

A web-based GIS application for cadastral forest map suspension



KΤΗΜΑΤΟΛΟΓΙΟ Α.Ε.

288 Mesogion Ave.
Cholargos 15562 (Athens) – Greece
www.ktimatologio.gr

Moschos Vogiatzis
Director
Forest Mapping & Natural Environment
Phone: (+30) 2310 370524
E-mail: mvogiatz@ktimatologio.gr

Emmanouil Papoutsakis
GIS analyst, Cartographer
Forest Mapping & Natural Environment
Phone: (+30) 210 6505851
E-mail: mpapouts@ktimatologio.gr



Introduction

- Forestland mapping, along with ownership, known as forest cadastre, is an unaccomplished task for forestry in Greece.
- Absence of authorized cadastral forest maps in Greece over the years has raised many issues regarding land administration, state-private property rights and eventually sustainable management of forestlands.
- Cadastral forest mapping deals with forestlands boundary delineation and their associated characterization (forest/nonforest) based on the land-cover characteristics from multitemporal aerial remotely sensed data.
- In addition, it takes in account a plethora of existing data, such as administrative deeds issued by local Forest Services and historical cadastral or land distribution diagrams, to document the legal status of land (forest/nonforest).



The Forest Map

The Forest Map aims to:

1. Assessment and environmental protection of forestlands and
2. Identify and promote state property rights on forestlands through cadastral process.

KTIMATOLOGIO S.A. the leading Greek government company, responsible for the development of national cadastre in Greece, has launched an ambitious program to implement cadastral forest mapping at the national scale till 2020.





Cadastre development comprises of all land properties, and therefore cadastral forest mapping is necessary for a successful cadastre establishment.



Forest Maps Progress in Greece (June 2012)



LEGEND

-  Areas with completed Forest Maps (9.8%)
-  Program 1: Areas under implementation (27.6%)
-  Program 2: Areas under procurement (22.7%)
-  Areas with no Forest Maps (39.9%)



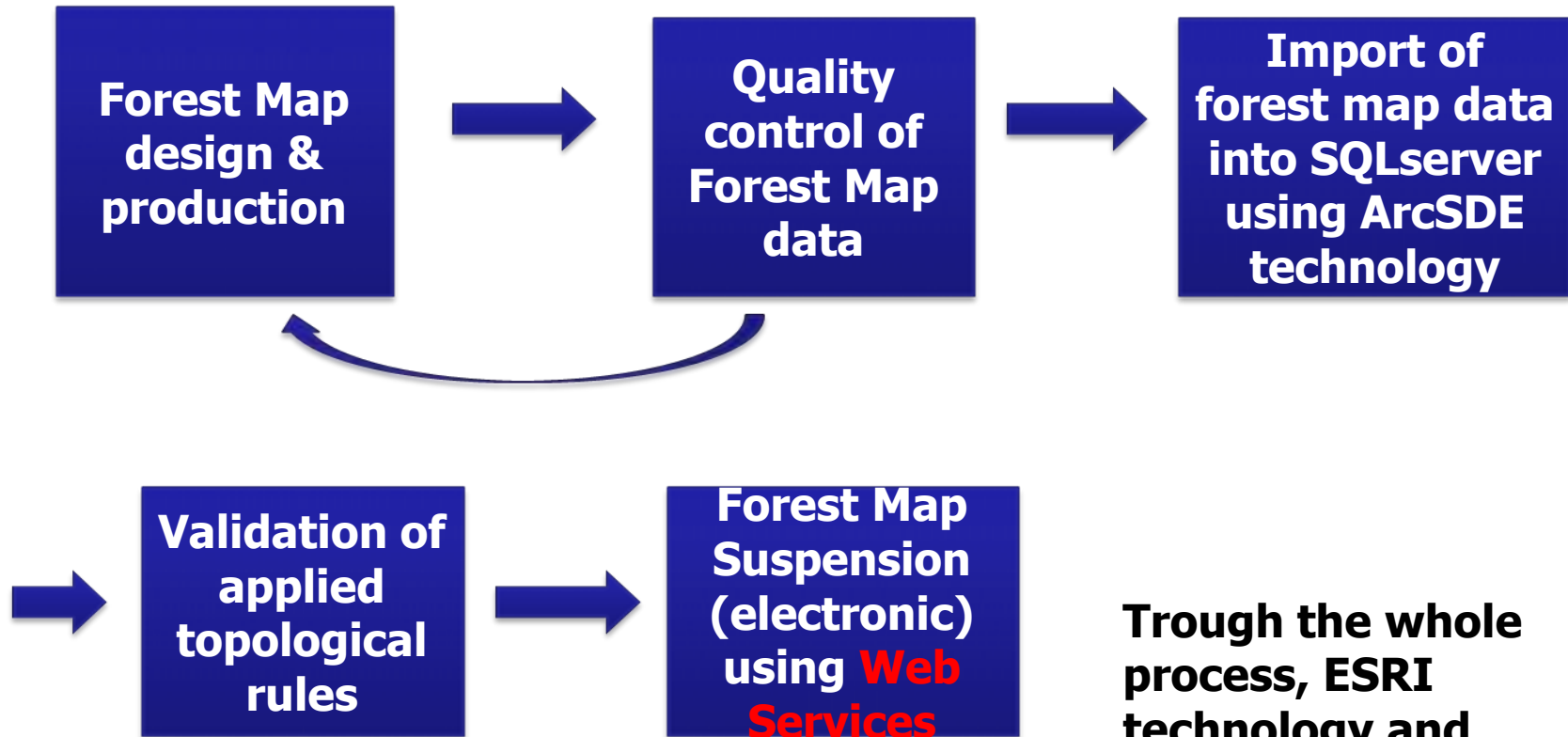
The Forest Map



Δ: Forestlands
A: Other areas



Process of Forest Map Ratification



Trough the whole process, ESRI technology and custom applications are mostly used.



Forest Map Suspension

The recent institutional provisions on cadastral forest mapping require wide public (electronic and analogue) notification for Forest Map geospatial content, digital objections registration, spatial boundaries of objections and payment of the corresponding special fee. In other words:

- Forest maps in www and
- Digital objections via internet.
- Establishment of Forest Map Suspension Office.

Objections must include the following elements:

1. Geographic coordinates enclosing the objection area,
2. Facts supporting the legitimate interests, and
3. Facts certifying the payment of the corresponding special fee.



Application Data Categories

Descriptive data

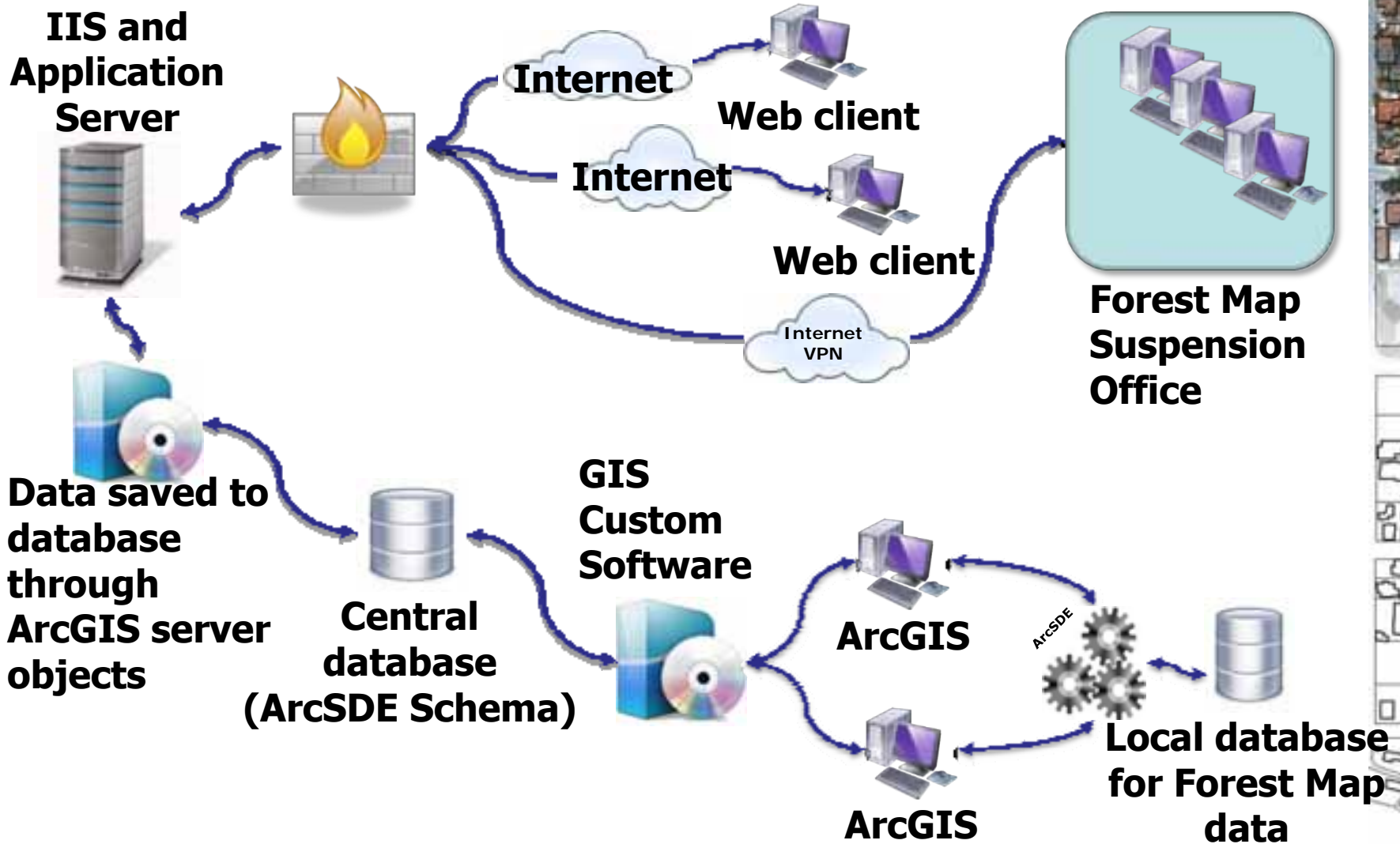
- Objections
- Beneficiaries
- Legal facts
- Petitions

Spatial data

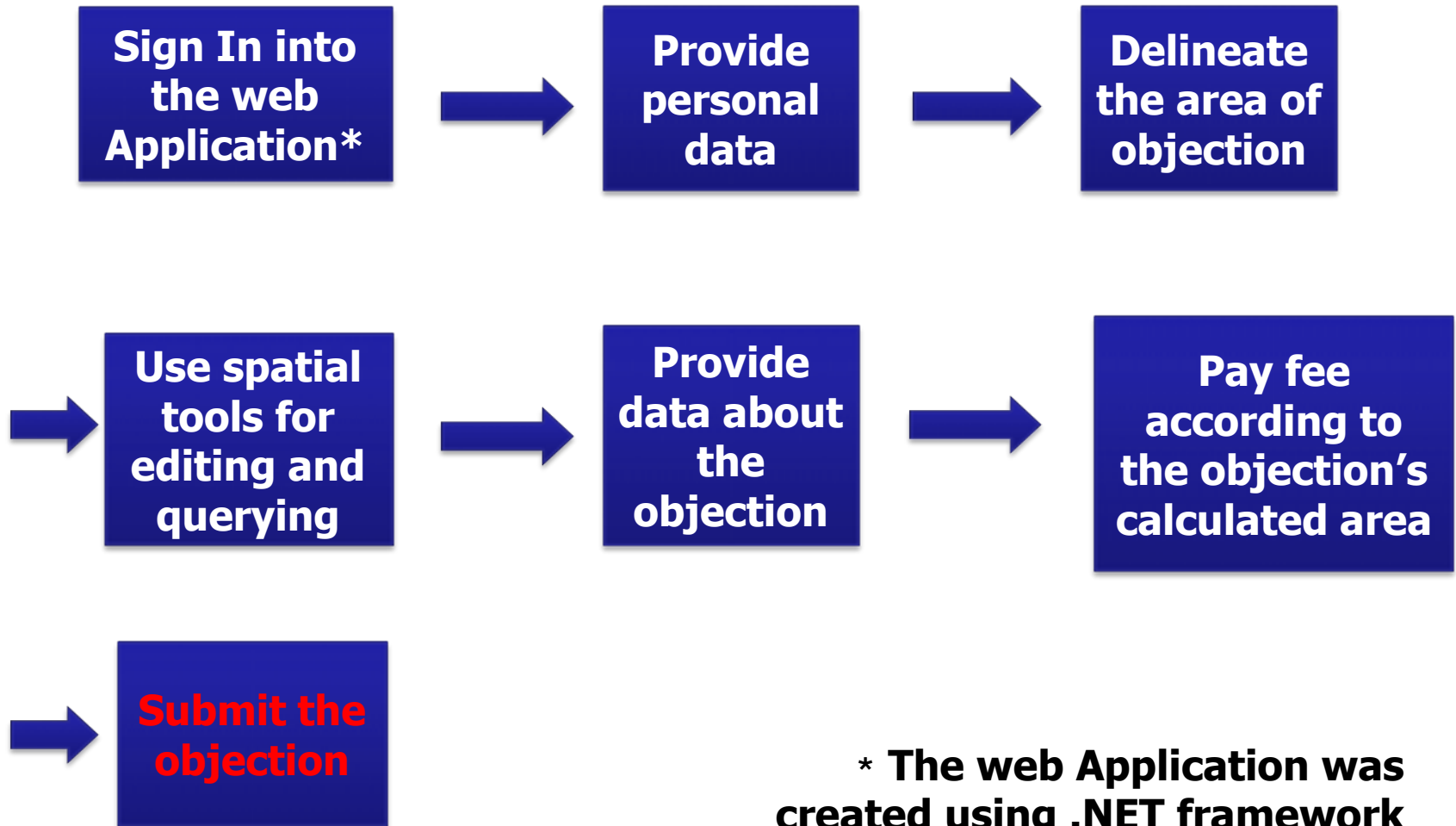
- Municipality Boundaries
- Urban plans and settlements boundaries
- Administrative deads of local forest offices
- Forestlands boundaries and land status (forest/non forest)
- Orthophotos
- Geographic coordinates of objection's area according to objections



System Overview



Web Application for Electronic Objection Submission



*** The web Application was created using .NET framework**



Web Application for Electronic Objection Submission

Sign in of new user

UserName:

Password:

Verify Password:

Email:

Security Question:

Security answer:



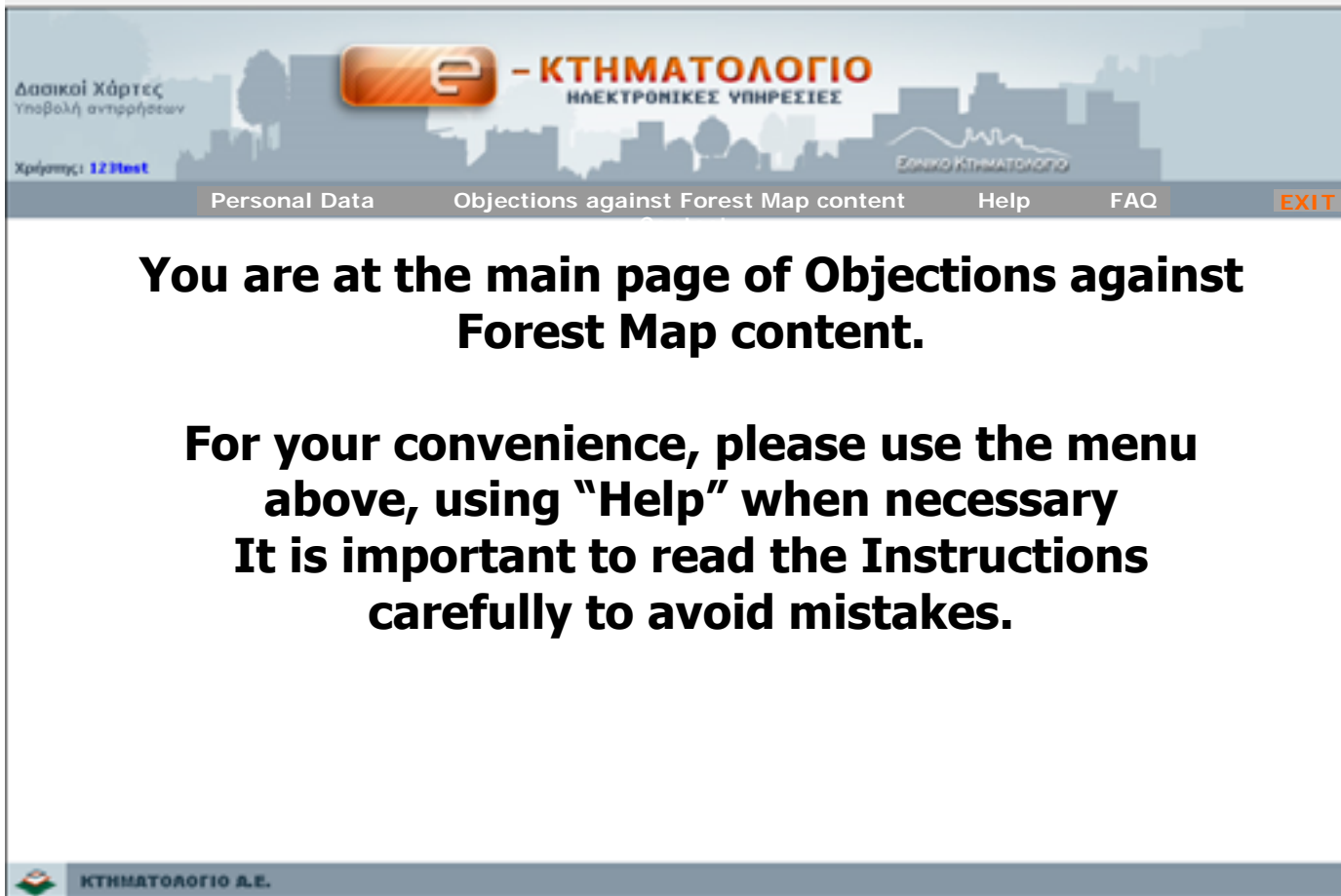
Please repeat the above number



Your account has been successfully created! You will soon receive a message with instructions at your email address.



Web Application for Electronic Objection Submission



The screenshot shows the main page of the web application. At the top, there is a header with the logo "e - ΚΤΗΜΑΤΟΛΟΓΙΟ ΗΛΕΚΤΡΟΝΙΚΕΣ ΥΠΗΡΕΣΙΕΣ" and the text "Δασικοί Χάρτες Υποβολή αντιρρήσεων". Below the header, there is a navigation menu with the following items: "Personal Data", "Objections against Forest Map content", "Help", "FAQ", and "EXIT". The main content area contains the following text:

You are at the main page of Objections against Forest Map content.

For your convenience, please use the menu above, using "Help" when necessary

It is important to read the Instructions carefully to avoid mistakes.

At the bottom left of the page, there is a small logo and the text "ΚΤΗΜΑΤΟΛΟΓΙΟ Α.Ε."



Input of Legal or Physical Personal Data

KTIMATOLOGIO
ΗΛΕΚΤΡΟΝΙΚΕΣ ΥΠΗΡΕΣΙΕΣ

User: [ΕΓΓΡΑΦΗ](#)

[Personal Data](#) [Objections against Forest Map content](#) [Help](#) [FAQ](#) [EXIT](#)

Personal Data

All data below must be in Capital Greek or Latin characters! Attention! Data with * are necessary to proceed.

Surname*

Name* Tax Num. Married

Place of birth Date of birth

ID Number/Passport* Date of Issue*

Type of Issuer* Name of Issuer*
Choose

Father Surname Father Name*

Mother Surname Mother Name

Spouse Surname Spouse Name

Contact Data

Street* From To ZIP cod Foreign Residence

City* Area* Country*
Choose

Phone Number* Mobile* Fax Email

Do you wish to contact you at the above email address?
Yes No

KTIMATOLOGIO S.A.



Graphical Interface – Spatial Delineation of Objection's Area

KΤΗΜΑΤΟΛΟΓΙΟ Α.Ε. **FOREST MAP SUSPENSION**

SCALE: 1:10000000

ΚΩΔΟΣ: ΑΤΤΙΚΗΣ ΟΤΑ: ΜΑΡΑΘΩΝΟΣ GO

COORDINATES: 41.922596, 12.4952205

LAYERS

- BASELAYER (ORTHOPHOTOS)
- POLYGONS
- LAND STATUS

SEARCH

By address By Coordinates Property ID

TYPE OBJECT NAME, CATEGORY, MODEL OR ADDRESS

Starts with: Includes: Test Lockout: Inactivity

LEGEND

OBJECTION'S AREA DELINEATION

Subsequently there are the following methods:

- For the delineation of the area and map are provided on the upper side of the toolbar:
 - Map the objection area
 - Save
- If you have an objection (OBJ AREA) this will be highlighted of the objection to area you have submitted to them.

Buttons: Cancel, OK, Save, Load, Save as, Print, Refresh

ΚΤΗΜΑΤΟΛΟΓΙΟ Α.Ε.



Site Searching Queries

QUERIES

By Address | **By Coordinates** | **Property ID**

TYPE STREET NAME, TOPONYM, POINT OF INTEREST

Starts with... Includes...

Text (at least 3 letters):

Queries

Zoom in an area by address, coordinates or cadastral polygon ID

LEGEND

[See the explanation of Forest Map Legend](#)

OBJECTION'S AREA DELINEATION

Alternatively there are the following methods:

1. For area delineation you may use the tools at the upper side screen
[Help for area delineation](#)
[Examples](#)
2. If you have an AutoCad DXF 2000 (ASCII) file with the boundaries of the objection's area you may uploaded it here.

Press to continue

Press to cancel the process

Upload polygons

By ASCII DXF (AutoCad) files or by ASCII text files



Forest Map Area of Interest

ΚΤΙΜΑΤΟΛΟΓΙΟ Α.Ε. **FOREST MAP SUSPENSION**

SCALE 1:5000

LAYERS

- BASELAYER (ORTHOPHOTOS)
- POLYGONS
- LAND STATUS

QUERY

My address | My Coordinates | Property ID

TYPE STREET NAME, TOPONYM, NUMBER OF INTERSECTION

Starts with... Includes... (radio buttons)

Find (at least 2 letters)

LEGEND

See the explanation of the symbols of the Forest Map

OBJECTION'S AREA DELINEATION

Alternatively there are the following methods:

- For the delineation of the area you may use the provided at the upper side of the screen tools.
 - Apply for area delineation
 - Exception
- If you have an Authorized GISF 2000 (ANIS) the with the boundaries of the object the area you may updated it here.

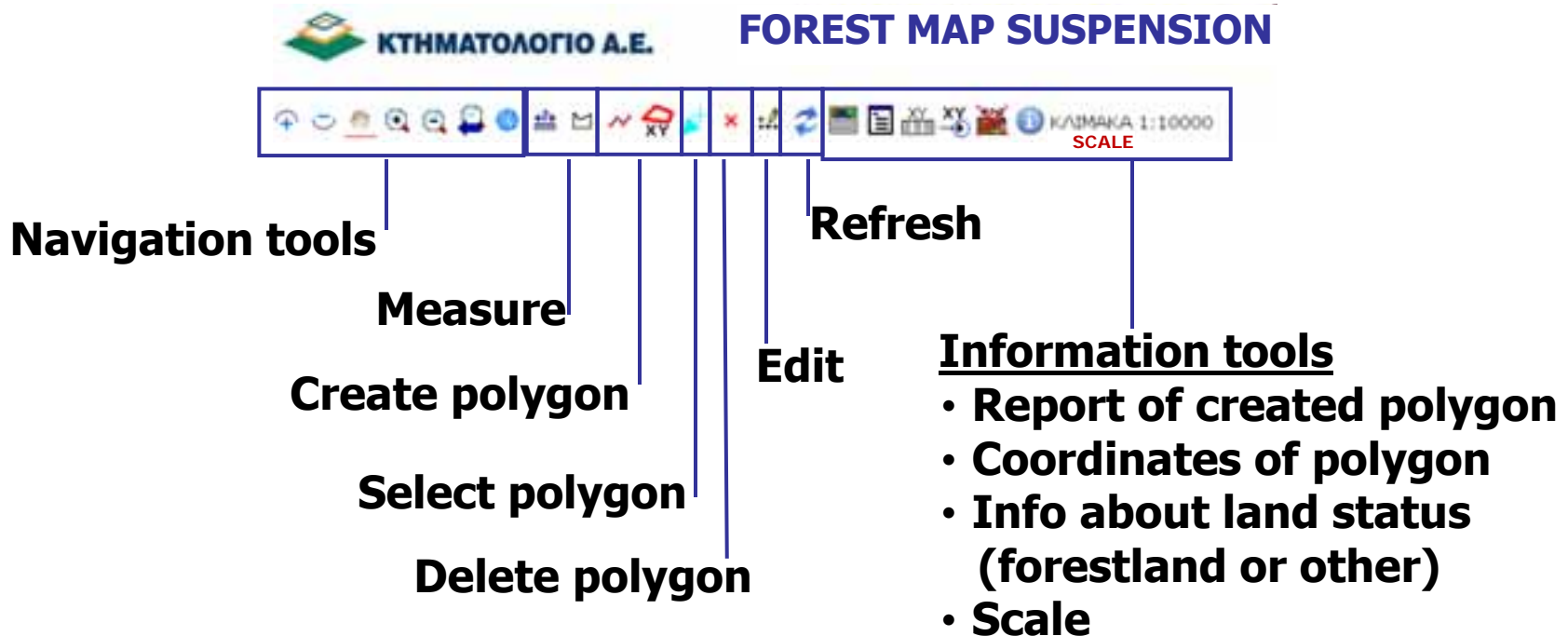
Cancel | Export

Press **PRINT** to continue

Press **CANCEL** to cancel the process



Web Application's Spatial Tools



Advantages:

- Responsive and reliable
- Specific designed for area delineation
- Ease of use

All tools were created using Javascript API



Spatial Delineation of Objection's Area



The delineated objection's boundary marked with yellow.



Spatial Delineation of Objection's Area (movie)



KΤΗΜΑΤΟΛΟΓΙΟ Α.Ε.

FOREST MAP SUSPENSION



ΝΟΜΟΣ: [ΑΤΤΙΚΗΣ] ΟΤΑ: [ΜΑΡΑΘΩΝΟΣ] [Μετρήσει](#)

X: -525998.545 , Y: 4995209.847

- ΕΠΙΛΟΓΕΣ ΕΜΦΑΝΙΣΗΣ ΧΑΡΤΗ
- ΥΠΟΒΑΘΡΟ
 - ΠΟΛΥΓΩΝΑ
 - ΧΑΡΑΚΤΗΡΙΣΜΟΣ ΕΚΤΑΣΕΩΝ



ΑΝΑΖΗΤΗΣΕΙΣ

Λεκτικό Συντεταγμένες

Πληκτρολογήστε οδό, τοπωνύμιο, σημείο ενδιαφέροντος:

Εισκτέ με... Περιλαμβάνει...

Λεκτικό(τουλάχιστον 3 γράμματα):

ΥΠΟΜΝΗΜΑ ΔΑΣΙΚΟΥ ΧΑΡΤΗ
[Δείτε την επιλογή των συμβόλων του δασικού χάρτη](#)

- ΟΡΙΟΘΕΤΗΣΗ ΕΚΤΑΣΗΣ**
Εναλλακτικά υπάρχουν οι εξής πρόνοι:
- Για την οριοθέτηση της έκτασης χρησιμοποιήστε τα εργαλεία του δασικού χάρτη στην άνω πλευρά της οθόνης.
[Βοήθεια επιτοπίου περιοχής](#)
[Παραδείγματα χρήσης της υπηρεσίας](#)
 - Εάν έχετε ψηφιακό αρχείο με τα όρια της έκτασης σε μορφή AutoCad DXF 2000 (ASCII) ή αρχείο μορφής ASCII, μπορείτε να το ανεβάσετε εδώ.

Επιλογή αρχείου
Για να υποβάλλετε την αίτησή σας, συνδεθείτε [Εδώ](#)



Objection's Data Submission

Personal Data Objections against Forest Map content Help FAQ EXIT

Objection:
SUBMITTED
Objection's code
500
Municipality:
MARATHONAS
Protocol number:
1
Date:
16/4/2011
Name:
POLAKIS ANDREAS

Objection against Forest Map content

The polygon for which you are about to appeal is located in the Municipality of: MARATHONAS

To see the boundaries of the polygon you are about to appeal you may navigate the Forest Map: [FOREST MAP](#)

A.2 Personal data

| Type | Surname | Name | Father Name | ID Num |
|-------------------------|---------|---------|-------------|----------|
| ΝΟΜΙΜΟΣ ΑΝΤΙΠΡΟΣΩΠΟΣ | ΠΟΛΑΚΙΣ | ΑΝΔΡΕΑΣ | ΕΛΕΥΘΕΡΙΟΣ | A3624271 |

B. Data of the area of the objection

Site:

ΜΕΣΗ : ΚΑΤΟΥΝΤΑΣΤΕΣΑ Η ΤΕΣΗ ΚΑΑΕΤΖΙΟΥ

C. Foundation of legal interest

I hereby declare my right to appeal through:

Real right:

Contractual right:

Natural environment protection:

Other:

1. Είναι ιδιοκτήτης του αγροτεμαχίου με νόμιμο τίτλο με αρ. 43903/2-10-2001 συμβολαιογράφου Παραθώνος Στ. Γ. Παπαδόπουλου μετανενομασμένου στο Υποθηκοφυλακείο Παραθώνος



Special Fee Payment

- **The amount of the corresponding special fee depends on the objection's area.**
- **The objection's area and fee is calculated automatically by the application.**

We provide different options for payment:

- **at the bank, providing the cashier with an ID which is printed by the system. The transaction is automatically checked and in the next day the objection's status is validated.**
- **by a credit or debit card.**
- **using an automated payments machine.**



Proof of Objections' Submission



| | |
|--------------------------|---------------------|
| Perfection area: Attica | Protocol number: 26 |
| Municipality: Marathonas | Date: 30/04/2011 |
| Site: Avra | |

Proof of objection against forest map content

Data of person submitting the objection

| | |
|------------------------------|---|
| A.1.1 Personal Data | |
| Surname: Mpakirli | Name: Maria |
| Father's name: Athanasios | AFM: 106717770 |
| Name's code: 000000000091886 |  |

Payment data

Fee: 50€

| Code | Bank | Date | Amount |
|----------------------|-------------------------|------------|--------|
| 78000000057200140125 | National Bank of Greece | 27/04/2011 | €50.00 |

The proof document is valid only if the fee has been paid.

Objection's polygon data

| | |
|------------------------------------|---------------------------|
| Coordinates of vertices of polygon | |
| Vertices | Coordinates |
| A1 | 41=20247 200 Y=422546 100 |
| A2 | 42=20243 990 Y=422546 200 |
| A3 | 43=20244 190 Y=422547 240 |
| A4 | 44=20243 270 Y=422546 210 |
| Area (sq. meters) | 287.53 |

Map of area



Application's Queries

Personal Data

Objections against Forest Map content

Help

FAQ

Contact

OBJECTION'S QUERIES

TAX NUMBER:

LASTNAME: Exact query

ID CODE:

Objection's status:

Way of submission:

Quality control:

Submission date from:

Date of data entry:

Paid:

Invoice send:

NEXT

ID NUM/Passport:

NAME:

Protocol Number:

Test Temporal Submitted

Internet Office KEP

No quality control

Omissions in submitted documents

No error in submitted documents

Error in submitted documents

to:

01/01/2011 to: 29/06/2011

Paid through:

Post date from:

Father's Name:

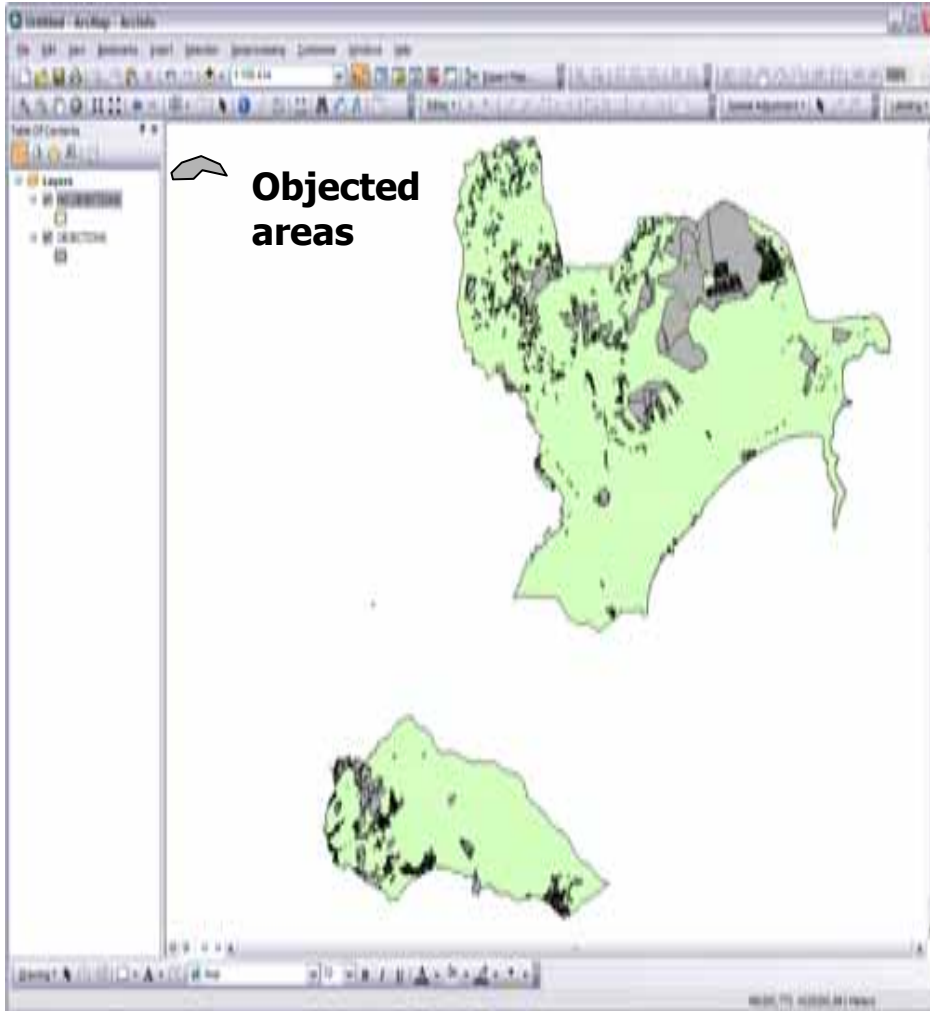
Municipality:

Submitted documents:

to:



Post Processing of Submitted Data



Quality Checks:

- Check consistency of area of polygon with fee payments
- Check spatial extent of objections' area
- Check of objections' location
- Check existence of required legal documents,
- Check additional legal documents if needed

Contact corresponding citizens



Conclusions

- 1. The use of GIS technology and web mapping has significantly accelerate the process of Forest Mapping, make public access, information and participation a reality.**
- 2. The web application, reduced the submitted objections in analogue form by 30%. In addition, thousands of people were able to access Forest Map geospatial content via internet, saving time and cost.**
- 3. ESRI technology along with customized applications, where necessary, allowed us to provide valuable information to public, store, file, retrieve, and process the related data and documents systematically and fast.**
- 4. The whole process of Forest Map suspension using the web application should be applied exclusively at the national scale.**



Thank you for your attention

