ESPON Online Mapping Tool

RIMAP User's Manual

Table of Contents

* Only available to expert mode

Table of figures

Introduction

RIMAP (Rich Internet Mapping Tool) has been developed by the "ESPON Online Mapping Tool" project as part of the ESPON 2013 programme, the European Observation Network for Territorial Development and Cohesion.

ESPON projects cover a wide range of research with the aim to support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory. With this they build a European territorial knowledge base.

A core element in the European territorial knowledge base is the ESPON Scientific Platform. The ESPON 2013 Database is a main action in this platform. This database stores hundreds of indicators keeping the observation of the socio-economic behavior in the European territories. These indicators are provided by other ESPON projects and from other sources such as EUROSTAT or EEA.

RIMAP provides access to the ESPON knowledge base in an easy and highly digestible manner. The tool is online, available via ESPON website, and provides people the possibility to produce, visualise, analyse and download maps and diagrams of data and indicators that are directly coming from the ESPON 2013 Database.

More information about the ESPON program and the RIMAP Project can be found in:

www.espon.eu

http://www.espon.eu/main/Menu_Projects/Menu_ScientificPlatform/rimap.html

RIMAP has been developed by:

AIDICO
INSTITUTO TECNOLÓGICO DE LA CONSTRUCCIÓN

Technological Institute of Construction
http://www.aidico.com

1. Overview

1.1. ESPON - RIMAP Web Mapping Tool

The main objective of RIMAP is to provide access to and enable using the ESPON knowledge base in an easy and highly digestible manner. This will be done by giving people the possibility to produce, visualize, analyze and download maps and diagrams of data and indicators that are directly coming from the ESPON 2013 Database.

The ESPON 2013 Database includes hundreds of indicators that can be downloaded from the ESPON Database Portal.

RIMAP has a direct link to the ESPON 2013 Database and is fully compatible with data and indicators included in it. RIMAP is a tool that can be used to visualize and analyze regional data in maps and diagrams. The tool is online available via ESPON website.

Via RIMAP the user can query the data included in the Database and build the maps and diagrams needed using various NUTS levels. In addition, RIMAP offers the possibility to print, export, share, zoom-in & zoom-out and save the map as a file.

RIMAP aims to fill the gap between disseminating data in tables (ESPON Database Portal) and disseminating data in fixed maps (ESPON Online MapFinder).

RIMAP facilitates easy access for users by increasing the access possibilities: access is made possible via different devices with a web browser and internet connection, such as computers, tablets, mobiles and TVs.

RIMAP is scalable in order to avoid the need to improve functionalities or add new indicators in the near future. It has the ability to handle a growing amount of indicators in a capable manner and has the ability to be enlarged to accommodate that growth.

RIMAP is developed in HTML5 and based in Rich Internet Applications (RIA). Rich Internet Applications are web applications that have the most features of traditional desktop applications. These applications use a standard web browser to run and through supplements or through a virtual machine to add additional features.

RIMAP is available at http://rimap.espon.eu.

To show information in a desired and useful way the user has to perform three steps:

- Select What (Indicator),
- Select Where (NUTS Level or Study area)

- Select When (Year).

In addition, in expert mode the user has the possibility to make various adjustments in the settings of the map and graphs to make them even more in line with the preferences of the user. Figure 1 shows the look and feel of RIMAP divided into several areas and gives an overview of the possibilities available.

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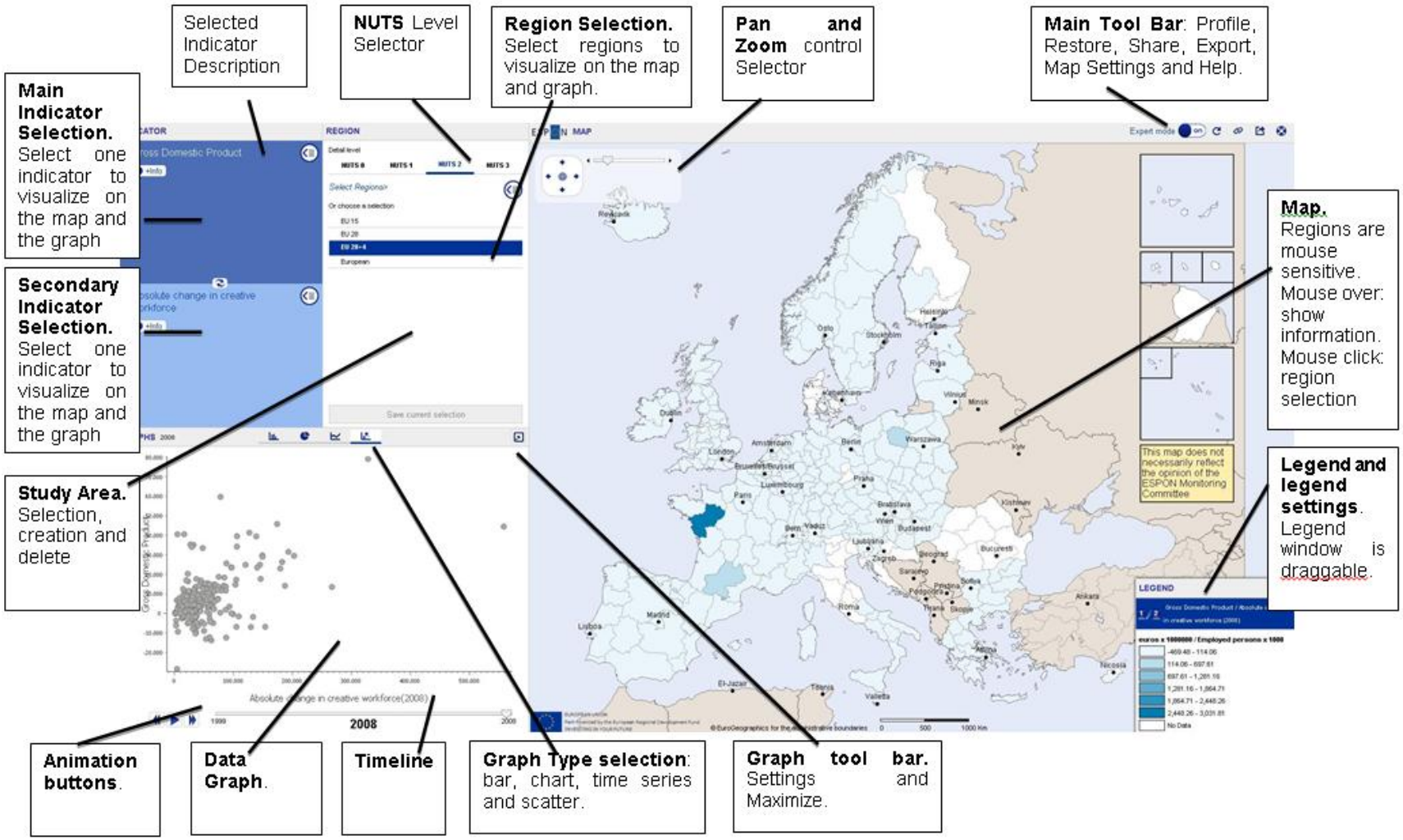


Figure 1: RIMAP Scheme

2. Main Tool Bar

At the top right of the application, the main tool bar (Figure 2), keeps some buttons offering several options:

- Profile Selection: Basic/Expert mode
- Share.
- Export.
- Help.
- Restore.

Figure 2: Main Tool Bar

2.1. Profile Selection: Basic/Expert mode

Two well differentiated User profiles have been defined:

- Basic Mode (by default). This mode should be quite simple, offering the most important functionalities.
- Expert Mode. This mode will integrate all the possibilities, integrating some analysis functionalities.

To switch from one profile to another, the user has to click to the buttons 

at the main tool bar.

This handbook contains all the functionalities available to the tool. An asterisk (*) has been used to highlight those features available only to the expert profile.

2.2. Share

Nowadays, the Information Society uses the networks to share knowledge. Thus, the user can share a link to the map clicking the button  at the main tool bar.

Once this option is selected, a window (Figure 3) is open showing the link and offering several ways to share it: e-mail and social networks.

Figure 3: Share Map Window

2.3. Export

RIMAP facilitates to export information through a report in different formats.

To do it, user has to click the button  at the main tool bar.

After this, several options (Figure 4, export options) are shown to choose the export format:

- Export map image. Some formats are available: .pdf, .png and .jpg.
- Export data: An .xls file will be created containing data from the indicator selected.

Figure 4: Export Options

Once selected one option, a file in this format is downloaded.

2.4 Help

Though RIMAP has been developed thinking in the usability of the user, some help tools are provided to explain how it works.

To access to these tools, user must click over the button  . Then, a window appears showing a user guide which describes all the functionalities included in RIMAP.

There is a section where you can download the user guide in pdf format, also there is a section where you can see some video tutorials.

2.5 Restore

RIMAP has the feature to remember the user settings (custom study zones, map settings, chart settings and range settings), so RIMAP facilitates to restore default values.

To do it, user has to click the button  at the main toolbar.

3. Indicator selection

The main goal of RIMAP is to visualize and analyze the value of a set of indicators contained into the ESPON Database at different regional levels (NUTS) along time.

User can select the main indicator clicking over the button, and selecting it in the tree sited at the right.

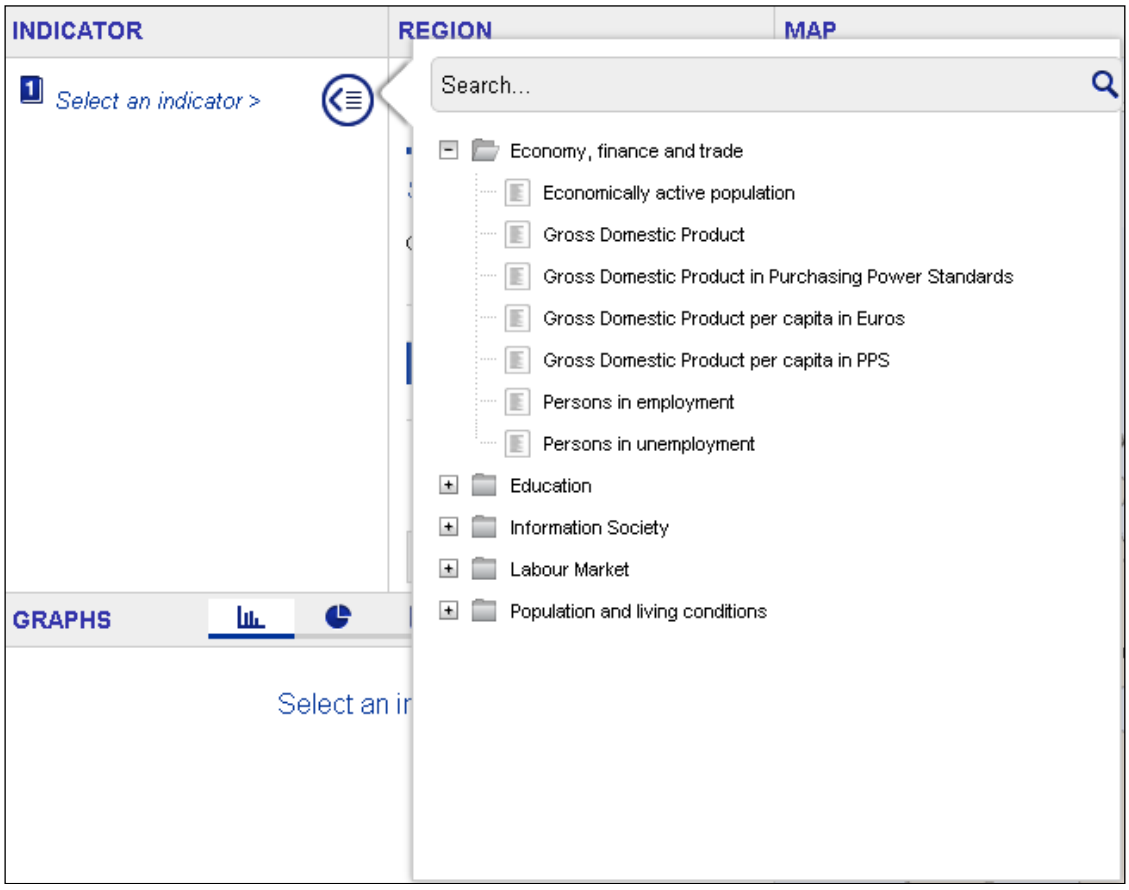


Figure 5: Indicators List

In the Basic mode, the user only can see the core indicators, however in the Expert mode the user can see all the indicators stored in the ESPON Database. In this case indicators are classified by Theme, Project or Policy. There is a classification bar to select between those options clicking over it.

Figure 6: Indicators Classification Bar

3.1. By theme

By default, indicators are classified by theme. Currently, ESPON Database contains the following themes:

- Agriculture and fisheries.
- Economy, finance and trade.
- Education.
- Environment and Energy.
- Governance.
- Health and Safety.
- Information Society.
- Labor Market.
- Population and Living conditions.
- Science and Technology.
- Territorial Structure.
- Transport and Accessibility.

In the basic mode, only ESPON Core Indicators are available.

3.2. By Policy *

Indicators are classified by policy. Currently, ESPON Database contains the following policies:

- Access to services, markets and jobs.
- Economic performance and competitiveness.
- Environmental qualities.
- Global competitiveness of the regions based on strong local economies.
- Inclusive growth.
- Innovative territories.
- Integrated development in cities, rural and specific regions.
- Other.
- Polycentric and balanced territorial development.
- Polycentric territorial development.
- Smart growth.
- Social inclusion and quality of life.
- Spring 2013.
- Summer 2010.
- Sustainable growth.
- Territorial connectivity for individuals, communities and enterprises.
- Territorial Cooperation and Governance.
- Territorial integration in cross-border and transnational functional regions.

3.3. By project *

Indicators are classified by ESPON project. Currently, ESPON Database contains the following projects:

- ACC Update.
- ATTREG.
- CREA Update.
- DEMIFER.
- DEMo Update.
- EDORA.
- EsaTDOR.
- ESPON Climate.
- ESPION M4D.
- ESPON TC.
- INTERCO.
- KIT.
- ReRisk.
- TEL Update.
- TERCO.
- TIPTAP.

3.4. Keyword search

Taking account ESPON Database contains more than 500 indicators; a Keyword Search Bar is available offering the search results as the user is typing (Figure 7).

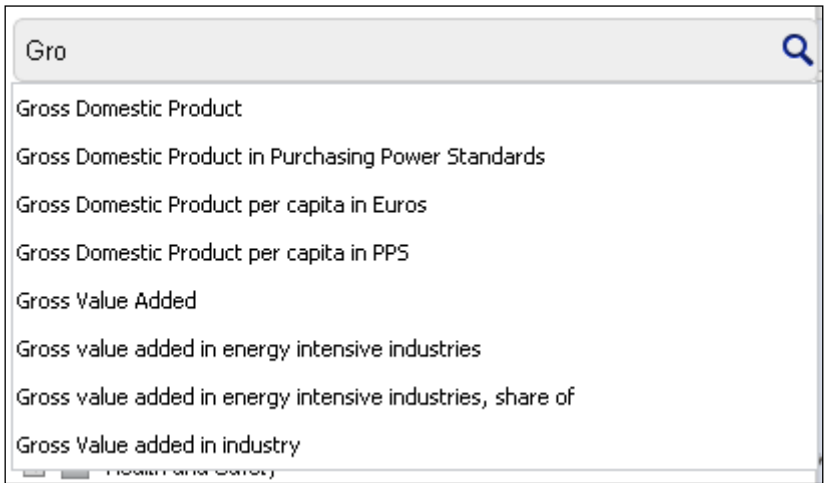


Figure 7: Search results

4. Geographic selection

4.1. Elementary Zone. Selection of country, regional, subregional or departmental areas.

The geographic elementary zones in RIMAP are NUTS (Nomenclature of Territorial Units for Statistics).

NUTS is the official division of the EU for regional statistics. It was introduced by Eurostat more than 30 years ago with the purpose to provide a single uniform breakdown of territorial units for the production of regional statistics for the European Union. Four NUTS levels are available: NUTS0 (Country level), NUTS1, NUTS2 and NUTS3.

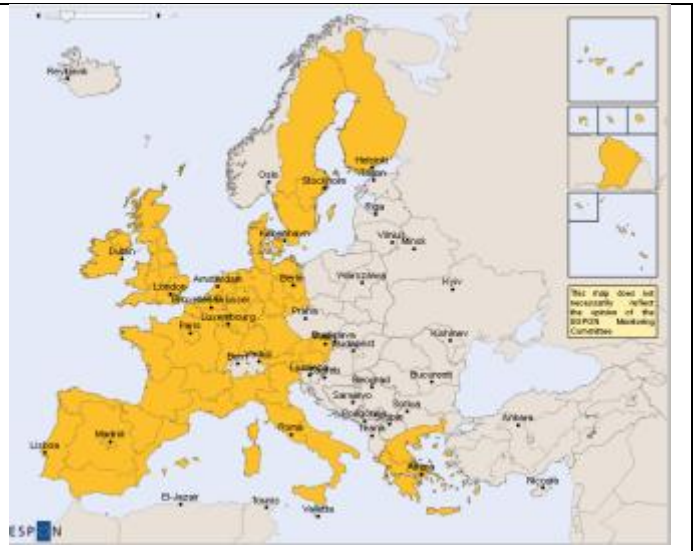
The first NUTS division was published in 1999. National interests require changing the regional breakdown of a country which are the basic cause for the need to publish revised versions of the NUTS divisions, published in 2003, 2006 and 2010. RIMAP uses the NUTS division that matches the data selected

The user can change the NUTS LEVEL by clicking on the NUTS Level Bar (Figure 8). This action will refresh automatically the Map and the Graph.

Only NUTS levels for which data is available can be selected.

Figure 8: NUTS Level Bar

NUTS0 – COUNTRY LEVEL



NUTS1 LEVEL

NUTS2 LEVEL

NUTS3 LEVEL

Figure 9: NUTS Levels Detail

4.2. Study area(s): Predefined, created by user.

Territories can be grouped in Study Areas order to facilitate the behavior of an indicator in all those territories.

Default Study Areas

RIMAP has defined some Default Study Areas:

- EU15.
- EU28.
- EU28+4.
- European.
- Baltic Sea Region (NUTS2 and NUTS3 Level) *
- Mediterranean (NUTS2 and NUTS3 Level) *
- Danube Region (NUTS2 and NUTS3 Level) *
- North West Europe (NUTS2 and NUTS3 Level) *
- Alpine Space (NUTS3 Level) *
- Atlantic Coast (NUTS3 Level) *
- Central Europe (NUTS3 Level) *
- North Sea (NUTS3 Level) *
- South East Europe (NUTS3 Level) *
- South West Europe (NUTS3 Level) *

A Study Area can be selected at the top of the Region section. Please note that only Study Areas that fit with the NUTS level of the data available can be selected.

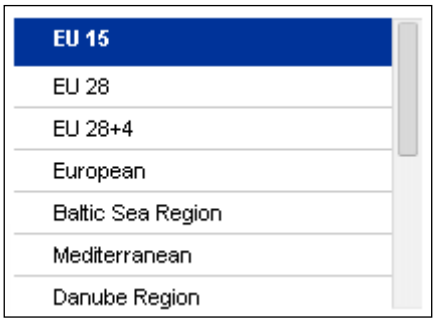


Figure 10: Default Study Areas

The selected Study Area is highlighted.

Custom Study Areas

User can create its own Study Areas being available along the user session following these steps:

1. Territories Selection.

Territories can be selected or deselected directly on the map (clicking over them) or clicking over the button Select Regions to display > and selecting regions over the dropdown list (Figure 11).

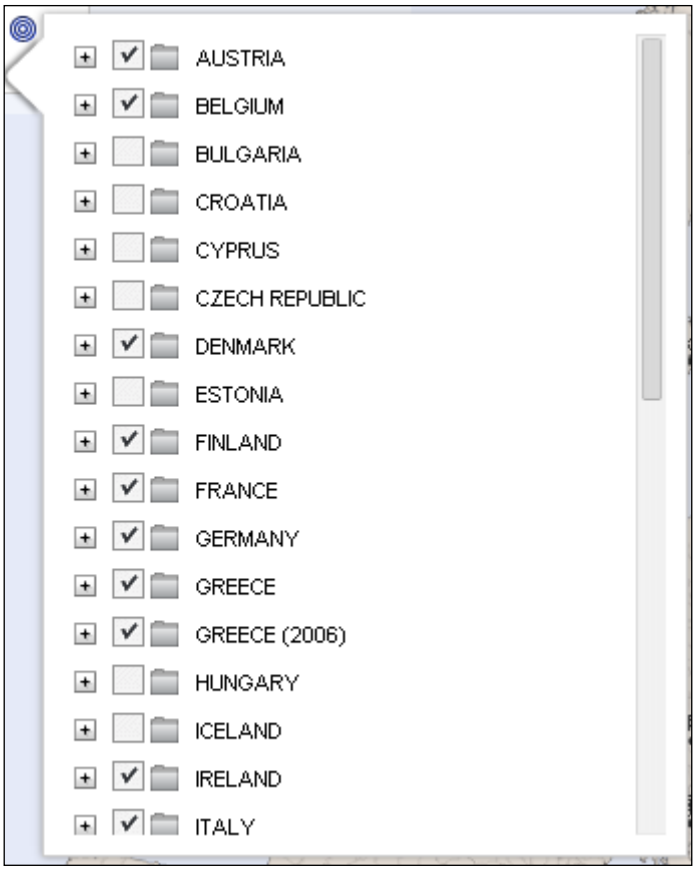


Figure 11: Regions List

2. Save Study Area.

Once have been defined the Study Area, it must be saved clicking over the button Save current selection. Then, a window is shown where the name of the Study Area must be introduced.

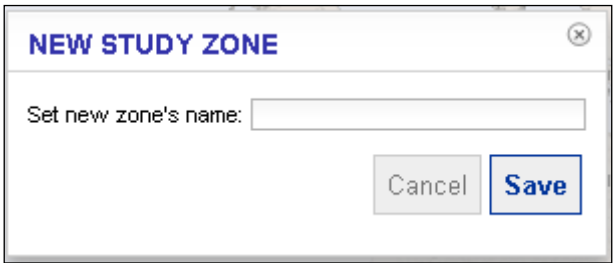


Figure 12: Save Study Area

Example: To create a Custom Study Area with only the EU15 Mediterranean countries.

- To select EU15 Study Area.
- Then, non-mediterranean countries must be deselected clicking on the map.

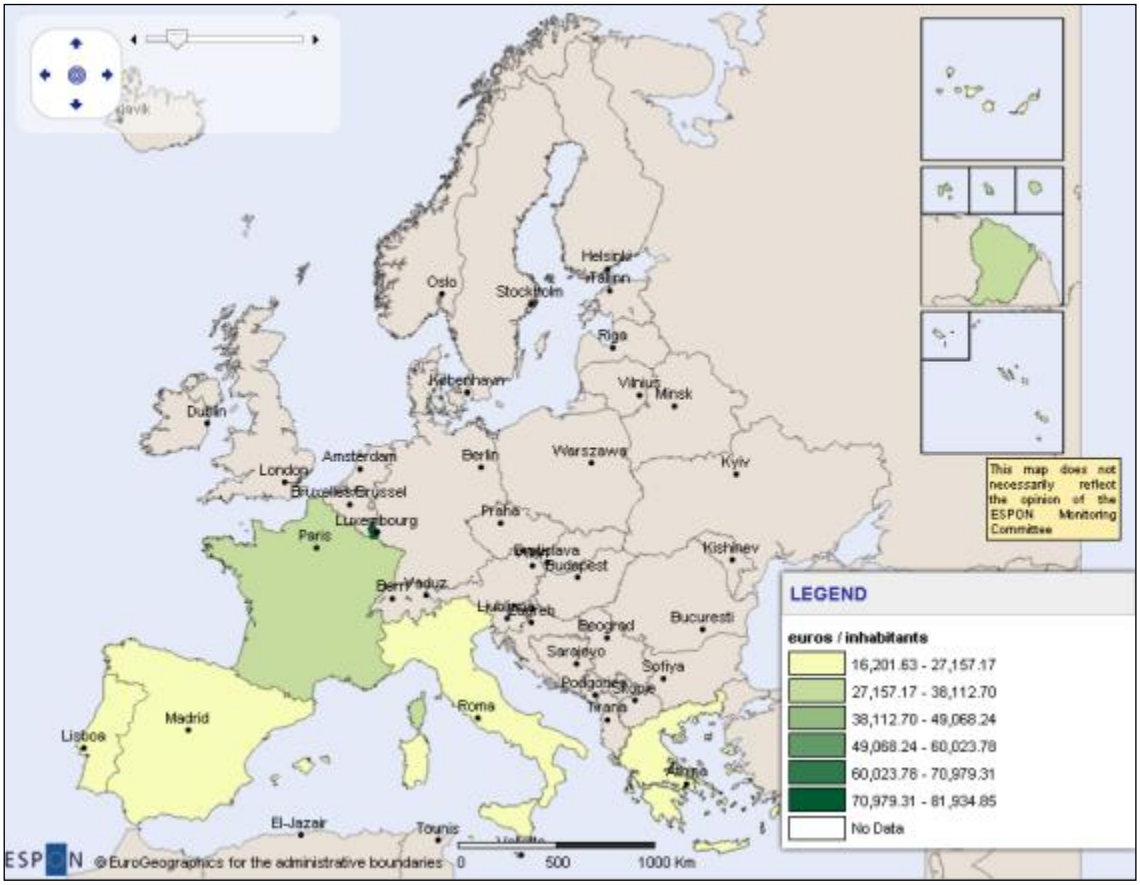


Figure 13: Mediterranean EU15 custom Map

- Finally, *Save Current Selection* button is clicked and a window is open to set the custom Study Area name, i.e., Mediterranean Countries.

Figure 14: Set custom zone name

This new Study Area will be added to the Default Study Areas.

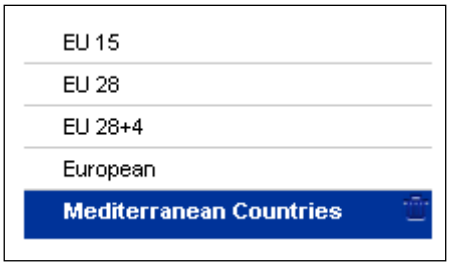


Figure 15: Study Areas List

Custom Study Areas can be deleted clicking over .

5. Maps

5.1. Overview

The Map Area is the most important area in RIMAP. This area will show the indicator value for the territories selected.

Map Area is mouse sensitive, keeping the selection/deselection of territories by clicking, and showing the indicator value when the mouse is over them.

Each type of data must be painted in the map in a different way:

- Absolute data: A dot with a size proportional to the value. Two colours (positive and negative) will be used (Figure 16).
- Relative data: The region will be painted with a variation of colours (from light to dark) (Figure 17)
- Typology data: The region will be painted with an assigned colour (one by typology). (Figure 18)

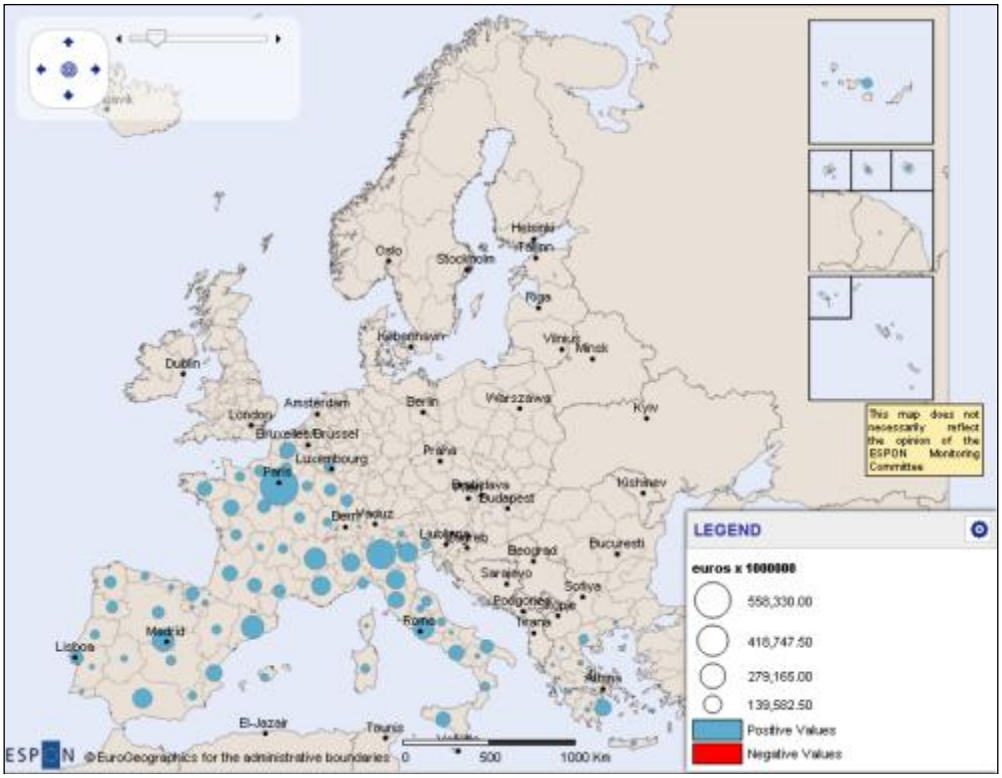


Figure 16: Dot Map. Absolute Indicators

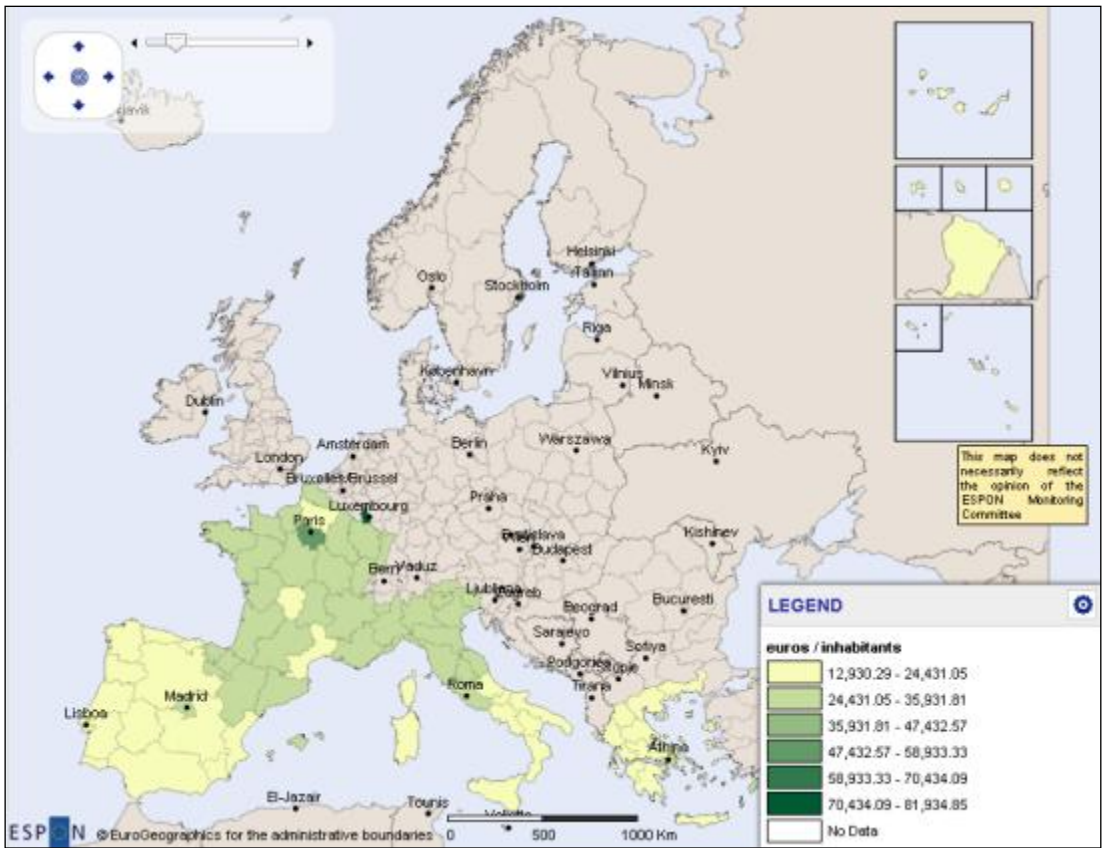


Figure 17: Choropleth Map. Relative Indicators

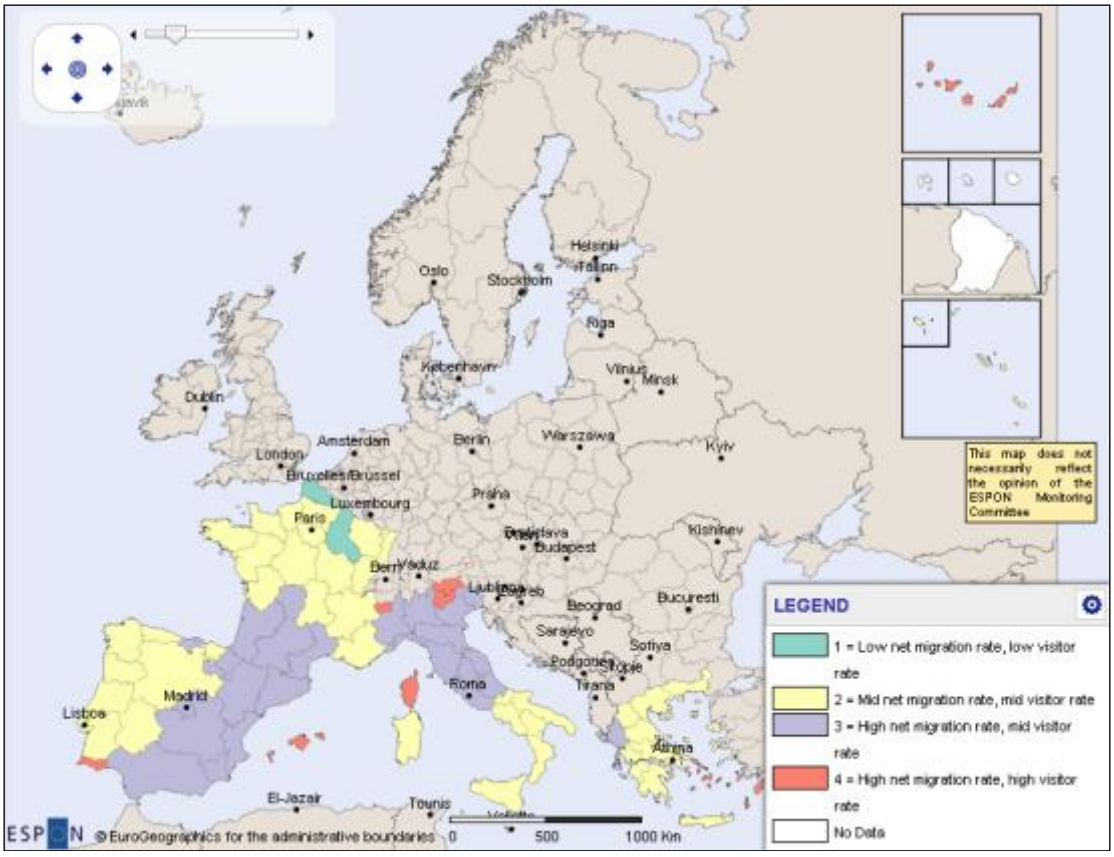


Figure 18: Choropleth Map. Typology Indicators

5.2. Map Settings *

User can customize the map clicking over the map settings button  at the Main Tool Bar.

Two issues can be customized:

- Capitals. User can set the type, size and color of the capitals symbol, as well as the font type and size of the Capital Label.
- Region borders. User can set the size and color of the region borders to each NUTS Level.

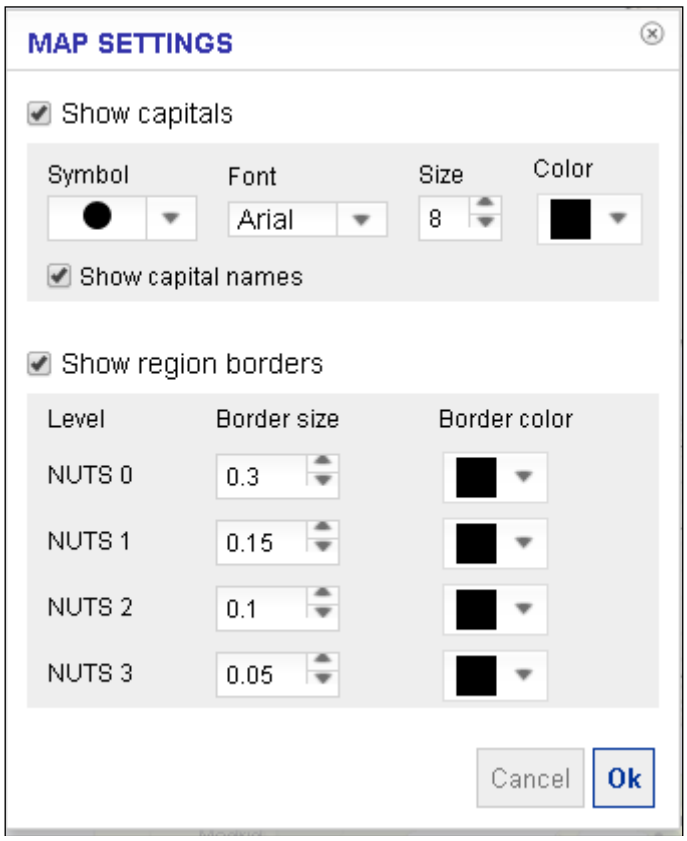


Figure 19: Map Settings Window

5.3. Legend Settings *

User can customize the indicators representation clicking over the legend settings button  at the Legend Window (Figure 20).

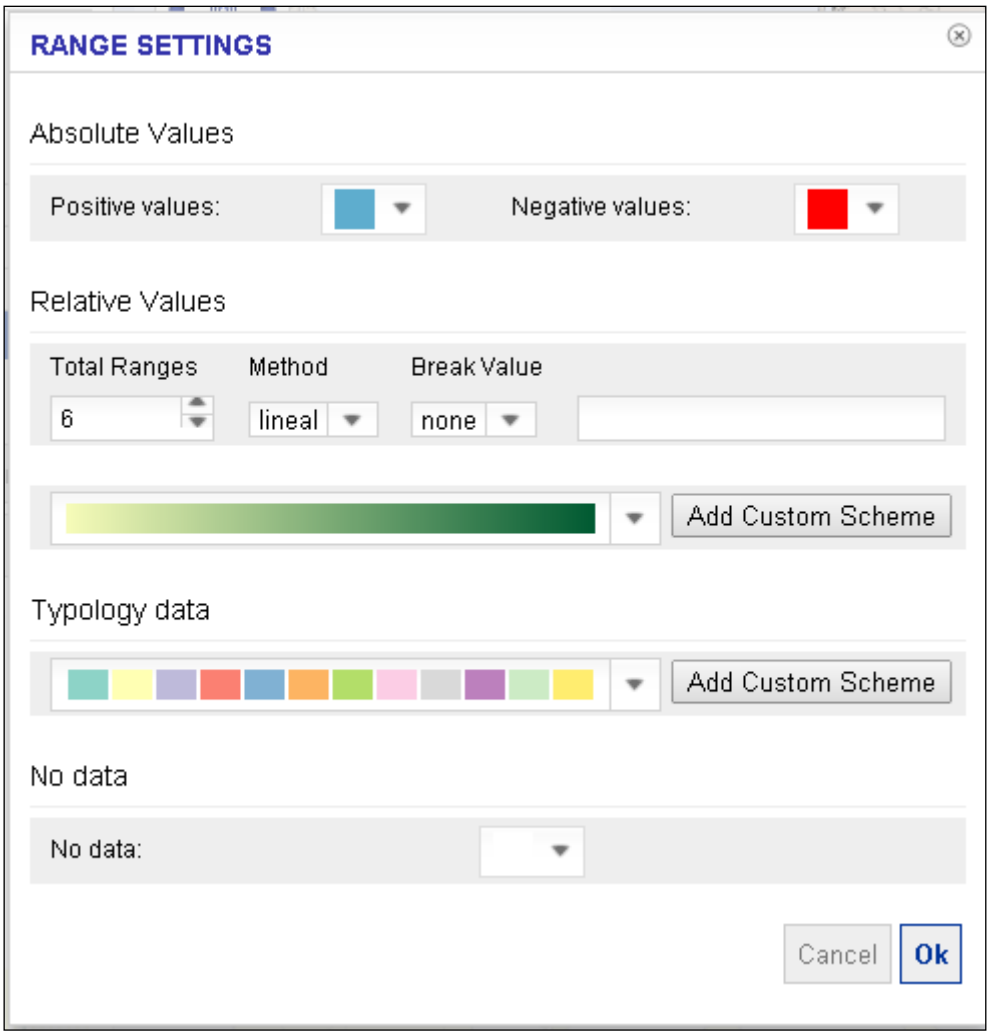


Figure 20: Legend Window

Depending on the data type, user can configure different map features:

Three issues can be customized:

- Absolute Values:
  - Color Scheme: User can select the color to show positive and negative values
- Relative Values:
  - Number of Total Ranges: From 4 to 12 ranges.
  - The calculation method: Lineal, Quantiles or Jenks.
  - The Break Value: None, Zero, Average or Custom.
  - Color Scheme: User can select between 6 default color schemes

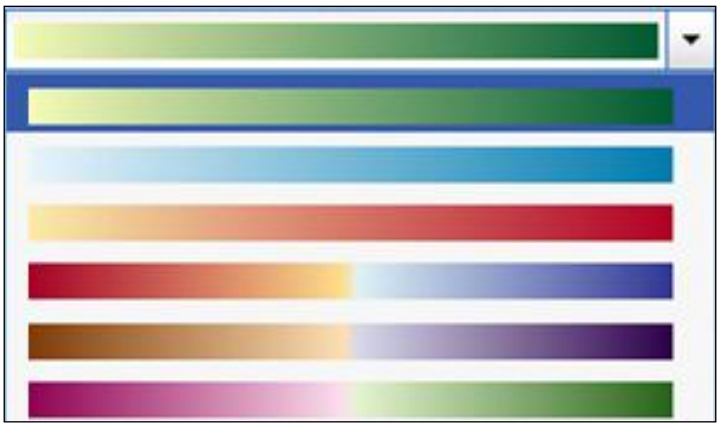


Figure 21: Color Schemes

User can create its own custom color scheme clicking over Add Custom Scheme. A window is shown to select the 2 colors (1 scale) or 4 colors (2 scales):

Figure 22: Customize numerical color window

- Typology Data:
  - Color Scheme: User can create its own custom color scheme clicking over Add Custom Scheme

Figure 23: Customize non-numerical color window

Example. A user wants to change some map settings: the capitals symbol, the capitals label font type and font size, and the region borders size and color.

- Firstly, user will click over Map Settings button.
- The, user has to indicate his preferences in the map settings window: a Red triangle as capitals symbol, Red Courier New 9 as capitals label font, blue color and 1 as region border size to NUTS0 level.

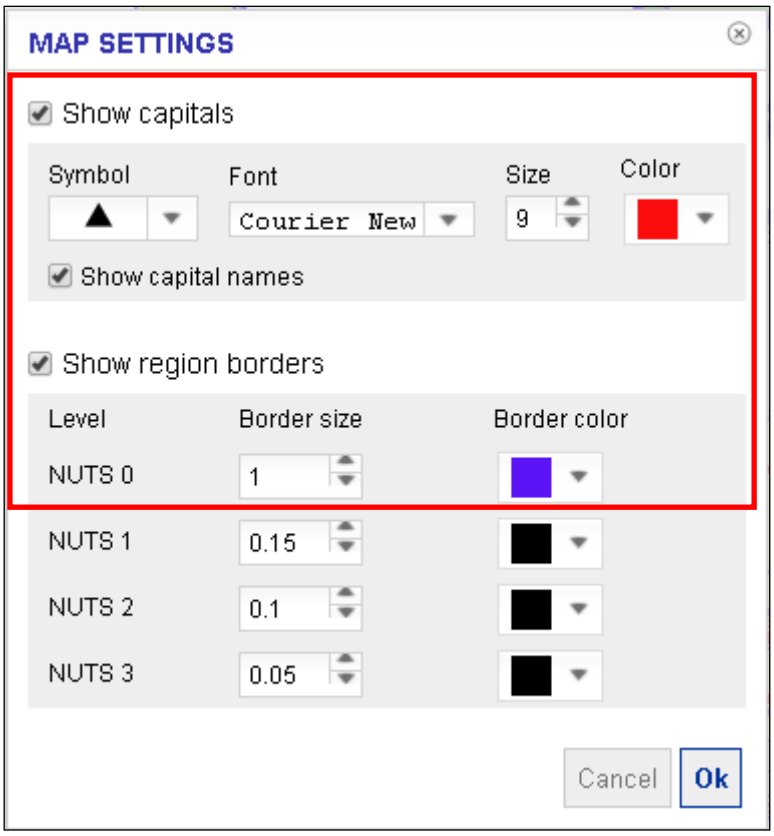


Figure 24: Map settings window

With these new settings, the Map will be shown as follow:

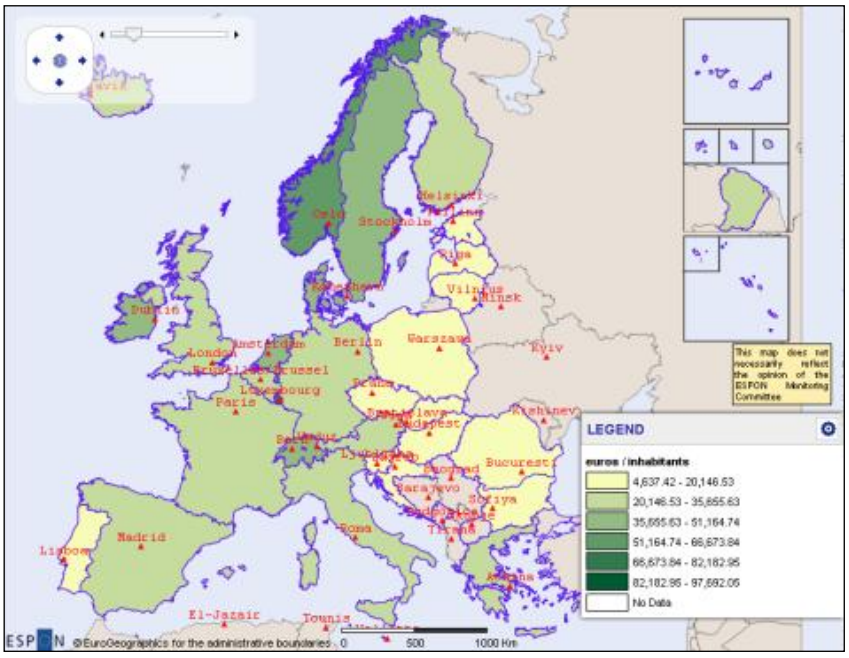


Figure 25: Customized Map

6. Charts

6.1. Overview

Although the main goal of RIMAP is to show the contents of the ESPON Database through Maps, some support charts have been integrated as analysis tools.

Charts are located at the RIMAP bottom left (Figure 26).

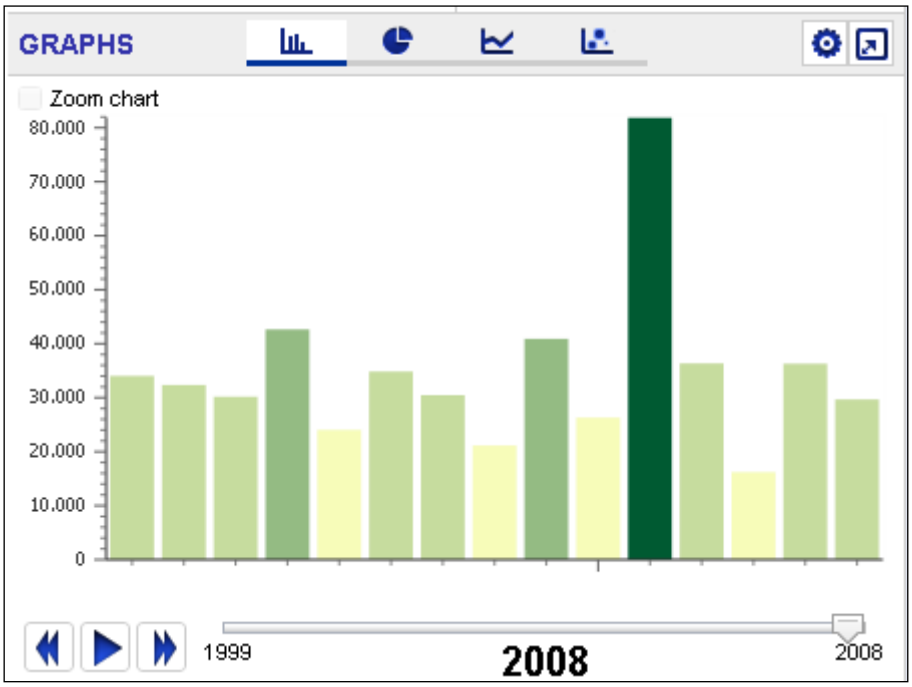


Figure 26: Graph Area

At the top of the Graph Region are located two buttons bars:

- Graph type selector bar. Four different kinds of charts are included in RIMAP: Bar chart (by default), Pie Chart, Time Comparison and Scatter.

Figure 27: Graph type selector bar

- Graph Options bar. Two buttons are located in this bar: Graph settings button and Switch button. On the one hand, when user clicks over the Graph settings button, a window is open to custom some issues related to the graph. On the other hand, switch button maximizes the graph region exchanging it by the Map Region (Figure 28 and Figure 29).

Figure 28: Graph Options bar

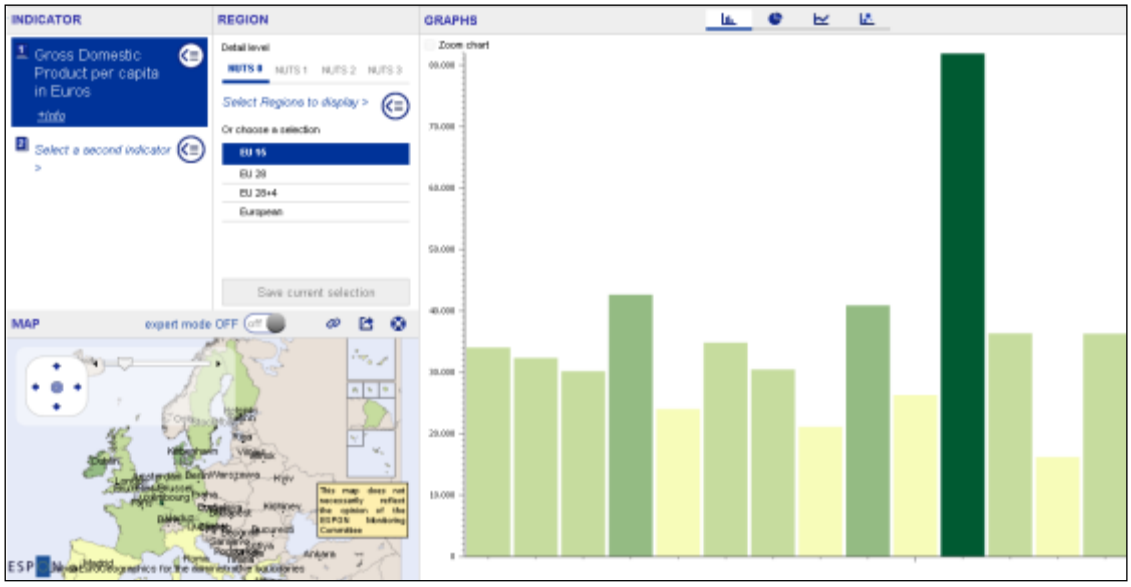


Figure 29: Graph maximized

6.2. Geographical Comparison

To compare an indicator geographically, two kinds of charts have been included in RIMAP: Bar chart and Pie chart.

6.2.1. Bar chart

User has to click over the button  to see the bar chart.

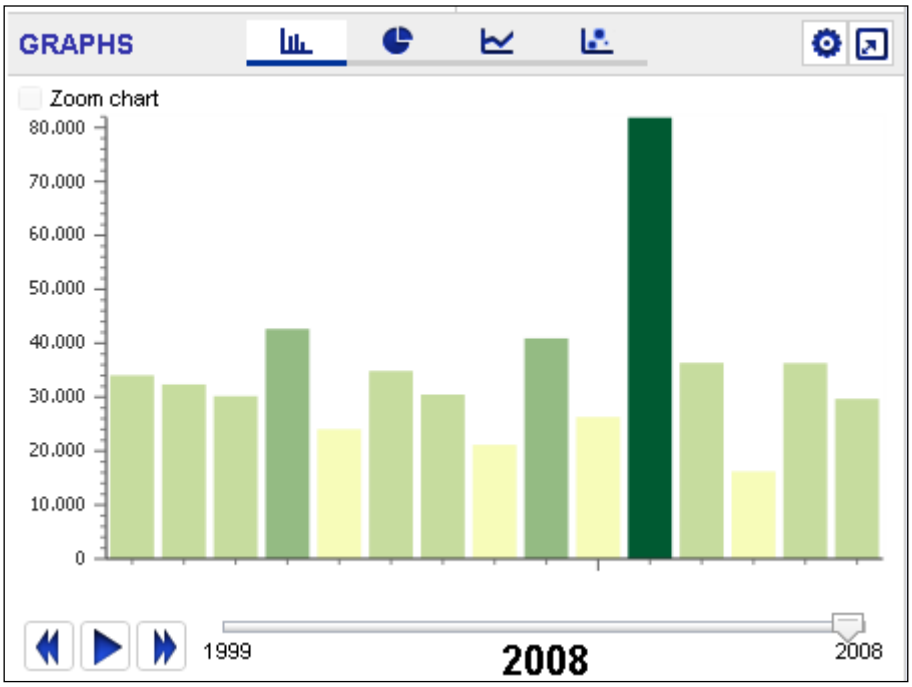


Figure 30: Bar Chart

The bar chart is mouse sensitive, so, when user locates the mouse over a bar, it's highlighted (at Map too) and a tooltip appears with information about the name of the region and the indicator value (Figure 31).

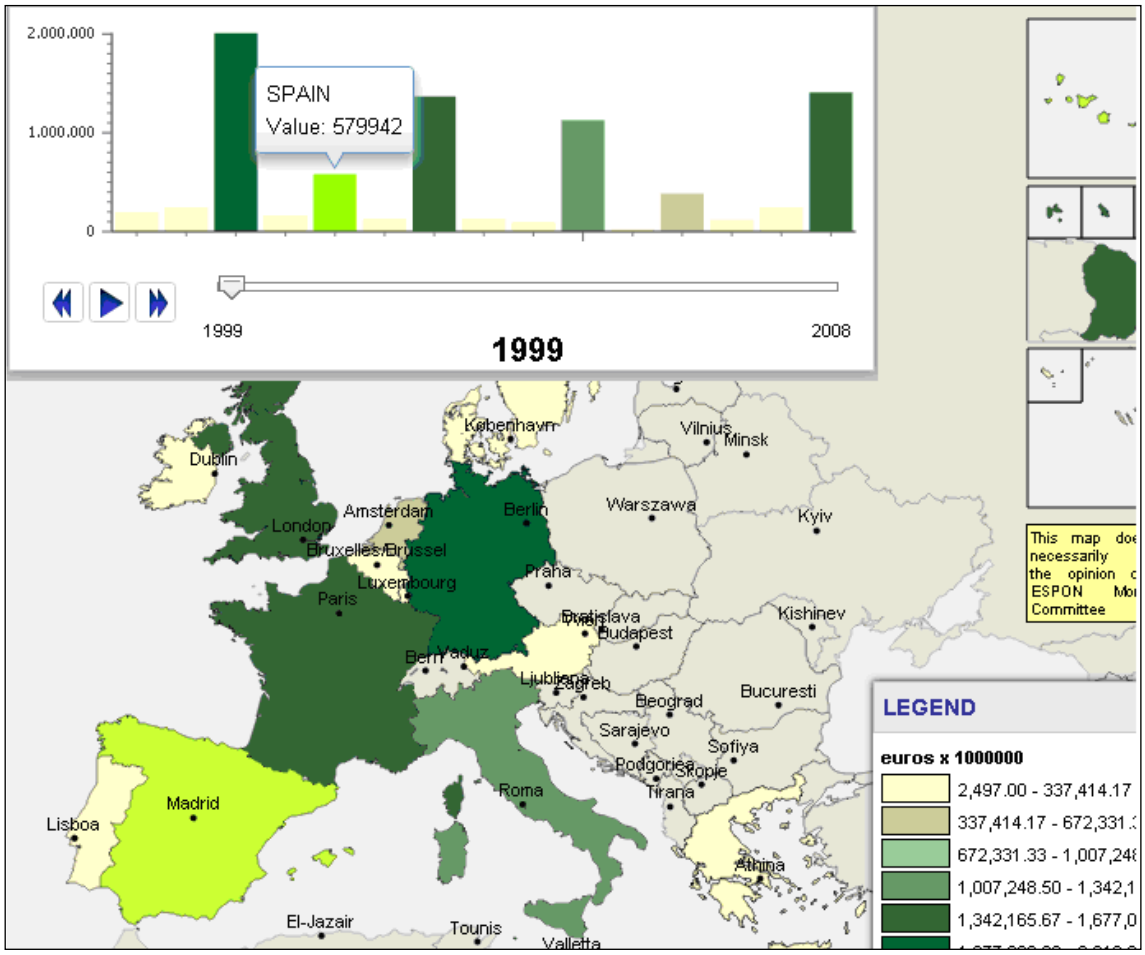


Figure 31: Map and Bar chart region highlighted and tooltip

6.2.2. Pie Chart

User has to click over the button  to see the pie chart.

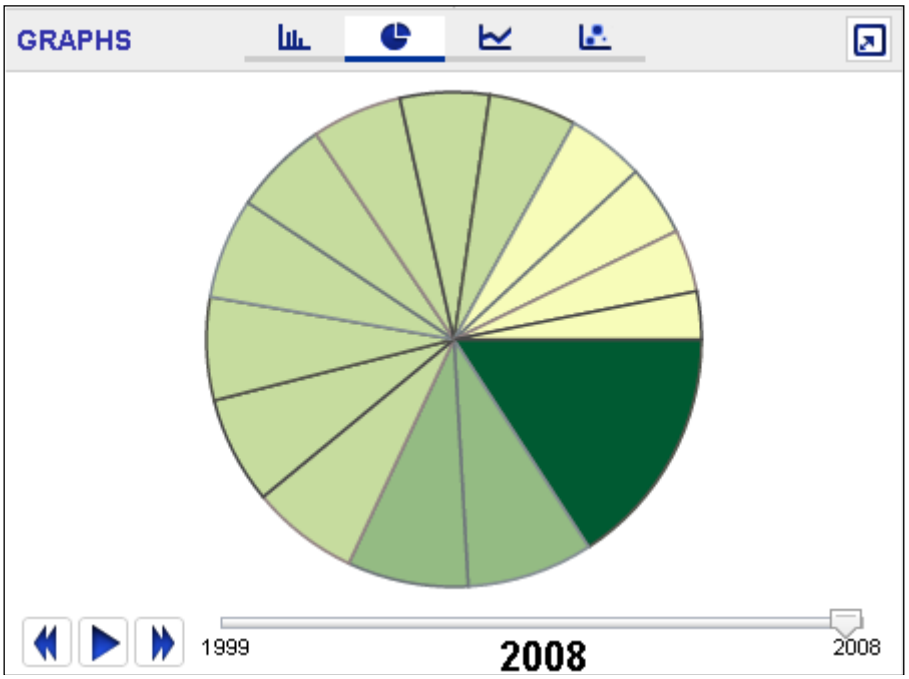


Figure 32: Pie chart

The pie chart is mouse sensitive, so, when user locates the mouse over a sector, it's highlighted (at Map too) and a tooltip appears with information about the name of the region and the indicator value (Figure 33).

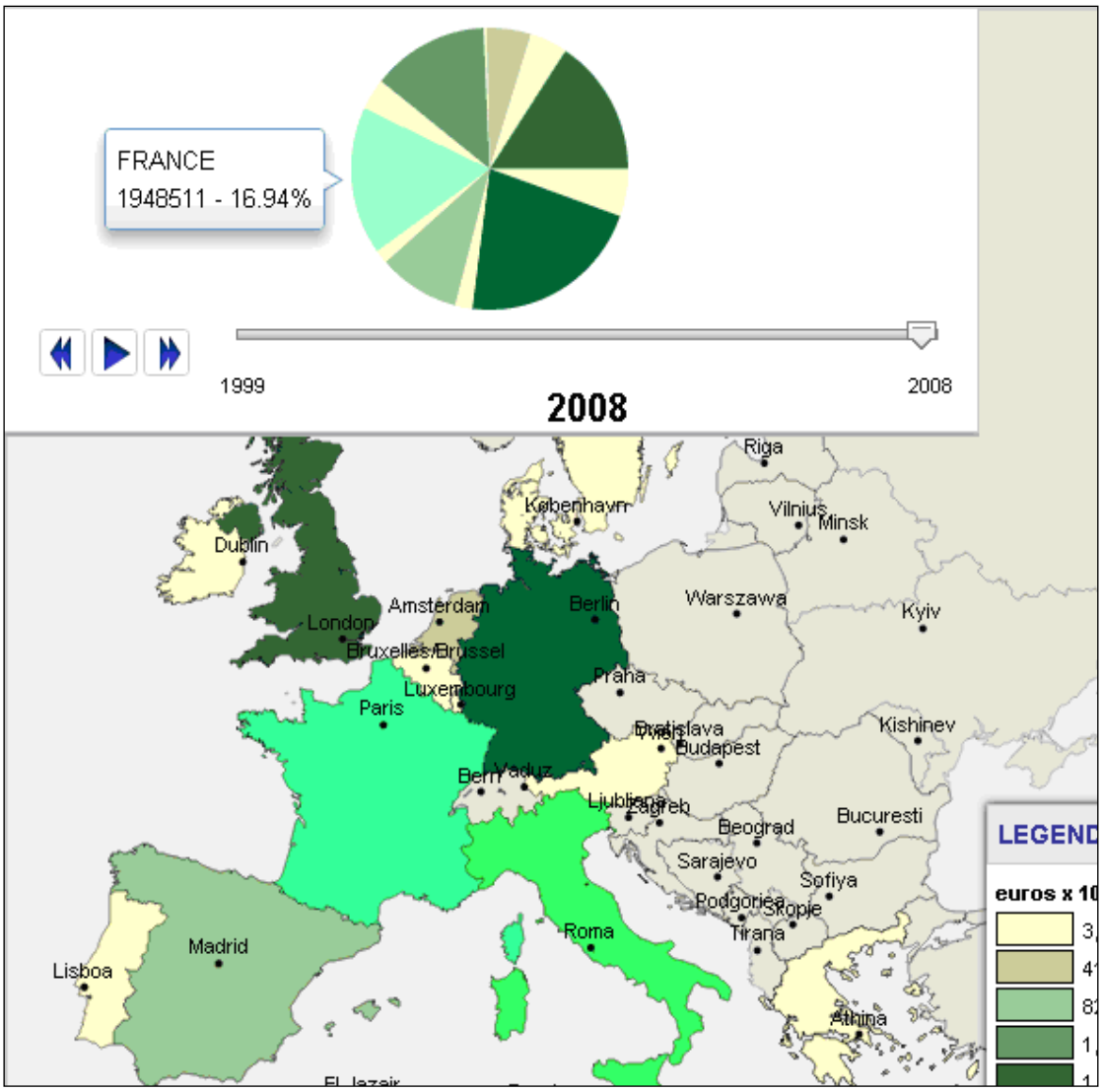


Figure 33: Map and Pie chart region highlighted and tooltip

6.3. Time Comparison

To see the evolution of an indicator along the time in the Study Area, RIMAP has included a Line Graph.

6.3.1. Line Graph

User has to click over the button  to see the Line Graph.

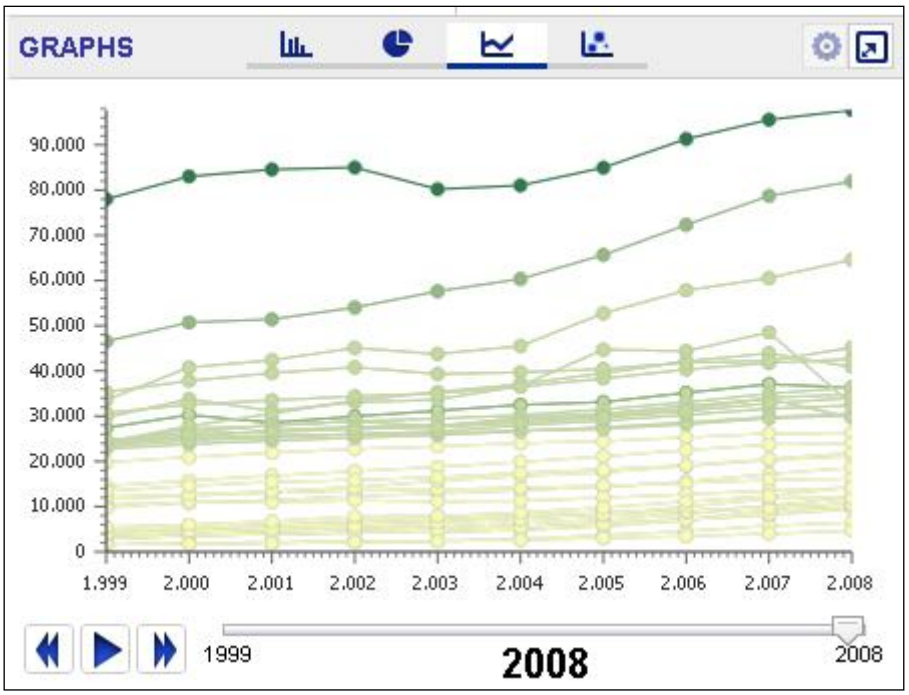


Figure 34: Line Graph

Each mark indicates the indicator value of a territory in a given year.
The line graph is mouse sensitive, so, when user locates the mouse over a mark, it's highlighted (at Map too) and a tooltip appears with information about the name of the region and the indicator value (Figure 35).

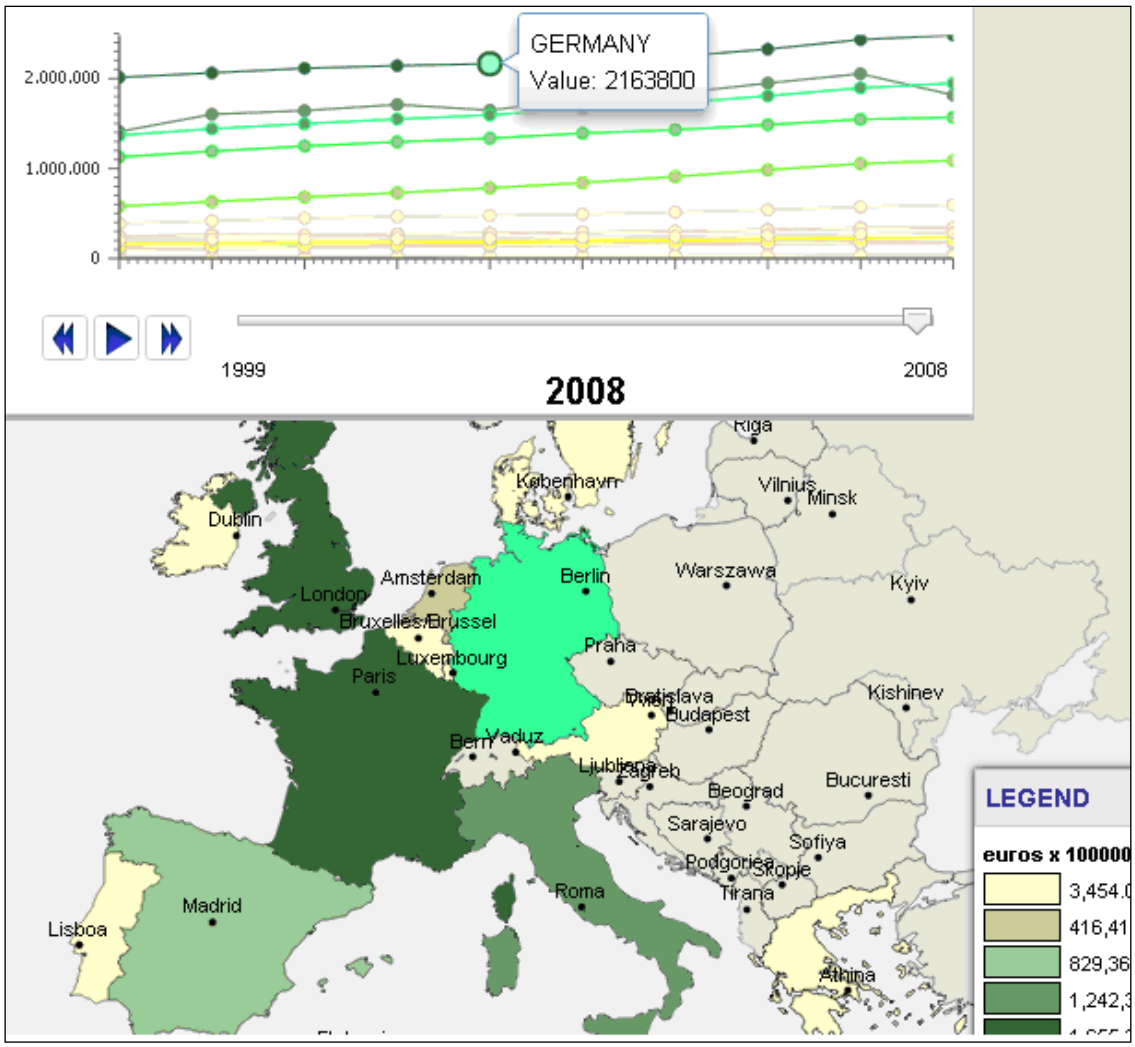


Figure 35: Map and Line graph region highlighted and tooltip

6.4. Indicators Comparison

6.4.1. Scatter diagram

A common tool to analyze two indicators at same time is the Scatter Diagram. In RIMAP, user can access to the tool clicking over the button .

This functionality is only available in case two indicators are selected.

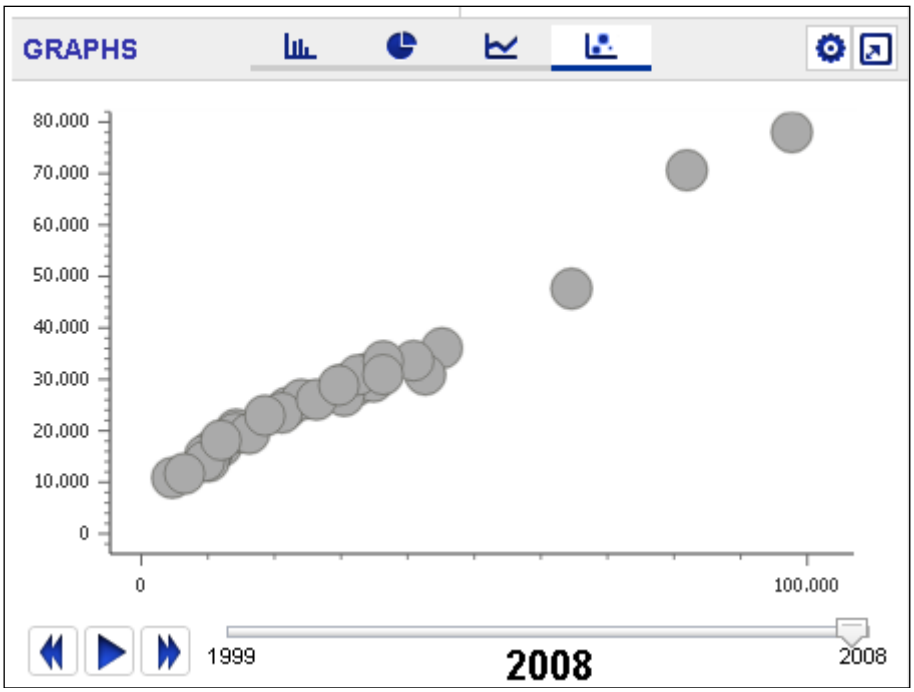


Figure 36: Scatter Diagram

6.4.2. Overlays – Various indicators showed in map

When two indicators are selected, they are both displayed in the map. The way how they are presented depends on the type of data of both indicators (absolute, relative of typology). The table below gives an overview of all possibilities.

Indicator 2: / Indicator 1:	**Absolute (2A)**	**Relative (2R)**	**Typology (2T)**
Absolute (1A)	*Ratio 1A/2A: area + col.var. ratio based*	1A: dot + size prop. 2R: area + col.var.	1A: dot + size prop. 2T: area + col.diff.
Relative (1R)	1R: area + col.var. 2A: dot + size prop.	1R: area + col.var. 2R: area texture	1R: area + col.var. 2T: area texture
Typology (1T) (qual. data)	1T: area + col.diff. 2A: dot + size prop.	1T: area texture 2R: area + col.var.	1T: area + col.var. 2T: area texture

Figure 37: Summary Table

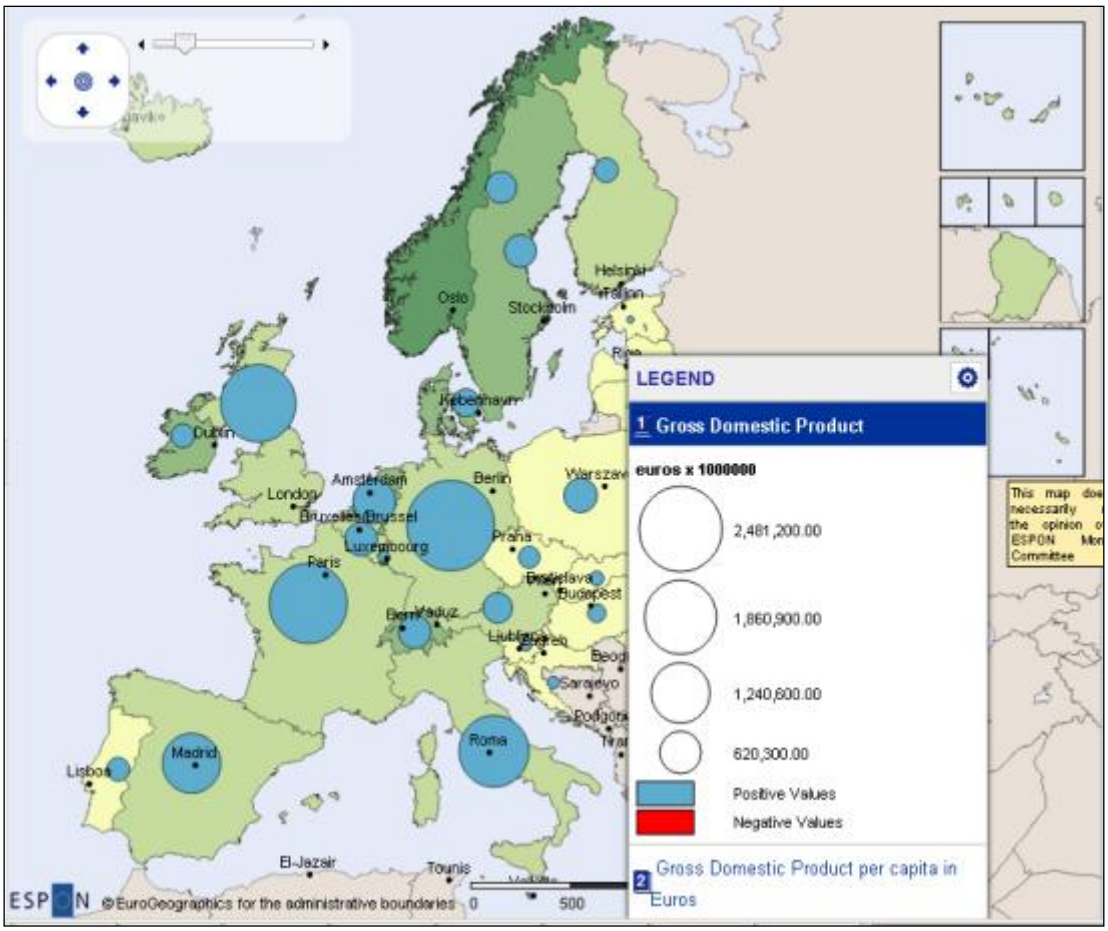


Figure 38: Indicator 1 Absolute and Indicator 2 Relative: Dots / Choropleth Map

6.5. Graph Settings *

Each Graph typology has some settings which can be customized by the user. To do it, user must click over the button  at the top right of the Graphs Area.

6.5.1 Barchart options

Several Bar chart options can be set:

- To show or not the average.
- To show two additional bars with information from other years.
- To sort the bars (ascending or descending) based on several criteria: Region name, Region code, or Indicator Value.

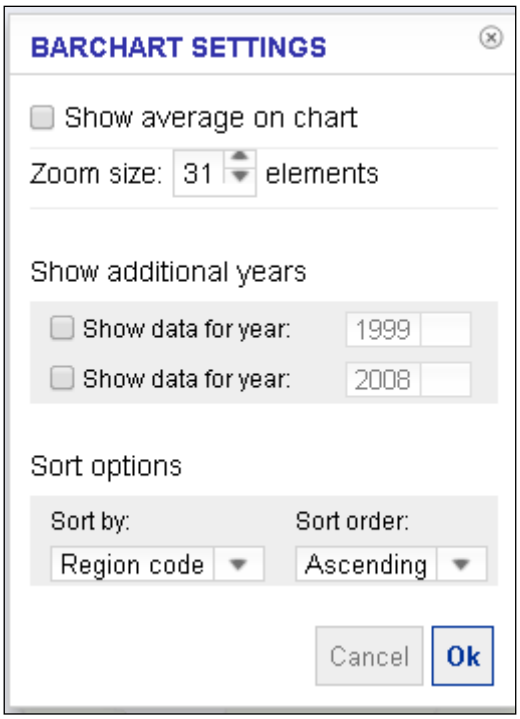


Figure 39: BarChart Options Window

6.5.2 Piechart options

Several Pie chart options can be set:

- To show two additional pies with information from other years.
- To cluster some sectors based on several criteria: Number of total sectors, sectors with a lower indicator value than a baseline value and sectors which added arise to a baseline value.

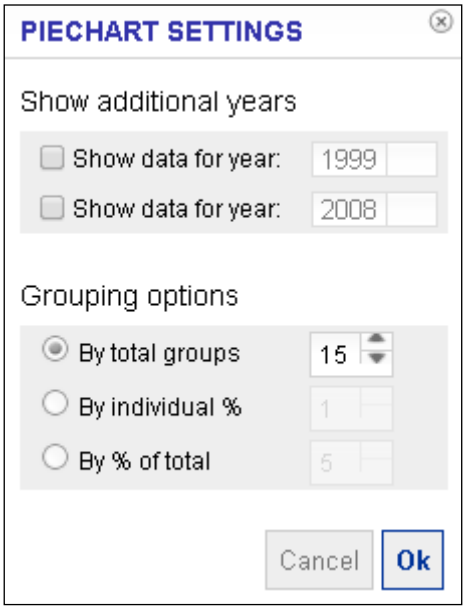


Figure 40: PieChart Options Window

6.5.3 Scatter options

Several Scatter options can be set:

- To change the color of the bubble
- To change the year

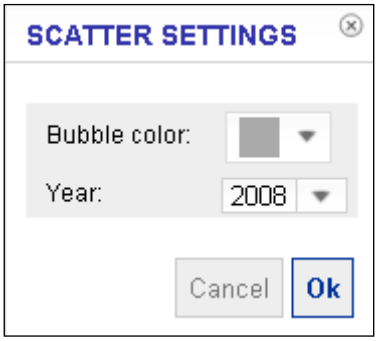


Figure 41: Scatter Options Window

7. Time Zone

7.1. Overview

One of the three variables managed in RIMAP to generate the maps is When.

By default, RIMAP selects the last year included in the ESPON Database, however, user can change between the years available clicking over the Time slide bar.

Figure 42: Time Slide Bar

7.2. Animation controls

Some animation controls have been included in RIMAP to show the evolution of an indicator along the time in the map and the graph.

These controls are located at the left of the Time Slide Bar (see figure).

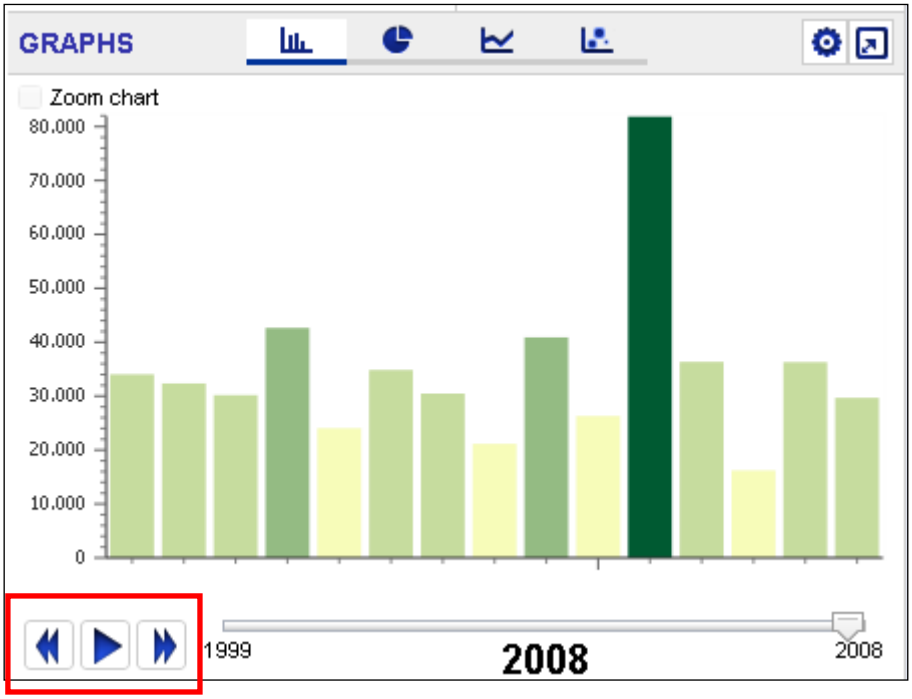


Figure 43: Animation Controls

RIMAP includes four animation controls:

- Play  : When user clicks over this button, the animation starts since the year selected until the last year available or if user clicks over the pause button.
- Pause  : This button only appears while the animation is being carried out. User can stop it clicking over this button.
- Forward  : When user clicks over this button, the current year changes until the last year available.
- Backward  : When user clicks over this button, the current year changes until the first year available.