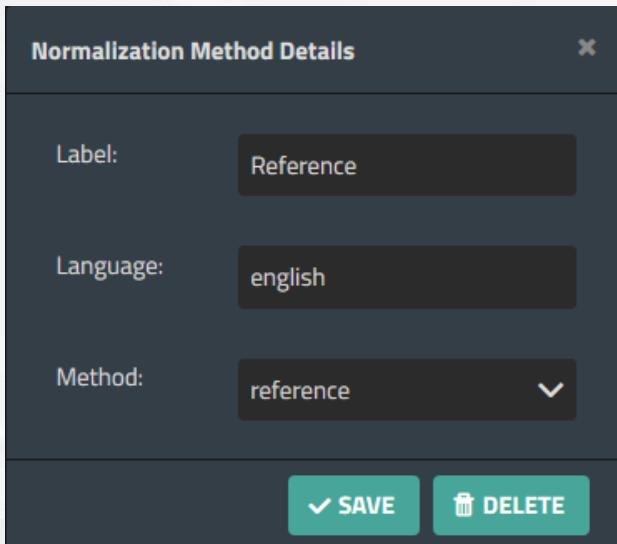
*. To cancel the process at any point, **click** on the '**x**' icon.

1. Label is the text that will represent the method in Urban Hotspots.

2. Language is the language in which the label is assigned.

3. Method is the normalization method that will be used when selecting the aforementioned label in ST. Values are **'reference'** and **'standardize'**.

4. To create the **new labeling** for a normalization method, **click** on the **SAVE** button. Once created, your method should show up in the table.
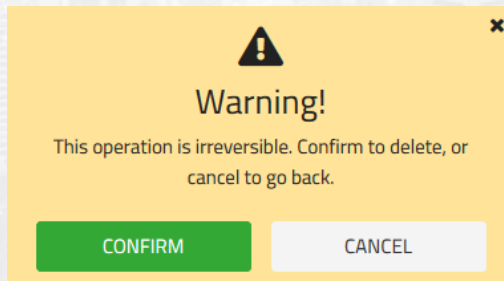
Normalization Method Details   ✕

Label: Reference

Language: english

Method: reference ⌄

✓ SAVE   🗑 DELETE

⚠

Warning!

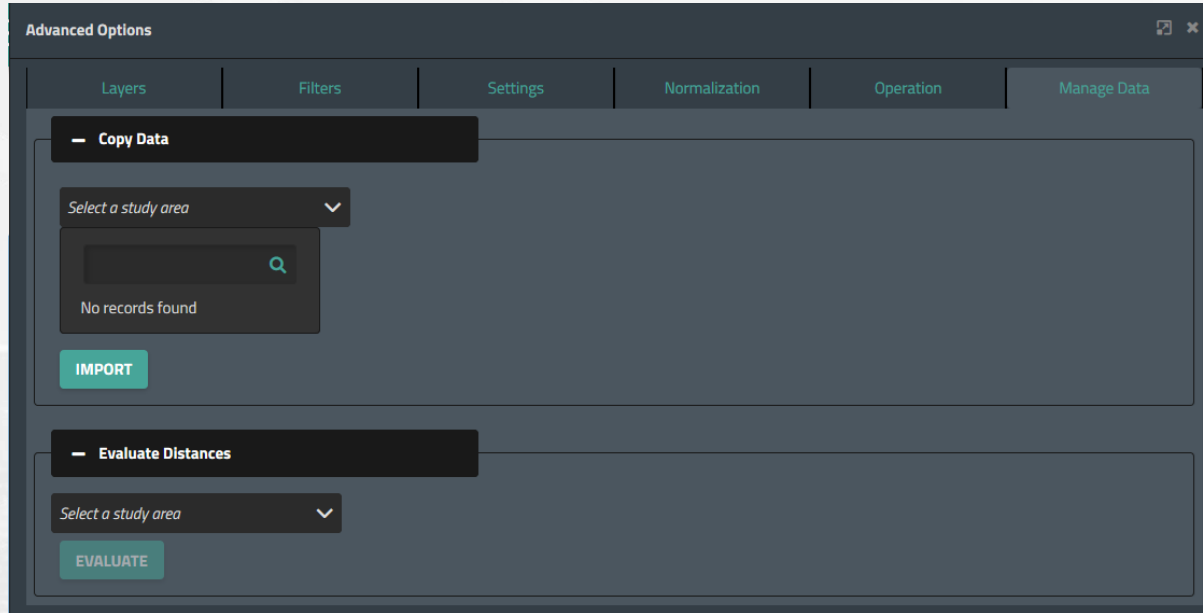This operation is irreversible. Confirm to delete, or cancel to go back.

CONFIRM   CANCEL

Editing or deleting the labeling of a normalization method is simple and it is just a few clicks away.

To cancel the process at any point, **click** on the 'x' icon.

1. To **edit** the labeling of a normalization method, use the text inputs to change the fields accordingly, and then **click** on the **SAVE** button. Once the process is finished, it should be reflected on the normalization method table.

2. To delete the labeling of a method, **click** on the **DELETE** button. A prompt will ask for confirmation, as this process is irreversible. Click on **CONFIRM** to proceed, or click on **CANCEL** to cancel.

The labeling of Operation methods can be managed through the Operation section, which allows us to list, create, edit and delete labels for methods.

Normalization	Operation

1. To access the section, just click on the **Operation** tab.

2. To create a new labeling for an operation method, **click on** the **CREATE** button.

3. To edit or delete the labeling of a method, **click on** its corresponding row on the table.

+ CREATE	🔍	Search

Label ⇅	Language ⇅	Method ⇅
Union	english	union
Intersection	english	intersection
Difference	english	difference

|◄ ◄ **1** ► ►|

There are 3 methods

34

Creating a label for an operation method is a simple process.

Operation Method Details ✕

Label: Intersección

Language: español

Method: intersection ⌄

✓ SAVE

To cancel the process at any point, **click** on the '**x**' icon

1. To create the labeling for a method, **click** on the **SAVE** button. Once created, your labeling should show up in the table.

- **Label** is the text that will represent the method in Urban Hotspots.

- **Language** is the language in which the label is assigned.

- **Method** is the operation method that will be used when selecting the aforementioned label in ST. Values are **'union'**, **'intersection'** and **'difference'**.

.

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Operation Method Details   ✕

Label: Intersection

Language: english

Method: intersection ⌄

✓ SAVE   🗑 DELETE

⚠

Warning!

This operation is irreversible. Confirm to delete, or cancel to go back.

CONFIRM   CANCEL

Editing or deleting the labeling of an operation method is simple and follows the same logic as with creating.

To cancel the process at any point, **click** on the '**x**' icon.

1. To **edit** the labeling of an operation method, use the text inputs to change the fields accordingly, and then **click on** the **SAVE** button. Once the process is finished, it should be reflected on the normalization method table

2. To **delete** the labeling of an operation method, **click on** the **DELETE** button. A prompt will ask for confirmation, as this process is irreversible. Click **CONFIRM** to proceed, or click **CANCEL** to go back.

Advanced Options

| Layers | Filters | Settings | Normalization | Operation | Manage Data |

— Copy Data

Select a study area ⌄

🔍

No records found

IMPORT

— Evaluate Distances

Select a study area ⌄

EVALUATE

The manage data section allows the user to import data from the Geoportal to the distance evaluation module, as well as evaluating distances to generate layers for future use.

1. To access this section, simply click on the **Manage Data** tab.

This section is composed of two modules:
- **Copy Data:** This module is used to copy data from the Geoportal into the **Evaluate Distances** module.
- **Evaluate Distances:** .This module will evaluate distances to generate layers for use in the Geoportal and the tools.

The Copy Data section requires the user to follow a series of simple steps to import data from the Geoportal to the distances module.

1. First, select a **Study Area** from the dropdown element.

2. Once selected, the tree element shows the tables that require data for the **Distances** module:

BOX #2: ORIGIN AND TARGET LAYER REQUIREMENTS

● Source/Origin layer: This refers to the location of the MMUs for the study area, which are used as the origin points when evaluating distances. Input features can be point, polyline, or polygon type. It's highly recommended the origin layer is made up of polygons that represent the Minimum Mapping Unit, which can be regular or irregularly distributed.

● Target features: This refers to the location and categories (fclass) of the different features, which are used as target features when evaluating distances. Input features can be point, polyline, or polygon type. It's highly recommended the origin layer is made up of polygons that represent the Minimum Mapping Unit, which can be regular or irregularly distributed.

To select a table, simply click on its name.
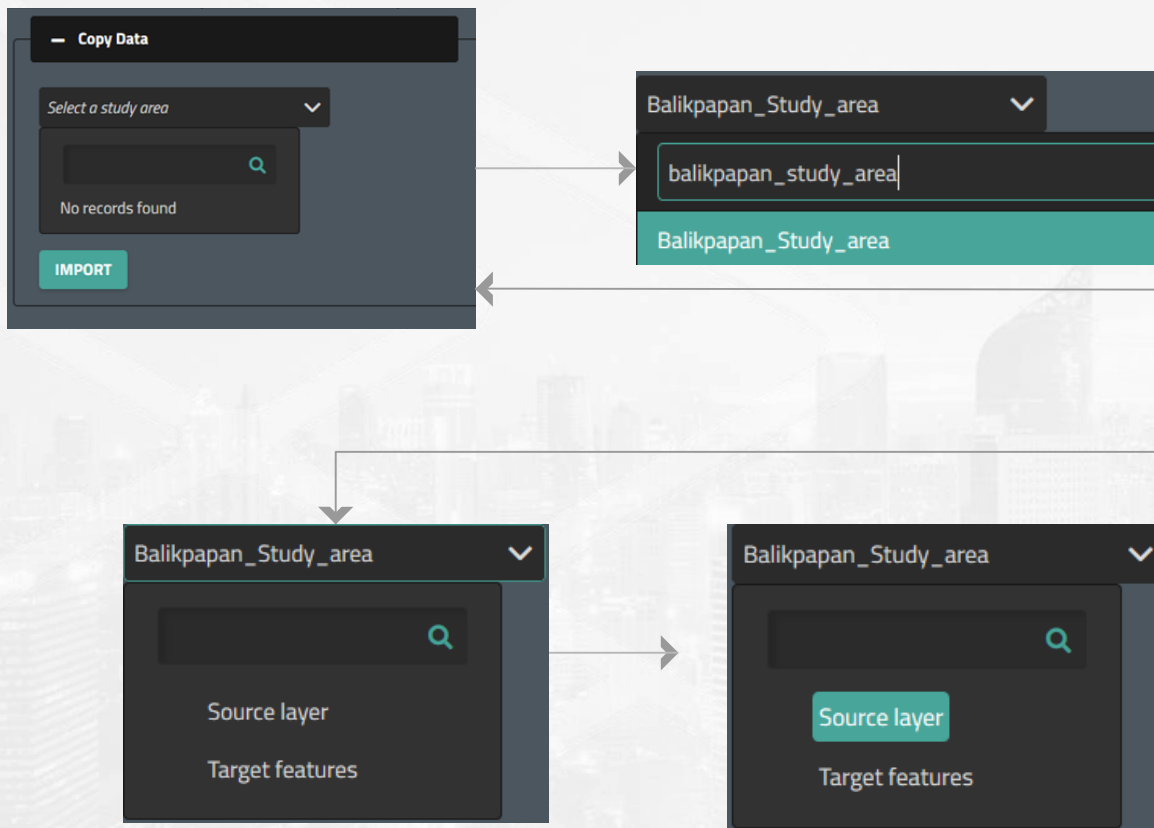
The Copy Data section requires the user to follow a series of simple steps to import data from the Geoportal to the distances module.

Copy Data

Balikpapan_Study_area

Source layer

Target features

My Data
Bandung_Transit_Stations
Solo_Population
Solo_Roads
Solo_Slums

Required Fields	Fields
location	Select a field

IMPORT

3. After we have selected a table, a couple of panels will show up so we can continue the process.

4. First, we must select a layer which contains the data needed for the table we have chosen on previous steps. To do this, simply click on its name.

balikpapan

My Data
Balikpapan_Jobs
Balikpapan_Population
Balikpapan_Financial_Resources
Balikpapan_Heritage

Required Fields	Balikpapan_Population Fields
location	Select a field

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The Copy Data section requires the user to follow a series of simple steps to import data from the Geoportal to the distances module.

Required Fields	Balikpapan_Population Fields
location	geometry ⌄

5. Once a layer has been selected, we must match the corresponding fields. For **location**, a field containing the geometric values.

6. Once we have matched the fields, simply click on the **Import** button. The system should show a success message once the process is done.

Balikpapan_Study_area ⌄

🔍

Source layer

Target features

balikpapan

▾ 📁 My

Balik

Balik

Balik

Balik

Require

location

IMPORT

The Copy Data section requires the user to follow a series of simple steps to import data from the Geoportal to the distances module.

● For the **Target features** table, the process is much the same, but we must use one layer per urban service which we wish to use.

7. When matching **Fclass**, we must look for a column that contains the name of the **fclass** we wish to use for our distance layer. These could be **fclass**, **name**, **id**, though the user should verify this by inspecting the layer (either externally or in the geoportal itself).

The Evaluate Distances module is very simple to use and it will generate distance layers for later use, but it requires the user to have imported data through the Copy Data module.

Evaluate Distances

Select a study area

EVALUATE

Balikpapan_Study_area

EVALUATE

Processing History

EVENT	STUDY AREA	TIME	PROCESS
All distances finished	61	17:50:45.548425	All distances have been processed
Distance evaluation	61	17:50:45.326654	Distance evaluation finished
mmu amenities distance	61	17:50:45.321237	mmu amenities distance module finished
mmu amenities distance	61	17:50:45.313487	mmu amenities distance module finished
mmu amenities distance	61	17:50:45.310530	mmu amenities distance module finished
mmu amenities distance	61	17:50:43.436356	mmu amenities distance module started: select st_indicator_mmu_amenities_distance(61,1,73
mmu amenities distance	61	17:50:43.435918	mmu amenities distance module started:

CLEAR CONSOLE   CLOSE

1. To use the module, simply select a **Study Area** through the dropdown element.

- To start the process, simply click on the **Evaluate** button.

2. A console will let the user know the state of the evaluation process.
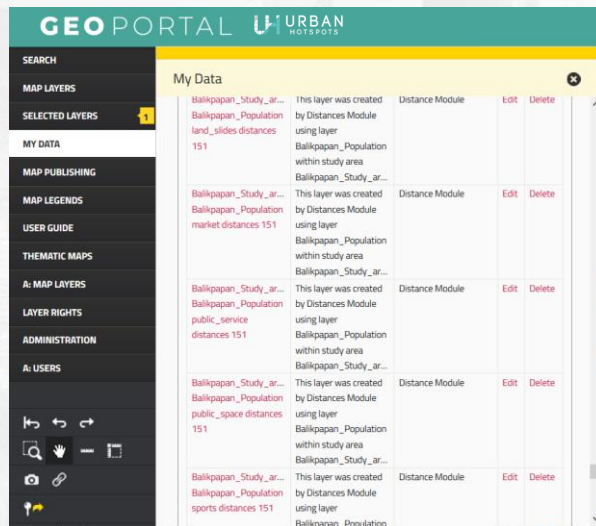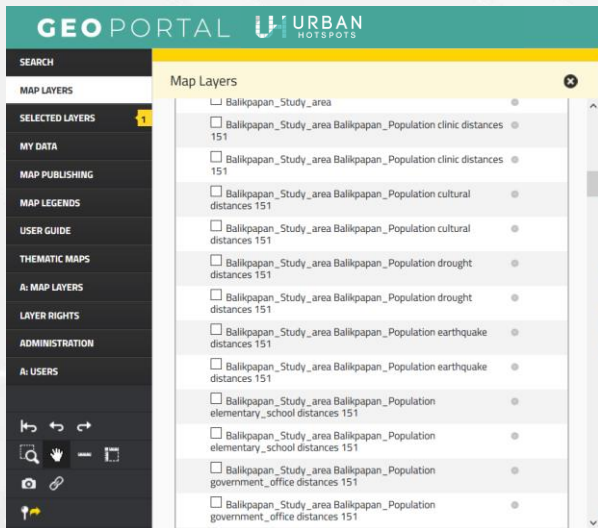
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The Evaluate Distances module is very simple to use and it will generate distance layers for later use, but it requires the user to have imported data through the Copy Data module.

- To verify the creation of the distance layers, the user can check through the geoportal itself by accessing either the **Map Layers** module, or the **Datasets** tab in the **My Data** module..

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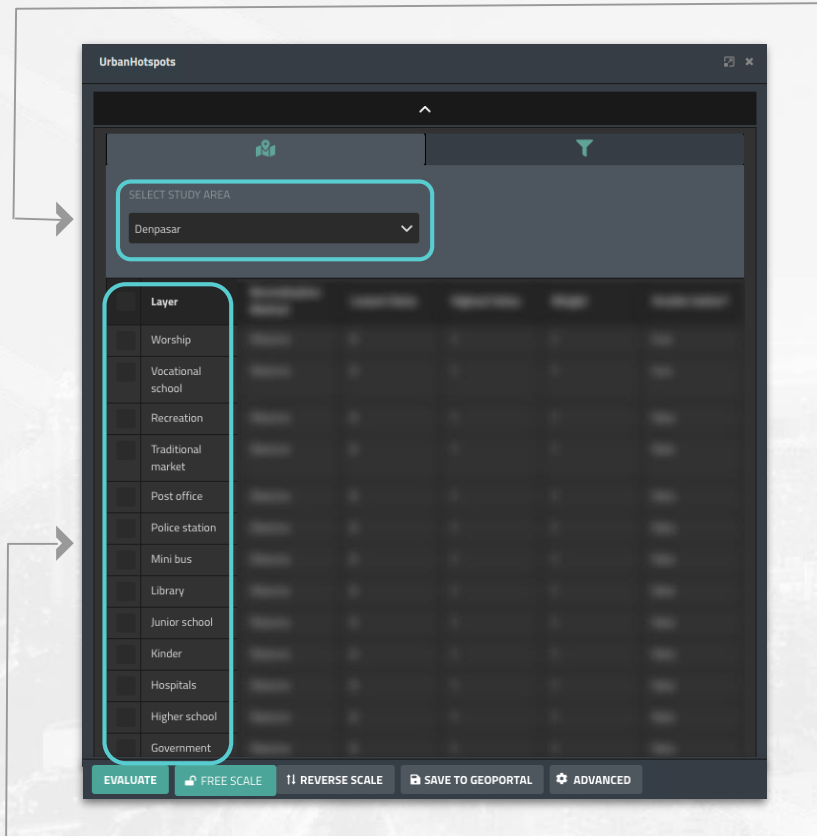
Once users have prepared their information layers, select the study area and variables you want to analyze in the Urban Hotspots tool.

1. Start by **selecting the study area of your interest.**

2. Then, **select the layers you wish to include in the analysis.** In this panel users will find all the layers related to the study area selected and ready to be used for an analysis.

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Making calculations with more than one layer or filter might be a difficult task since the data can be in different units.

1.- To make the layers comparable, the Normalization Method included in the tool, **standardizes all information layers into one single index.** Normalization includes two different methods — benchmark and standardize—.

4. The **standardize** method is similar to the observe method, but calculations are based on the values' standard deviation, as opposed to the values themselves.

Making calculations with more than one layer or filter might be a difficult task since the data can be in different units.

3.- **Benchmark** consists of choosing the most desired -Highest Value- and least desirable value -Lowest Value- a specific variable can have. Usually, national and international coverage standards are chosen.

The Lowest and Highest values will only be valid when the normalization method "Reference" is selected.

Assign different weights to the information layers chosen.

	Layer	Normalization Method	Lowest Value	Highest Value	Weight	Smaller better?
	Elementary Proximities	Standardize	0	1	1	true
✓	Health Proximities	Benchmark	0	1500	1	true
	High School Proximities	Standardize	0	1	1	true
	Market Proximities	Benchmark	0	1500	1	true
	Public Space Proximities	Standardize	0	1	1	false
	Secondary School Proximities	Standardize	0	1	1	false
	Sport Proximity	Standardize	0	1	1	false
	Transit Proximities	Standardize	0	1	1	false
✓	University Proximity	Standardize	0	1	2	false

SELECT STUDY AREA

Denpasar_StudyArea

UrbanHotspots

EVALUATE · FREE SCALE · REVERSE SCALE · SAVE TO GEOPORTAL · ADVANCED

5.- Users can give a **different weight to a layer** they consider to be more important for their evaluation.

Weights are useful to set priorities for specific variables. Layers with a higher weight will have more participation in the calculation of the Urban Hotspots Index. For example, users want to identify the best place within the city to buy a new house. The house should be near to a hospital and a university. However, the university has twice the value of the hospital which means the system will give the hospital twice the priority over the hospital.

6.- **Please select the "EVALUATE" button to start the analysis.**

For more information on how weight affects the evaluation, please go to the **"Normalization parameters" section of the Urban Performance Technical Report.**

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Correct the Urban Hotspots index: **Smaller better** option.

UrbanHotspots

SELECT STUDY AREA

Denpasar_StudyArea

	Layer	Normalization Method	Lowest Value	Highest Value	Weight	Smaller better?
	Elementary Proximities	Standardize	0	1	1	true
☑	Health Proximities	Benchmark	0	1500	1	true
	High School Proximities	Standardize	0	1	1	true
	Market Proximities	Benchmark	0	1500	1	false
	Public Space Proximities	Standardize	0	1	1	false
	Secondary School Proximities	Standardize	0	1	1	false
	Sport Proximity	Standardize	0	1	1	false
	Transit Proximities	Standardize	0	1	1	false

EVALUATE   FREE SCALE   REVERSE SCALE   SAVE TO GEOPORTAL   ADVANCED

7.- For the **Smaller better option,** users can choose from **two possible states: "false" and "true"**.

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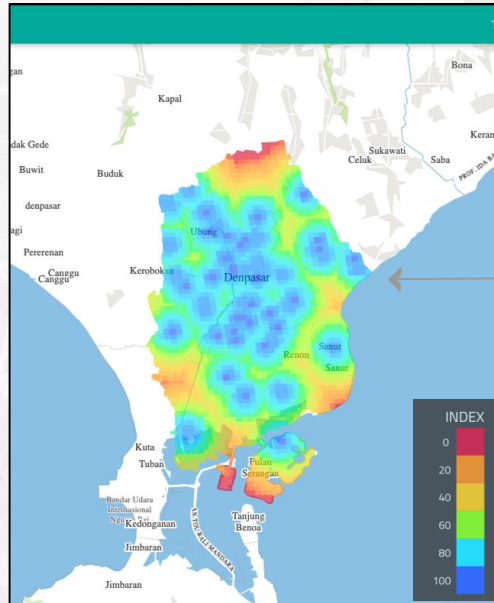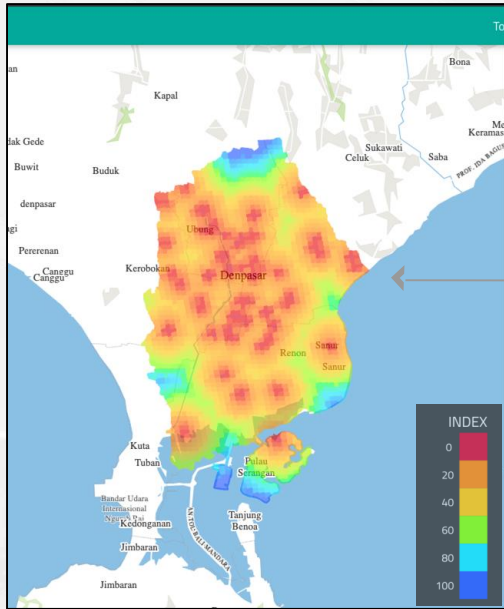
Correct the Urban Hotspots index: **Smaller better** option.

8.- When **false**, the furthest areas from the analysis points are the best (blue) while the closest ones are the worst (red).

9.- Inversely, areas closest to the **analysis points** will be the best (blue), while the furthest ones will be the worst (red).

10.- There is a figure tagged "INDEX" which shows the **colors and values associated with each analysis point** in the suitability index. Please note that the index values will always be the same. The only thing that changes is the way in which the analysis points are associated with some color according to the user's analysis interests.

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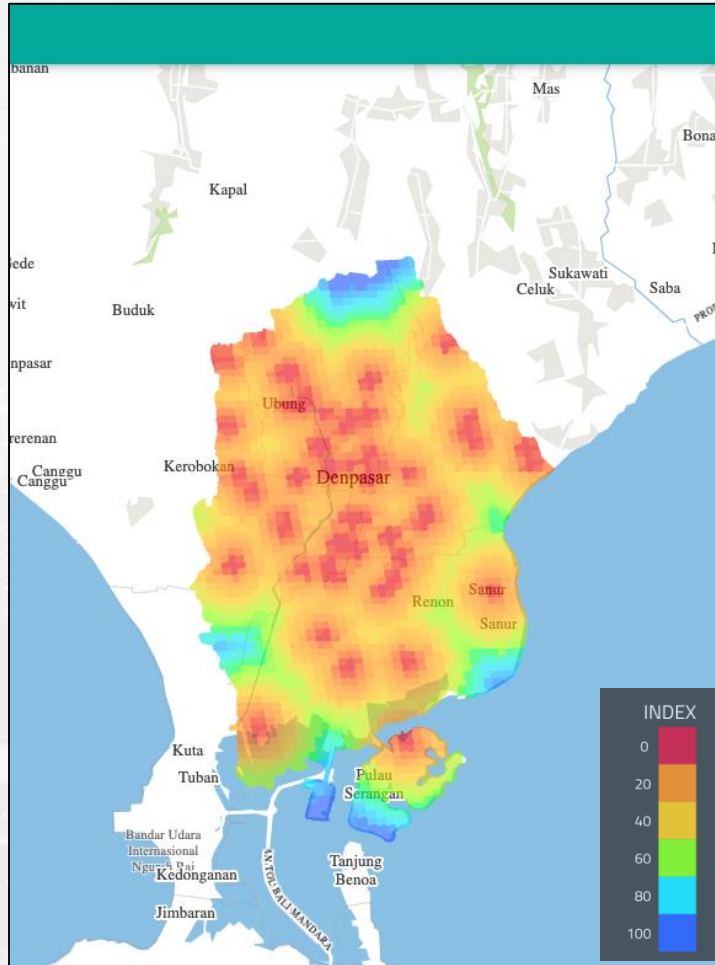
Correct the Urban Hotspots index: **Smaller better** option.

11.- Let's suppose a user want to select the farthest places from the coverage area for hospitals within a city.

In that case, dark red values are the worst places to build a new hospital since they are under the coverage area (3000 m). However, blue areas are the best since they are the furthest places from a hospital.

INDEX
0
20
40
60
80
100
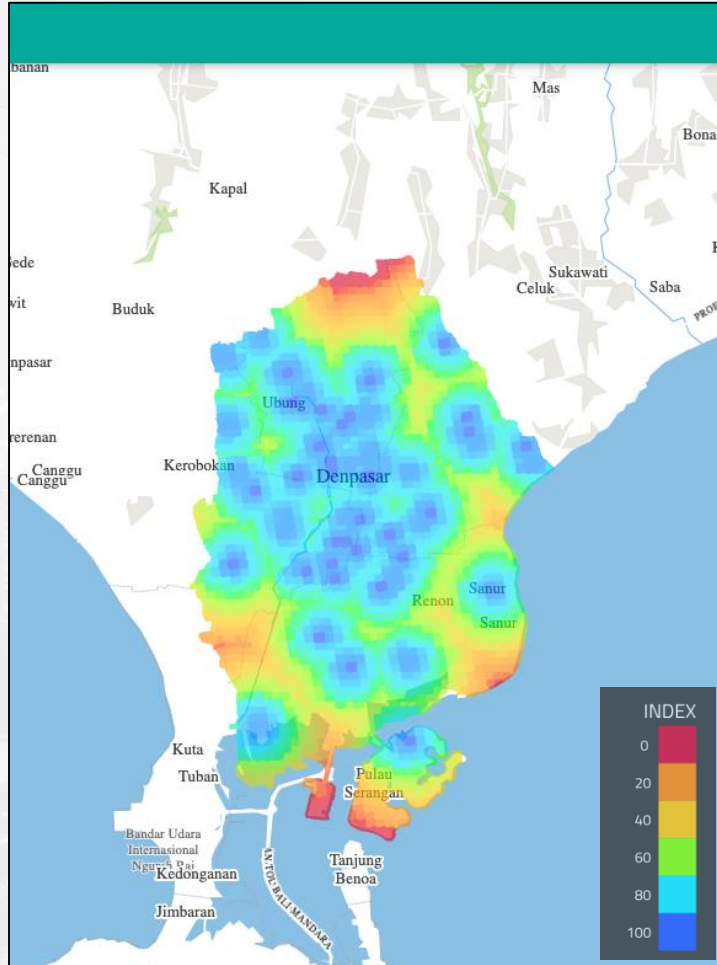
Correct the Urban Hotspots index: **Smaller better** option.

12.- On the other hand, if users want to know the **best places under the coverage influence for hospitals,** then they can select Smaller better on "**true**". In that case, dark blue values are the places served by hospitals, however, red areas are the furthest places from a hospital (lack of service).

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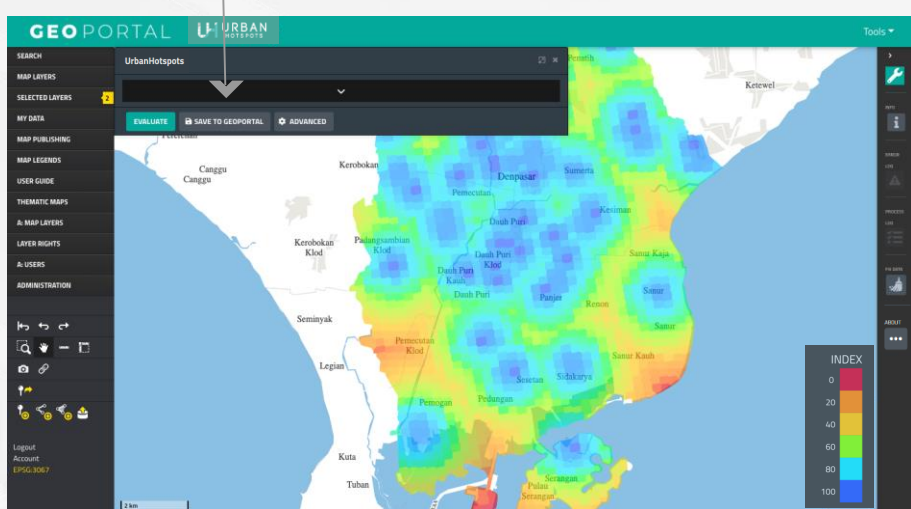
After the analysis, users can save the results in the Geoportal.

1.- After the analysis has been done, users can **save the resulting layer** in the Geoportal. Just **click on** the "SAVE TO GEOPORTAL" button.

2. Then, a pop-up panel with **information related the layer** will appear. The panel contains the following information:

- Name: name the layer according its content.
- Description: Add a brief description of the layer.
- Source: In case it's needed, add the source of your layer.

3. To save your layer in the Geoportal (My data), just click on the "SAVE" button.

Redefine the study area to a specific part of the city.

UrbanHotspots

FILTERING

Subset by score:

0 - 100

0   100

Select an operation method:

Union

Union
Intersection
Difference

☑ Agricultural
☐ Barat
☐ Commercial
☐ Flooding
☐ Industrial
☐ Kota
☐ OpenSpace
☑ Selatan
☐ Slums

EVALUATE   ⚲ FREE SCALE   ⇅ REVERSE SCALE   🖫 SAVE TO GEOPORTAL   ⚙ ADVANCED

Filters allow users to redefine the study area to a specific part of the city, for instance Kota, agricultural areas, or specific land uses, such as commercial or industrial areas.

1.- Select the filter icon to have access to this section.

2.- Users can also apply set operations like union, intersection and difference.

3.- Select the filter or filters you want to redefine the study area.

4.- After selecting the features you want, please click on the EVALUATE button to calculate.
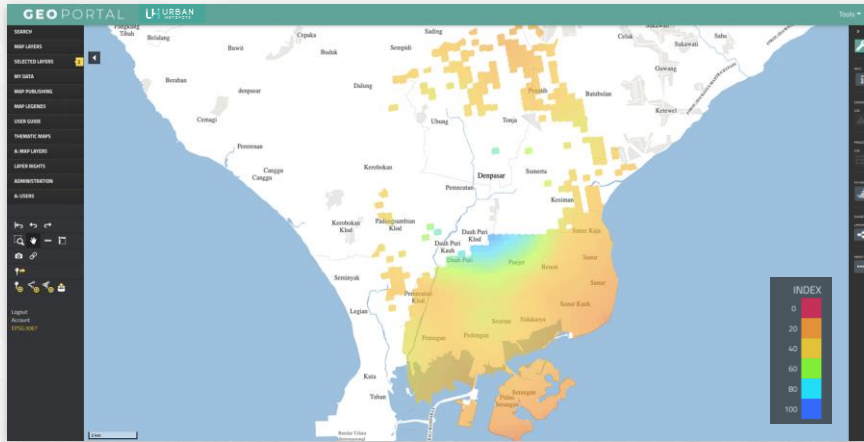
Redefine the study area to a specific part of the city.

5.- The results after applying the filters can be seen in the data frame.

6.- Use the Subset by score function if you wish to filter areas with a specific score on the Urban Hotspots Index.
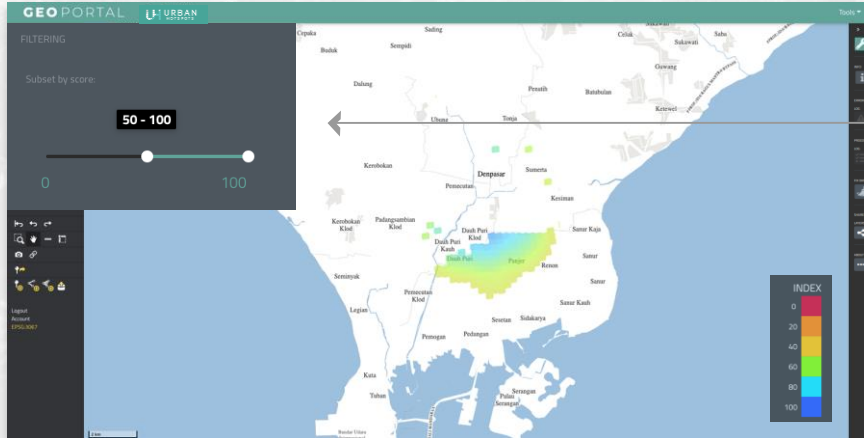
Only those areas with the desired score will be displayed on the map. For example, by selecting only values between 50 and 100 in the suitability index.

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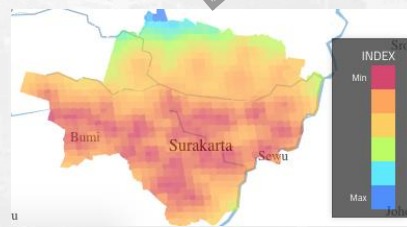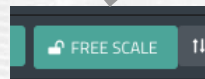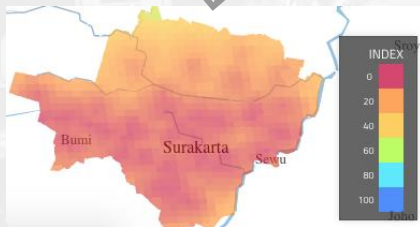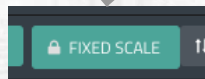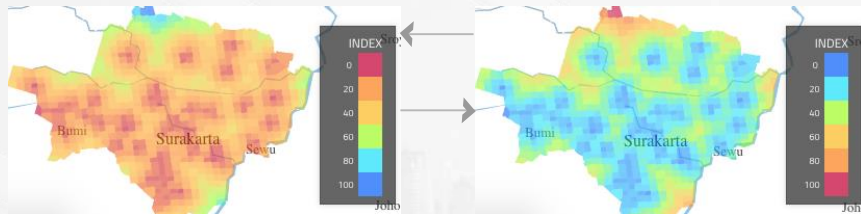
Adjust the scale to suit your analysis needs.

1. The **'Reverse scale'** button switches the scale's colors, so that the lowest value is shown in blue and the highest value in red. Clicking the button again will change the scale to its original configuration.

2. The **'Fixed / Free scale'** button allows selection of the user know what sort of scale is currently in use.
- **Fixed scale:** This is active by default, and goes from 0 to 100.
- **Free scale:** The tool will set the lowest and highest values from the analysis results and use them as the minimum and maximum values (for example, from 20 to 63).

To switch from one mode to another, simply click on the button.

URBAN HOTSPOTS

User Manual