USAGE OF E-TERRA IN REAL ESTATE AND URBANISTIC REGISTER

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Abstract

E-Terra Information System manages technical and legal information related to real estate. The main objectives of the application are: streamlining and computerization of OCPI main work streams, automating certain processes (where possible), standardization of working papers, information security events tracking system, reduce documents filed on paper, reduce the time for solving applications and rapid access to archive data. E-Terra Cadastre Module is intended for inspectors from OCPI / BCPI who need to check the documentation prepared in specialized cadastre in Romania and allows approval and acceptance of works cadastral map and cadastral consulting related textual information. Module e-Terra Land Register is intended for inspectors from OCPI / BCPI who need to check documentation specialist. Land Register is a public record, which includes full and accurate legal records of properties owned by individuals and entities in the same locality. Using e-Terra has a number of advantages such as streamlining the functioning OCPI execute any operation, automatic distribution of work and can be checked at any time each work stage, converting the classical Land Register to digital, high precision concerning the geometry of the building.

Keywords: *E-Terra, cadastre, Digital Land Register*

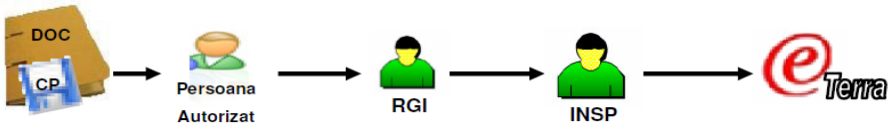
INTRODUCTION

E- Terra Information System manages technical and legal information related to real estate. The main objectives of the application are : streamlining and computerization of OCPI main work streams, automating certain processes (where possible), standardization of working papers, information security events tracking system, reduce documents filed on paper, reduce the time for solving applications and rapid access to archive data.

The application modules facilitate the workflow that runs on ANCPI/OCPI, allowing inspectors to check cadastral documentation easier. Integrated Cadastre and Land consists of four main modules that provide functionality: registration applications, receipt and approval of cadastral documentation, textual and graphical cadastral data recording, performing and releasing entries in the Land Closures/extracts results and recording and managing data on persons authorized to perform work and to prepare cadastral documentation.

MATERIAL AND METHODS

E-Terra Cadastre module is intended for inspectors from OCPI/BCPI who need to check the documentation prepared in specialized cadastre in Romania and allows approval and acceptance of works cadastral map and cadastral consulting related textual information.



User login

The first step is user authentication allowing access to the application. After a successful authentication the user is able to select the function that he wishes to enter the system, and the actions that will continue.

Search / processing request

After the user has logged into the system, the window opens with a list of demands assigned to it for processing. Because the response time of the server to display the list of requests is not too high and hinder working with the application, the inspector will look for applications based on criteria that you have at your disposal, and after identification of the settled will continue to process the selected request.

Functionality "Search Request" allows selecting an application on the basis of the parameters specified and detailed view of selected application data. Parameters that can be selected are: the type of request, no. demand of deposit term, due to ..., on ... a certain real estate and loading the whole list of applications assigned to that user.

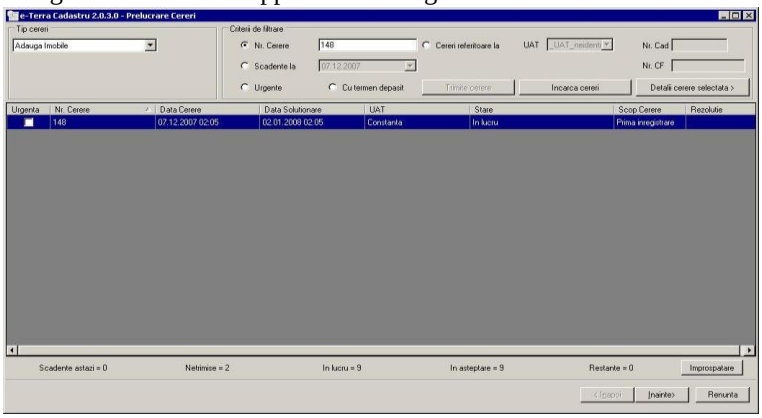


Fig. 1 - Search applications

Selected View Details request

To see details of this application, the user must press the 'Selected application details'. This feature allows you to view information about the selected application. "Information request" includes the following tabs: history states, historical operations, services, documents, completion report and other information on request.

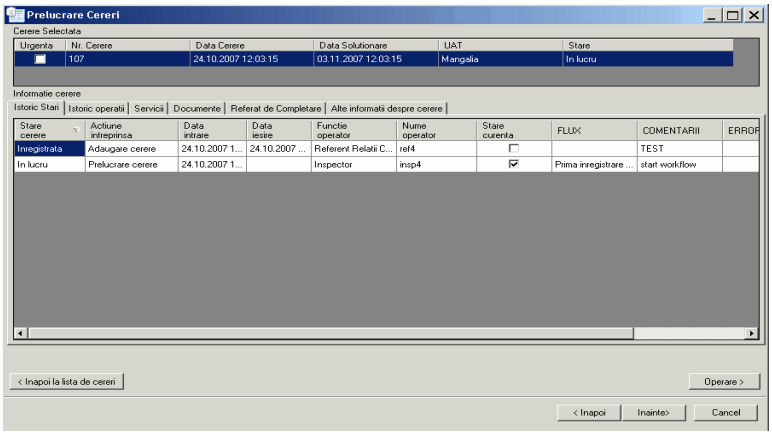


Fig. 2 - View details about application processing

Processing / Editing request

Processing/editing application consists of loading and checking in GIS environment the cadastral documentation in digital file format .cp. The .cp file attached to the application contains all the information related to cadastral operation.

The first step in processing the application is reading from the .cp file the cadastral operation subject to processing, real estate properties that come into operation, the immobile ATU, data about authorized person, etc.

'Streams list' contains flows wherewith an application may be resolved in e-Terra system. The checked flow will always be indicated by the authorized person in the .cp file. In this list are included all types of cadastral operations that can be carried in GenerateCP application: First Land Register, First Registration IU, Merge estate, Estate detachment, Boundary Adjustment, Merge/detachment IU, Flat partitioning, Flat repartitioning, Data update IU and Land data update.

Loading and verifying documentation in GIS environment

Cadastral database contains a set of geographic data; graphic information in GIS is stored in layers. Data set's spatial reference includes geographic coordinate system and area/range coordinates (minimum values of x, y and their accuracies).

All layers contained in the data set must have the same coordinate system and the entities contained in each layer must be within the range required for each layer. The projection used in the cadastral database is National Coordinate System Stereographic 1970.

Layers (visible in the legend) of the presentation of information in the GIS are: construction land, plot, ATU and orthophotomap.

Boundaries of a plot of an ATU can be represented or not on the map, depending on its availability. These are provided by OCPI.

Layers corresponding to land and buildings will be on the map as thematic layers, depending on certain attributes that define them: permanent (when an entity is closing cadastral admission) proposed (when an entity has not concluded cadastral admission), the canceled (when a cadastral entity to be canceled following a rejection of the conclusion of the Land).

Between graphic data stored in the cadastral database there are topological rules within each graphic layer and between layers. For cadastral map of e-Terra Cadastre system the following topological rules apply:

a) between any two land adjacent contours (which have at least one common limit), there can be no overlapping or empty spaces on the limit;

b) hierarchy of layers is determined by the relationship:

• a property can or cannot contain building;

• the urban area contains /does not contain land ;

• an ATU contains /does not contain several urban areas (general rule valid also for unincorporated lands) ;

• a county contains several sites ATU; exception if ATU are not represented , urban land are represented directly in the county;

• the cadastral map contains 42 counties nationwide, if counties are not represented, the cadastral map will contain ATU 's, urban areas and lands only if that outline of the first two entities is available .

c) the topology inside layers :

• land: between the contours of two adjacent land can not exist overlaps or gaps; if any, these tolerances are set by Order 634/2006 ;

• if these tolerances are not met, the land will be registered only under conditions stipulated in this Order ;

• construction: between any two construction’s contours on the land there can be no overlap.

d) topology between layers

• constructions must be contained entirely by the land entity they belong to;

• within a land there can be one or more buildings;

• construction limits may overlap the land contours, in which case common vertices must be coincident.

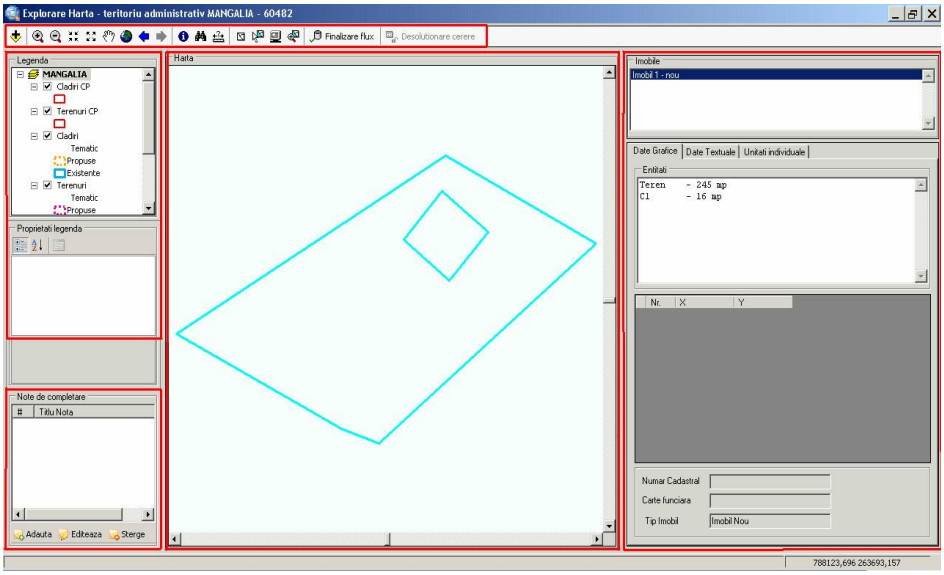


Fig. 3 - Presentation of GIS

GIS main window consists of: button bar, legend, completion notes, reading area where textual data about immobile is displayed, graphics, textual data, check/update property comparison, flat repartitioning, property search and supply cadastral data.

Flow closure

Flows can be completed in e-Terra system by generating an acceptance report or a rejection report.

The application can be settled by:

- Admission: documentation is ready for approval – admission report generation;
- Reject: the person authorized to verify documents found during these check, violations of rules in place and cannot approve it - rejection report generation;
- Report of Completion: depending on the outcome of the documentation verification, the inspector may request additional information for final settlement in accordance with the regulations in place; this is done by generating a completion report.

E-Terra Land Register module is intended for inspectors from OCPI / BCPI who need to check professional documentation. Land Register is a public record, which includes full and accurate legal records of properties owned by individuals and entities from the same locality. This module allows: to search a land register record, display requests allocated to a user, land register record conversion, rectification for a fresh converted land register record, land register record deletion and opening a land register record for which there is a cadastral documentation prior noticed.

On entering the program, the applications are automatically loaded, without placing any filter. Applications can be sorted by type (extracts or subscriptions), may seek a specific request (even if it is allocated to another user to solve), can display only applications for which emergency duty was paid can display only claims with exceeded settlement, applications due on a certain date or those related to a specific property.

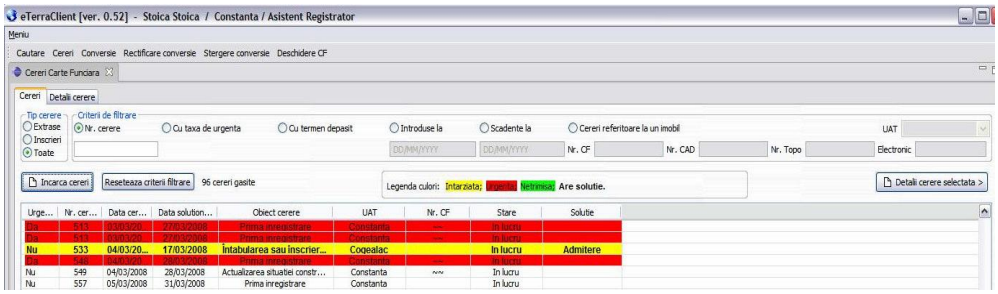


Fig. 4 - The main window of the application e-Terra Land Register

Some applications are colored by the following code:

- RED - requests for emergency duty has been paid
- GREEN - requests resolved, but still undelivered to the next actor
- YELLOW - term demand deposit settlement
- BOLD - requests resolved

Within an application you can view the following details: historical settings, historical operations, services, documents, completion report and other information about the request and documents issued.

The "Documents released" tab is hosting a list of documents that were issued on the current application.

Depending on the type of application different workflows became active: Information extract, Authentication extract, Unlock, Operation, Adjustment, Merge, Detachment, Flat partitioning. Applications may be changed, updated or sent to the inspector.

In the case of a conversion, the program allows selecting the following types of Land Register: land, land and building, construction, collective land and construction, collective construction and apartment. Subsequently enter the number of land register paper record and the ATU.

When searching for a land register record the ATU must be chosen, then you can put different search filters (by CAD number and/or CF, immobile type) or an advanced search you who can filter the results by address characteristics.

Use cases and functionality of e-Terra Land Register

Each type of stream processing follows the following sequence:

- Request processing is made by the Registrar Assistant which opens e-Terra program and selects the applications from the Cadastre compartment.
- Land registers data entry (for integrated flows)
- Save
- Viewing and printing
- Closure confirmation

For the land register data entry there are three steps to be completed:

- Part I – Assets sheet (Fig. 5)
- Part II – Property sheet (Fig. 6)
- Part III – Task sheet

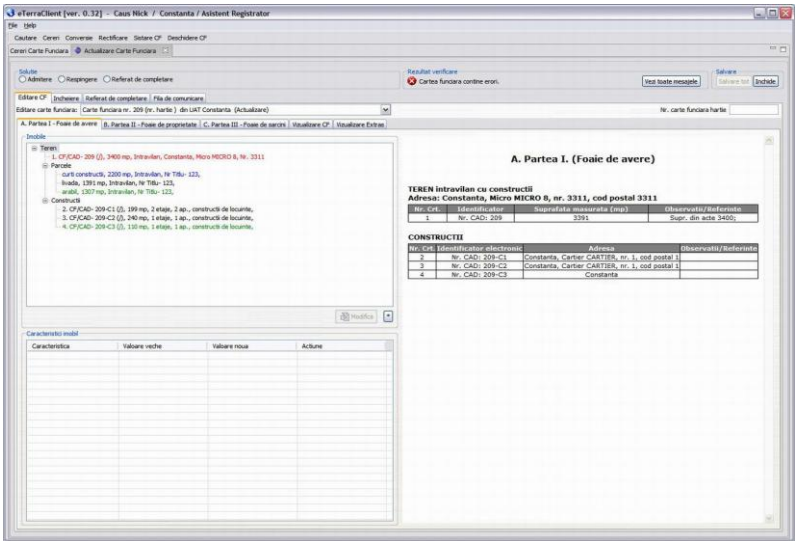


Fig. 5 – Asset sheet

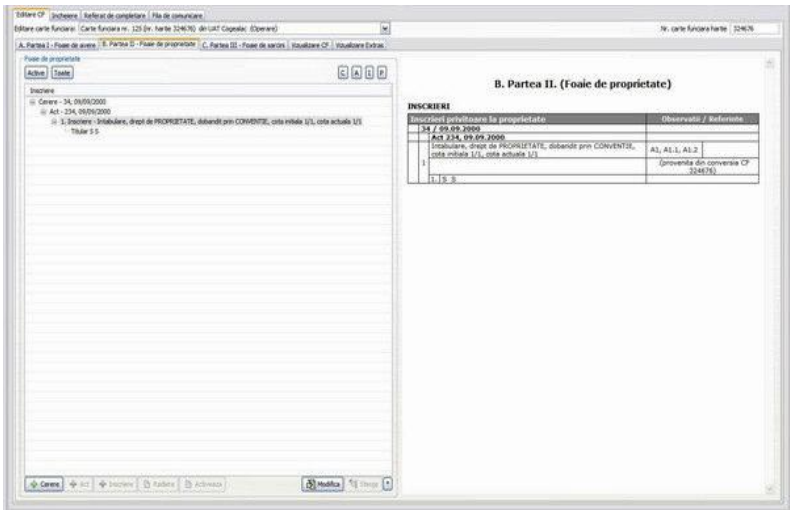


Fig. 6 - Property Sheet

The screens for Part III are the same as Part II. You can add an application, based on which you can add an act, under which a registration is made. Finally, the entries may be modified or deleted.

E-Terra workflow is a general acceptance that involves the execution of a series of successive specific steps (operations), with the possibility of return, which has as an ultimate goal the execution of a request.

Depending on the presence of cadastre and land register record operations into a stream, the latter are divided into:

- Integrated flows: An integrated flow involves sequential processing of a request by the two departments/sections of Cadastre and, respectively, the Land Register. The result of processing an application shall be the Land Register closure and Information extract.

- Interrupted flows: An interrupted flow involves the processing of new immobile registration or modification of existing immobile in the Land Register by two separate applications that address each department/compartment: the demand for cadastral acceptance and demand for registration in the Land Register. Applications are recorded and processed in two separate steps. The notary is the one who draws up the authentic document based on the acceptance of cadastral documentation and who requires the registration of the document prepared by him in the Land Register.

- Specific flows (CAD, CF, archive, etc.)

Immobile first registration is an integrated flux which implies the acceptance and approval of cadastral documentation for the opening of a land register record and the first registration of the corresponding legal acts and deeds related to the immobile.

IU first registration is an integrated flux which implies the acceptance and approval of cadastral documentation for the opening of a land register record and the first registration of the corresponding legal acts and deeds related to the individual unit. If the individual unit which is included in the Land Register is the first in a condominium building, the cadastral documentation contains the technical information necessary for opening the collective land register (condominium building description).

Immobile detachment is an interrupted flow which implies the acceptance and approval of cadastral documentation which aims to describe the building detachment and those resulting from subsequent detachment in order to register in the Land Register.

Achieving effective registration of detachment in the Land Register is based on a second application on which it is attached the authentic detachment document and implies land register record stopping for the detached building and opening of land register records for the immobile resulting from the detachment of the buildings.

IU detachment is an interrupted flow which implies acceptance and approval of cadastral documentation which aims the description of detached apartment and of those resulting from detachment in order to of subsequently register in the Land Register.

Achieving effective registration of detachment in the Land Register is based on a second application that attaches to the authentic and involves detachment the suspension of detached apartment land register record and opening of land register records for those resulting from the detachment of the apartment.

Immobile merge is an interrupted flow which implies acceptance and approval of cadastral documentation that describes immobile that reunited and the results of merging in order to subsequently register in the Land Register.

Achieving effective registration of detachment in the Land Register is based on a second application that attaches to the authentic merging document and involves ceasing land register records for adjoined immobile and open a new land register record for the resulting property from the annexation.

IU merge is an interrupted flow which implies acceptance and approval of cadastral documentation aimed at the description of apartments that merge together and of resulted apartment in order to register in the Land Register.

Achieving effective registration of detachment in the Land Register is based on a second application that attaches to the authentic merging document and involves ceasing land register records for adjoined apartments and opens a new land register record for the resulting property from the annexation.

Update immobile data is an integrated flux which implies acceptance and approval of cadastral documentation which aims the notation in the Land Register of the building following changes: surface adjustment, new building recording, modify existing building surface, demolishing existing building, update textual data.

Update IU data is an integrated flux which implies acceptance and approval of cadastral documentation aimed the notation in the Land Register of the individual unit following changes:

- surface adjustment;
- update textual data for individual unit (other than above).

Construction partitioning is an interrupted flow which implies acceptance and approval of cadastral documentation aims to describe all individual units belonging to a condominium building in order to open the individual land register records.

Achieving effective land register operations is based on a second application whereat attaches the authentic partitioning document and involves opening a collective land register record for the condominium construction and for individual records owned by IUs.

Construction repartitioning is an integrated flux which implies acceptance and approval of cadastral documentation aimed at modifying the surface respective the cuts for common use parts and land belonging to all individual units in a condominium building and grading in the land register of each of these changes.

Land Register Conversion

To operate on existing land register record existing only on paper, it must be converted into electronic format. Only active positions will be copied in the Land Register in the new format.

Land Register Operation is a real estate advertising specific flow aimed at making registrations of legal documents and acts and radiation based on an application that did not involved the acceptance and approval of cadastral documentation.

Land Register ceasing is a specific flow for real estate advertising aimed at closing a land register record.

Boundary rectification is an integrated flux which implies acceptance and approval of cadastral documentation aimed to update in the land register the changes of the ownership limits of two or more properties.

Land Register rectification is a specific flow for real estate advertising aimed at modifying entries made in a land register (repair operator error). Entries correction can be made immediately after the conversion of land register record, or upon application.

Information extract is a specific flow for real estate advertising through which can issue a request for an extract for information.

Extract for authentication release is a specific flow for real estate advertising through which inquires the issue of an extract for authentication and block the land register record for registration of the authentic document.

Unlock Land Register is a real estate advertising specific flow aimed at changing the previous solution for blocking a land register record for five days in favor of a public notary. Unlocking is done following a request from the same notary.

Land Register establishing is a real estate advertising specific flow aimed at setting up a land register record of a building on a previously approved cadastral documentation. Fill only Part I. Parts II and III are completed separately operating on request.

Multiple search application is an important functionality of the e-Terra Land Register module. Applications allocated to a Registrar Assistant or a Registrar may be displayed all or filtered by various parameters.

CF multiple search is an important functionality of the e-Terra Land Register module. Thus, all land register records stored in the database can be accessed and viewed.

Cancel processing performed on a land register record is important functionality of the e-Terra Land Register module. Modifications or operating changes made in a land register record by a Registrar Assistant can be canceled at his will or at the request of the Registrar.

RESULTS AND DISCUSSIONS

E-Terra system aims to establish an integrated system of record of the property and offers a complete and unified nationwide image on all details of shapes, sizes, textures, and other issues concerning the identification of buildings, to legal information relating to owners, as property or even how they are owned. All these data are in electronic form allowing streamlining the OCPI functions, being an advantage for individuals, notaries, local institutions, central banking institutions and cadastral surveyors that operate.

All files that reach OCPI are introduced into computer. Then, the data are sent to a server, where they are automatically assigned to a cadastral inspector. He will check the geometry of the work and will give a cadastral number. In the next step the computer will automatically assign the work to a registrar assistant. The assistant inspects the work and afterwards the application reaches a registrar, which validates the solution given by assistant. When the registrar approves the application returns to the unique office and then will be handed over to the citizen. E-Terra automatically distributes the work, and at any time the government office can check where each job is.

Land Register in its classical form has ceased to be used for each file processed at OCPI involves the conversion of the Land Register form its physical form, on paper, into electronic format.

Converting a sheet of paper automatically involves assigning a new cadastral number, which has no connection with the old number and the corresponding plot sheet will receive a new cadastral number.

Submitting an estate in the land register in electronic format has many advantages. Applicants will not need to go through extra roads and the actual time settlement is reduced noticeably. Using this program, ensure accuracy of records, because it is able to detect errors occurring, so that the applicant does not travel more roads to complete the file.

Advantages of a plot registered in the Land Register in electronic format are, firstly noting its limits in the land register with high precision, facilitate operations related to limits, owner, category of use and others.

From our expertise as e-Terra system users, we noticed some drawbacks. It allows overlapping of two or more immobile as seen in Fig. 7. In the picture was shown by shaded area (6492mp) the overlap of the two immobile. This prevents proper parceling for neighboring immobile, also makes it difficult to parcels according to the cadastral plan.

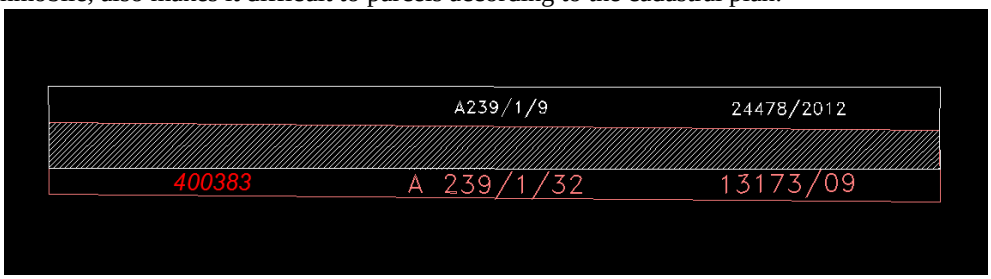


Fig. 7 - Overlapping of two immobile

Another disadvantage of the system is the fact that when using "Data update property" flow can rectify a plot area only once. Changing the surface multiple times for immobile is necessary if the person executing the measurement misinterprets property boundaries.

CONCLUSION

E-Terra is an integrated system of cadastre and land registration, an electronic record of property which includes the legal information about the property, and certain graphical data. Thus there is a nationwide unified picture of all this information.

Using e-Terra shows a number of advantages such as: streamlining the operations executed by OCPI magistrates, automatic distribution of work and each work stage can be checked at any time, converting the classical Land Register to digital form, high accuracy in terms of geometry.

Despite e-Terra minor disadvantages, this system is superior to the classical method of inventory and operating in the Land Register. Currently e-Terra is implemented in all the districts in our country.

Bibliography

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