INTERREG V-A COOPERATION PROGRAMME
GREECE – BULGARIA 2014 – 2020

Reinforcing Protected Areas Capacity through an Innovative Methodology for Sustainability

– BIO2CARE –

(Reg. No: 1890)

Deliverable 5.1
Two training sessions regarding the use of BIO2CARE Software

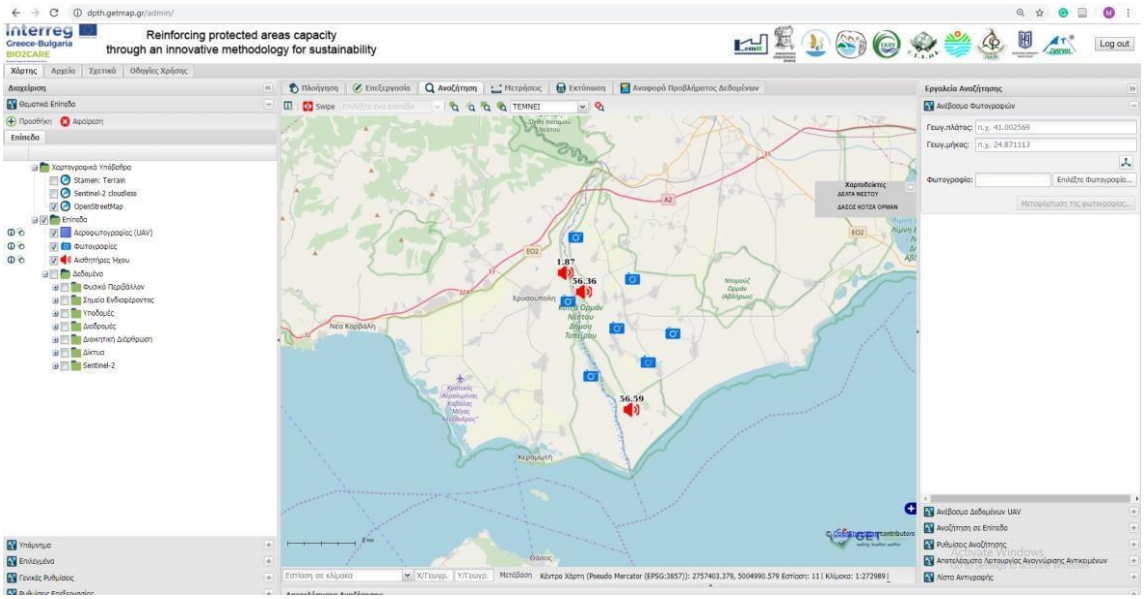
Hand-out Material – e-Notes of the workshop

The Project is co-funded by the European Regional Development Fund and by national funds of the countries participating in the Interreg V-A "Greece-Bulgaria 2014-2020" Cooperation Programme

Session A
Monitoring Software

The Decision Making Software is a cartographic online application that integrates all available data for the area of interest. The application is accessible at the following link: https:/dpth.getmap.gr

This version allows users to navigate to all the free data included in the application as well as to interact with it with the available tools that will be presented briefly below.



The application includes three sections:

Section A includes:

- Thematic layers
  - Mapping backgrounds
  - Thematic layers
    For each of the thematic layers the user has some basic functions, with the most important being the activation of the view, the adjustment of the transparency, the appearance of the table with the descriptive elements of the objects, receiving the data, and focus on the level.

    In addition, there is the possibility of adding more data from other cartographic services compatible with OGC standards.

- Memo
  - In this section, the cartographic symbols of the active thematic layers are presented.

- General Settings
    - Includes a series of settings related to the functionality of the application, such as the projection system, information points, etc.

Section B includes:

- The interactive map
- Interaction tools:
    - Navigation tools

These are:

- Change language
- Move map to the left
- Move map up
- Move map down
- Move map right
- Zoom in and out
- Zoom in a specific area
- Zoom in the content
- Set co-ordinates
- Show co-ordinates
- 3D View

    - Search tools

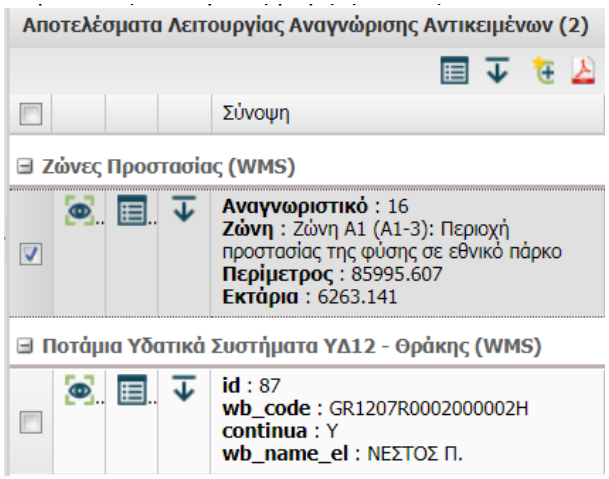
These include

- Point information retrieval tool
- Layer comparison tool
- Polygon selection tool
- Line selection tool
- Rectangle selection tool
- Selection method
- Cancel selection

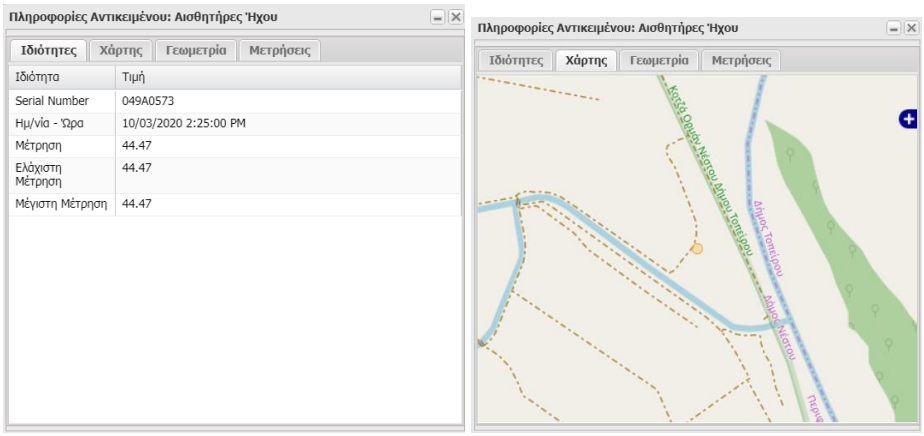
    - Measuring tools

    - Printing tools

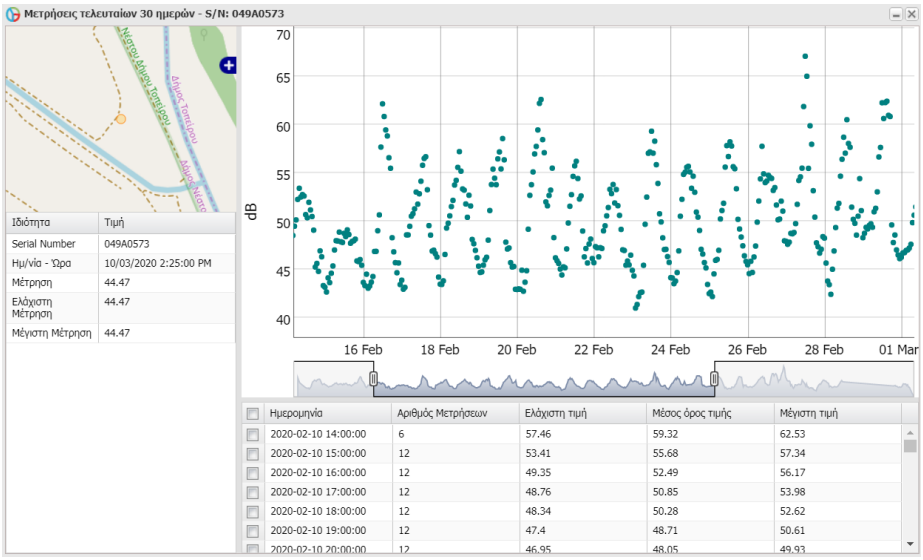
Of particular interest is the point information tool. The tool can provide information on any thematic level of the map. Initially, the subjects are identified from all thematic levels. The results are presented in the form of a list.



From there, the user can choose to focus on the object or receive information about it, which appears in the form of a pop-up window.



Especially for the data related to the measurement of noise in the installed stations, there is the possibility of viewing the measurements. First, the period is selected and then the measurements are displayed in the form of a diagram and a table.



In case the user selects information about the images of the surveillance cameras, he receives both the image and information from the metadata contained in it, such as the date of download and the location.

Section C includes:

- Multi-level search
  Through an easy to use form, the users can search within the thematic layers based on spatial and descriptive characteristics.
- Photo Upload (only for certified users)
- UAV Data Upload (only for certified users)

Session B
BIO2CARE Calc Tool

Objective

The Bio2Care Calc Tool is an online application that provides the opportunity to the user to calculate the Carrying Capacity, the Ecological Footprint, the Biocapacity and the Carbon Footprint of a protected area.

The application has a simple and friendly work interface and integrates all the complicated calculations of the methodology included in the Delivered 3.2, as it is available online (https://bio2care.eu).

The development of the application contributes to the reduction of the complexity and the expertise needed for the implementation of the aforementioned methodology.

Characteristics of the software

The Bio2Care Calc Tool is based on an open and multi-level online architecture. In this way, the development and the future escalation of the system and the applications are facilitated, while there is a possibility to **connect** with other systems, as **open** protocols and communication **standards** are observed (e.x. WSDL, SOAP, XML) according to the national interoperability framework. An important role in the possibility of expansion and escalation has the utilization of virtual machine technology and virtualization environment in general.

The main characteristics of the Bio2Care Calc Tool are the following:

- Ease to use, operation, maintenance
- Flexibility in the adoption and the integration of new technologies
- Use of open standards
- Scalability
- Performance
- Availability
- Utilization of existing resources both at the level of human resources and know-how, as well as at the level of logistical equipment.

More analytically, its architecture meets in total the following requirements:

- To be based on a high level of completion of technologically advanced and acclaimed software solutions in the field of open source software, based on open standards.
- Easily scale to adapt the system to the requirements of the application.
- Support access to the system by a large number of users.
- Support remote access.
- Support system access in a controlled manner, allowing different levels of user rating.

In the architecture of the system, three (3) logical levels are distinguished. The distinction arises from the grouping of the relevant functions concerning the object of the operational

functions and the requirement for the provision of electronic services via the internet. These levels are:

- **Administration Level**: The level includes the infrastructure for storing, managing and processing data.
- **Service level**: At this level, the whole business logic is integrated with the development of the necessary applications and (inter) web services.
- **Interface level**: It is the interface of the infrastructure with the users of the system.

The data and the content are stored in appropriate database formats. The available applications and services are executed on the servers. The access to the application is provided through the Internet and it is compatible with the main Web browsers, like Internet Explorer, Mozilla Firefox, Google Chrome etc.

Description of the software

The Bio2care Calc Tool has been developed in English language and can be found at the following link: https://calctool.getmap.gr. Only registered users are supported.

The Bio2Care Calc Tool includes the above:

1. Welcome page (screen) with general information about the tool

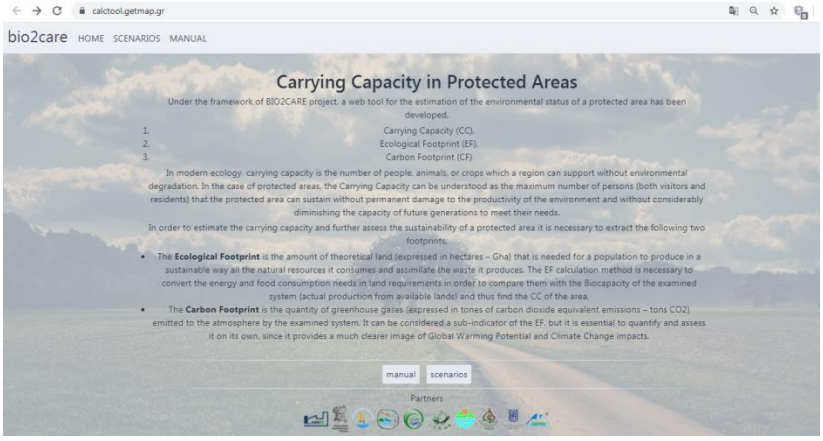


Figure 1. Welcome page of the Bi2Care Calc Tool

2. User authentication page

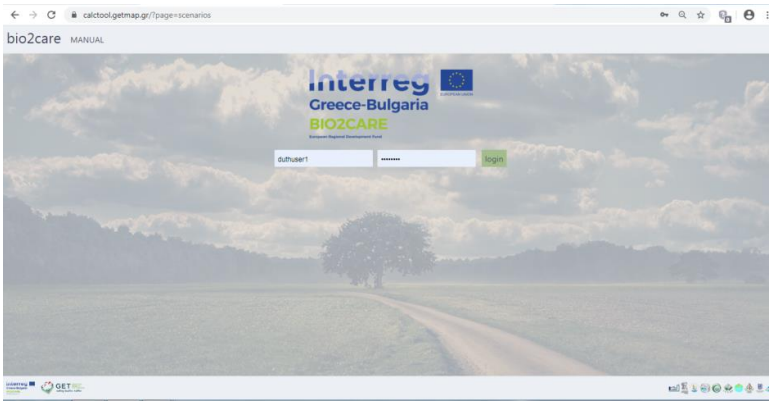


Figure 2. User authentication page

3. Create a new scenario. Allows users to enter the inputs necessary for the calculations or to modify the assumptions through online forms. The items are grouped according to their type. The registration is done by using appropriate objects that ensure their integrity. In addition, validation rules apply (acceptable data types, acceptable price limits, etc.).

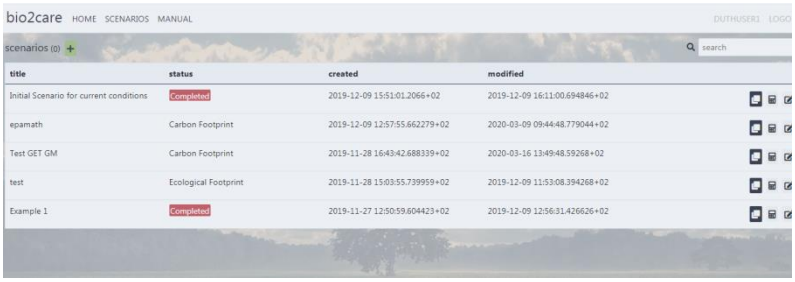


Figure 3. Create new scenario

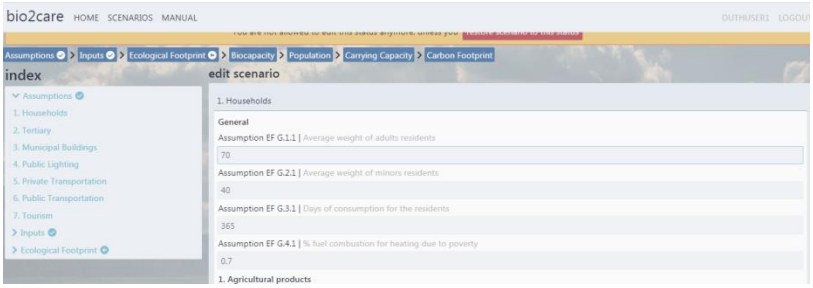


Figure 4. Grouped Assumptions display

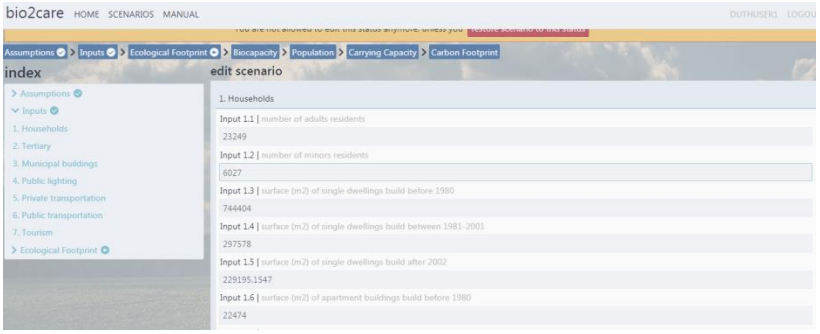


Figure 5. Grouped Inputs interface

4. Model Implementation. It presupposes the completing of Inputs entry and the confirming of the Assumptions. It leads gradually to the calculations of Ecological Footprint, Biocapacity, Carrying Capacity and Carbon Footprint. At the specific level user can also view the parameters of the models (ex. Conversion factors).

Figure 6. Ecological Footprint calculations display

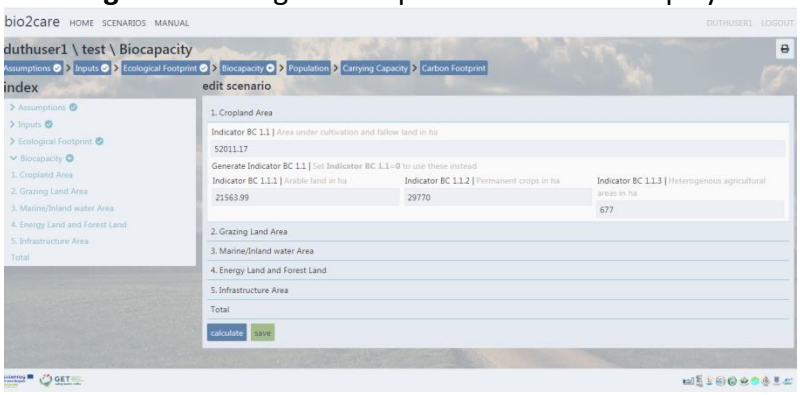


Figure 7. Biocapacity calculations display

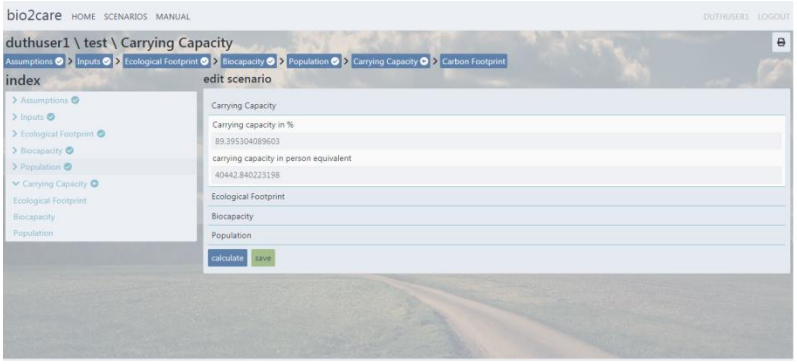


Figure 8. Carrying Capacity calculations display

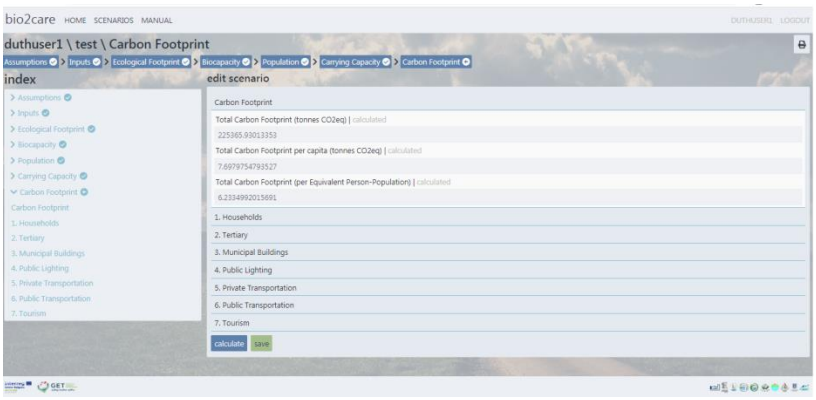


Figure 9. Carbon Footprint calculation display

5. Results presentation. The results produced (as well as the input data, assumptions, conversion factors) are stored in tables in the database to be available for viewing analysis.

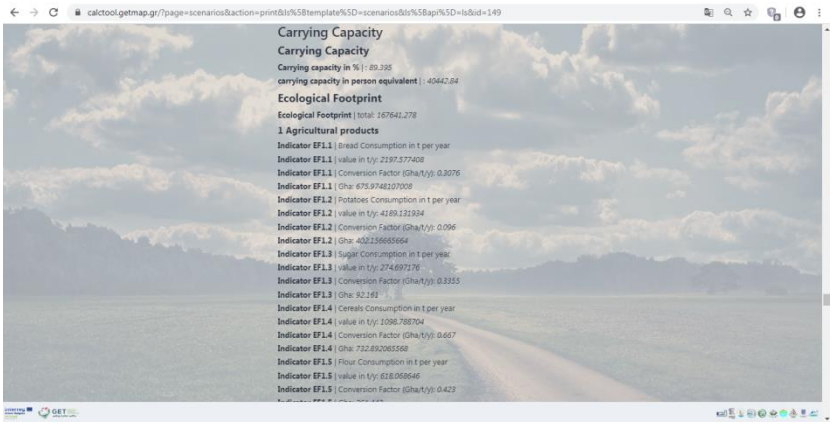


Figure 10. Report display

6. Selection of a default scenario (Figure 3). The application allows users to select a default (saved) scenario. Users can see all the Inputs, the Assumptions, the Conversion Factors and the results. The application allows user to save the results for later retrieval / processing.

7. Assist provision. A manual of the application is provided, which is an explanatory text for each individual section of the computational process.

The application stores the data in the Postgresql database, which is open code, supports advanced features and is used by a large number of users to implement modern applications that require the organization / management of information in a relational database.

Training

A preliminary training was carried out according to the following details:

Location of training:	Teleconference (Cisco Webex Meetings)
Date of training:	16th March 2020, Monday
Duration of training	4 hours
Method of training:	presentation, site tour (https://calctool.getmap.gr) and workshop
Educational Material	The manual and the presentation of the Bio2Care Calc Tool application are quoted in Annex 1 and 2, respectively.
Name of Trainer:	Symeonidis Panagiotis, Chief Scientific Officer & Presales Manager Geospatial Enabling Technologies Company www.getmap.eu
Number of trainees:	10-12 trainees

Session C
BIO2CARE Symbiosis Tool

Objective

The Bio2care Symbiosis Tool is an online cartographic/mapping application that allows users to search for potential symbiotic activities, using as data the inputs and outputs of their own production activity, but also the production activities of other users.

The application has a simple and friendly work interface and it was based upon the cased study developed in the Delivererable 3.4, as it is available online (https://bio2care.eu).

The development of the application contributes to the implementation of circular economy/industrial symbiosis principles at local scale.

Characteristics of the software

Bio2Care Symbiosis Tool supports the following functions:

- Entry of activity data. The entry is initially made by selecting the location from the map. Then the users enter the requested data regarding the type of activity (Industry, Municipal Authority, Regional Authority, etc.) as well as the basic input and output material flow.

- Tool for finding activities with common input-output material flow. Users can search for activities that have common input-output material (raw materials, by-products etc.) with a selected activity. The search results are presented in a table and on the map, along with the relevant distances.

- Connectivity tool. Users have the ability to import links between activities with common input-output material flow. The application allows you to display all related activities on the map.

- Management environment. Enables users with the corresponding rights to manage the database, updating price lists and other data used in the system.

Description of the software

The Bio2care Symbiosis Tool has been developed in Greek language and can be found at the following link https://dpth.getmap.gr/admin/. Only registered users are supported.

The Bio2Care Calc Tool includes:

1. User Authentication Page

Figure 1. Use authentication page of BIO2CARE Symbiosis Tool

2. Sign Up Page

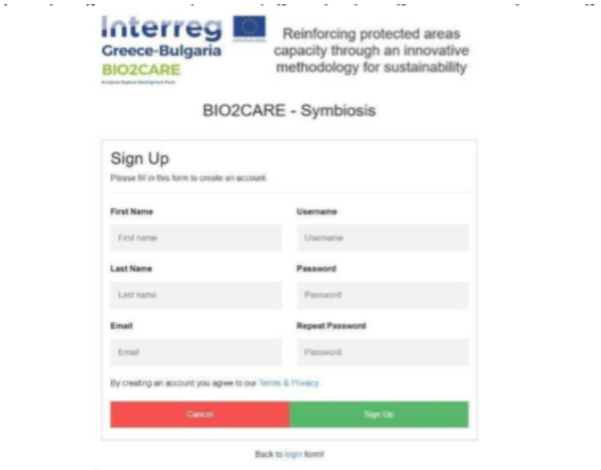


Figure 2. User Sign Up Page

3. User Interface

Figure 3. User Interface of the BIO2CARE Symbiosis Tool

4. User Interface (detailed)

The user interface of the application includes three section as shown in the figure below.

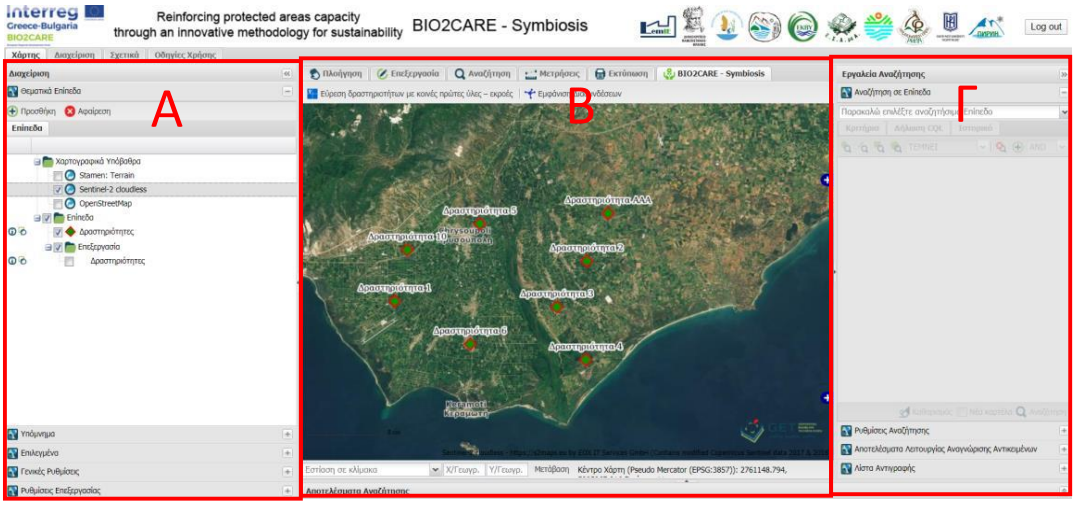


Figure 4. Sections of the user interface

Section A includes:

- Thematic layers
  - Mapping backgrounds
  - Thematic layers
    For each of the thematic layers the user has some basic functions, with the most important being the activation of the view, the adjustment of the transparency, the appearance of the table with the descriptive elements of the objects, receiving the data, and focus on the level.

    In addition, there is the possibility of adding more data from other cartographic services compatible with OGC standards.

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Section B includes:

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- Interaction tools:
  - Navigation tools

These are:

- Change language
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- Search tools

These include

- Point information retrieval tool
- Layer comparison tool
- Polygon selection tool
- Line selection tool
- Rectangle selection tool
- Selection method
- Cancel selection

- Measuring tools

- Printing tools

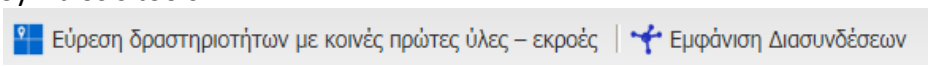
- Editing tools

These include:

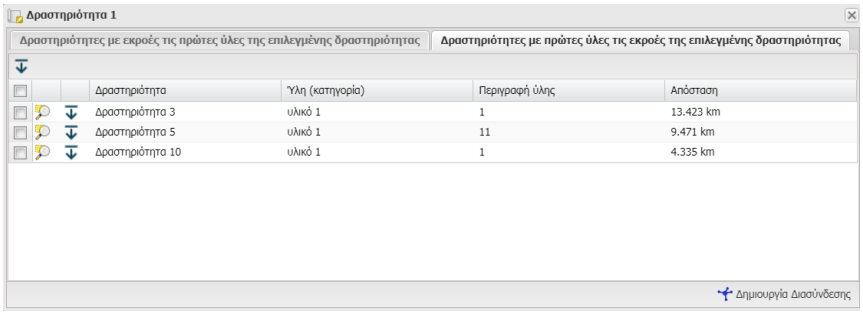
- Object selection tool
- Rectangular selection tool
- Deselect object
- Create new activity
- Copy object
- Move object
- Delete object
- Undo action
- Redo action
- Update database

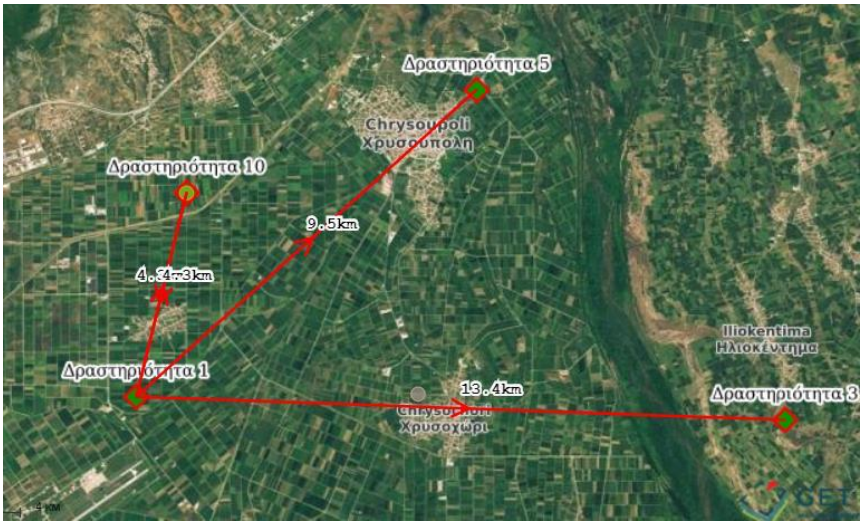
- Update user

- Symbiosis tools



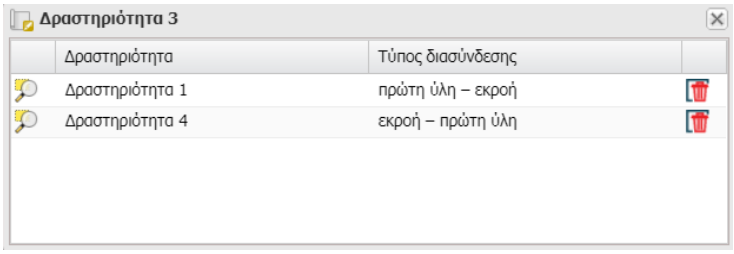
The “find activities” tool allows the user to select an activity and see what other activities on the database have common input-output material flows. The result is shown schematically on the map and in a form.





The form allows the use to create a symbiotic relationship. Selecting the relevant option opens up a new form in which the user specifies the connection. This connection then will be available exclusively for the user.

The “Symbiotic connections” tool allows the user to select a connection and see the data specified for the specific connection.



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