

Future Trends in Hungarian Land Administration

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SUMMARY

In accordance with the changes in Hungarian Governmental Structure Land Administration has new challenges and must solve the preceding problems both on institutional and technical level. New developments, mainly TAKARNET24 project, have changed the IT environment, business procedures, service structure in the whole Land Administration in Hungary. Requisites to services to other sectors of Hungarian economy require to change not only technical, but legal environment in Land Administration. These changes cover the unification of services and increasing the quality of them, new solutions for implementation of 3D cadastre and other important technical and legal changes.

The paper deals with the implemented and planned solutions of the above mentioned issues.

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1. INTRODUCTION

Hungarian Land Administration has old tradition in Land Management based on the establishment of Cadastre-Land Registry in the ages of Austro-Hungary, at the end of the XIX. Century. Management of Cadastre-Land Registry of Hungary has been continuous during the Communist era as well, counter to other Socialist Countries.

In 1972 a new restriction on Land Registry was introduced, which established the Unified Hungarian Land Registry. In Unified Land Registry both Cadastral Mapping and Land Registry are the responsibilities of the same institutional system, the Land Office Network. Institute of Geodesy, Cartography and Remote Sensing (FÖMI) is a part of this system, like the overall responsible institution of research and development, maintenance and data service.

In the mid of the 90's two, new acts has taken into force, which determine Land Administration activities, Act on Surveying and Mapping activities, and Act on Land Registry. Technical development of Land Administration sector has been started at this time as well. At first step the legal part of the Unified Land Registry has been developed (TAKAROS system), then the Network of Land Administration Sector (TAKARNET) and its services were introduced and at the end of 2009, a new integrated IT system, DATR (both the legal and cadastral part) were installed. In 2010 a new data service system, TAKARNET24 were established and would be operating in May, 2011. All these IT systems are the result of FÖMI's development work.

Data of Unified Land Registry has been available in digital (RDBMS) form since 1997 for legal part and since 2008 for cadastral maps.

This paper deals with the present situation in Hungarian Land Administration and the possible future solution in modernization of it.

2. THE HUNGARIAN LAND ADMINISTRATION AND FÖMI

The structure of Hungarian Land Administration is shown on Figure 1.:

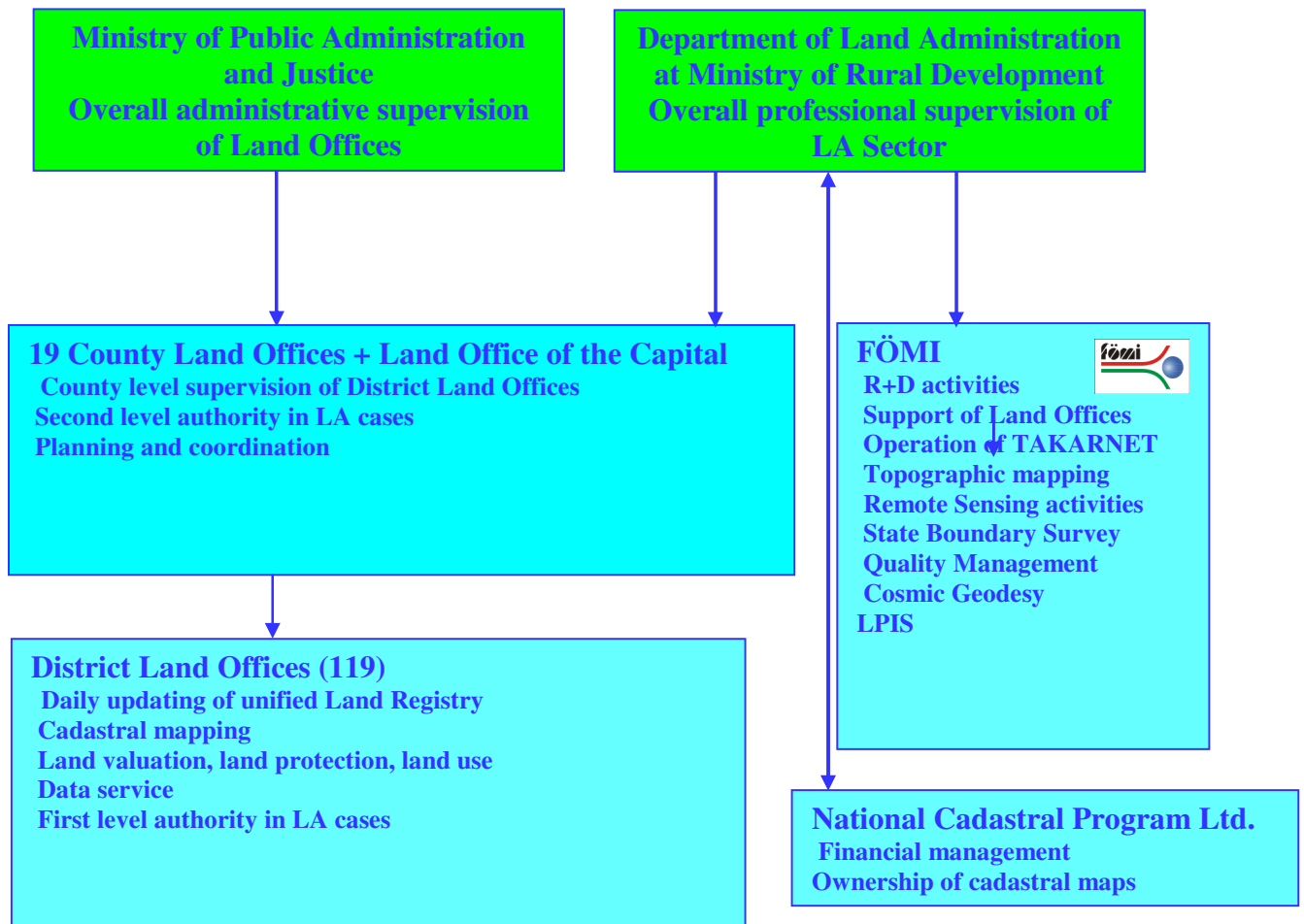


Figure 1.: Structure of the Hungarian Land Administration

Land Administration Sector in Hungary is operating within the Ministry of Rural Development. Department of Land Administration at the Ministry, which is responsible for the overall professional supervision of Land Administration Sector and the Ministry of Public Administration and Justice, responsible for administrative supervision of Land Offices. Hungarian Land Administration operates a Unified Land Registry. Unified Land Registry means that the registration of land records and cadastral mapping belongs to the same institutions, Land Offices. This Unified Land Registry has been operating since 1972. The Unified Land Registry is an authentic, title registry, so the Hungarian State guarantees all the rights and facts registered in it. The Unified Land Registry is operated by the Land Office network, which contains 19 County Land Offices and the Land Office of the Capital (Budapest) and 119 District Land Offices.

County Land Offices are responsible for the supervision of District Land Offices, planning and coordination of their work, and act as a second level authority in Land Administration cases.

District Land Offices update the Unified Land Registry both land record and cadastral map parts, value protect the lands, register, control and maintain land use data, service land registry data for clients and professionals and act as a first level authority in Land Administration cases.

FÖMI is a national-level public administration organization responsible for:

- R+D project in the fields of land administration, remote sensing, satellite geodesy, cadastral and topographic mapping etc.
- Management and Maintenance of Ground Controls
- Official, National GNSS Services
- Regional and Country-wide data services, including cadastral maps, land records, orthophotos, aerial photos, topographic maps, land cover data and other value added products
- Operating of Geoportal of the Land Management Sector (GEOSHOP),
- Management of national, large scale (1:10 000) topographic mapping,
- Continuous support and development of Land Offices' IT systems,
- Operating of TAKARNET network, network of the Land Administration sector,
- Land Registry services via TAKARNET,
- Official Gazetteer of Hungary,
- Agricultural Remote Sensing activities, including operating of Land Parcel Identification System (LPIS) of IACS, Vineyard Cadastre etc.
- Environmental Remote Sensing activities, including CORINE Land Cover database management.

As it seems above, FÖMI has a wide-range of activities both in cadastre and SDI implementation in Hungary. The two activities SDI implementation and Unified Land Registry meet institutionally at FÖMI.

4. LEGAL FRAMEWORK OF HUNGARIAN LAND ADMINISTRATION

Mainly two Acts determine the activities of Hungarian Land Administration, but naturally there are other legislations, which influence them (e.g. Act on Arable Land, Act on Forest etc.). These two Acts are:

- Act on Surveying and Mapping Activities (Act LXXVI. 1996) and
- Act on Land Registry (Act CXLI. 1997).

These two Acts has came force 15 and 14 years ago, and elaborated into an analogue (paper based) physical environment. During the last one and a half decade many important and successful technical developments has been completed in Hungarian Land Administration, but the changes in legal environment did not follow the results of them.

In the next section the characteristics of these two Acts will be introduced.

4.1. Act on Surveying and Mapping Activities

The goal of this Act is to determine the tasks of the State in Surveying and Mapping and to establish a condition system, which provides maps in a cost-effective way for the whole economy.

The main issues, which handled in this Act are the following:

- State works and State Data
 - Maps
 - Data Services,
 - Control Networks
- State Maps
 - Surveying Maps,
 - Topographic Maps,
 - Map Base of GIS systems.
- Surveying and Mapping Activities
 - Mounting and measuring surveying marks
 - Ownership of surveying marks,
 - Protection of Surveying Marks
- Ownership of Surveyed Data
- Institutional Issues in Surveying

This Act legally handles surveying and mapping activities very well, but established for an paper based surveying world, which is not existed yet.

For example at Data Service Section the electronic data service is not mentioned, which is general now. Control Networks section does not deal with the Integrated Geodetic (4D) Network, which is under construction.

The Act defines the Surveying Map, which is the mandatory base of the Unified Land Registry as a cadastral map. Since cadastral maps and land registry data has already been integrated into an RDBMS, the existence of Surveying Maps is not necessary.

The Surveying Maps section deals with the very strict demarcation procedure of cadastral parcels, but only with the field demarcation procedure. New, e.g. orthophoto based demarcation procedure is not available.

Topographic mapping activities are shared between the public (FÖMI) and military mapping agencies. Large scale (1:10 000) topographic mapping is the responsibility of public, while smaller scale topographic mapping belong to the military mapping agency.

The other chapters are not depended on the technical developments, therefore they are well handling the surveying and mapping activities.

4.2. Act on Land Registry

Act on Land Registry defines a Unified Land Registry, which means the legal and geometric (cadastral map) part of the Land Registry compose one system. All geometric characteristics of Land Registry components (parcel boundary, area etc.) are derived from the cadastral map.

The Hungarian Unified Land Registry is a title registry, so all the rights and facts, which registered in it, are guaranteed by the Hungarian State.

Principles of Hungarian Unified Land Registry are the follows:

- Title and its effect
- Publicity
- Authenticity
- Application
- Rank and
- Deed.

Title and its effect defines, that all rights and facts are derived from registering them.

Publicity means that the data, registered in Hungarian Unified Land Registry are public (except some special data, e.g. Personal Identifier).

Authenticity means that all data, registered in Land Registry are authentic.

If anyone wants to change or register anything in Land Registry, he must make an Application for it.

The principle of rank defines, that all actions in Land Registry will be carried out based on the time of registration of Application.

If any rights or facts should be registered, it must be based on a Deed, defines the principle of Deed.

This Act defines cadastral parcel, which is a continuous part of the Earth's surface, on which the ownership and/or handler relationships are homogenous. There are other types of real properties beside cadastral parcels, which are the components of Land Registry (e.g. buildings, condominiums, flats, shops etc.).

Parts of the Land Registry are the follows:

- Property Sheets (or Land Record)
- Repository of Deeds,
- Cadastral Map
- Register of Deleted Titles

Property sheets contain the legal information of properties, while Cadastral Map included the geometric description of them. Repository of Deeds contains the Deeds, basis of Titles. Register of Deleted Titles is for the reconstruction of former situation.

Main rights can be registered in the Hungarian Unified Land Registry are the following:

- Ownership or handler rights,
- Use Rights,
- Land Use Rights
- Usufructs
- Mortgages
- Easements
- Re-entry, Option, Right of Emption
- Life-rent
- Estate of Elegit.

Act on Land Registry is a very stable legislation and provides well-operating, but strict Unified Land Registry. Unfortunately, except in the case of condominiums, it has no solution for real 3D Cadastre problems.

5. TOWARDS A MORE EFFECTIVE LAND ADMINISTRATION

As it was mentioned in the last chapters mainly the technical developments requires the changing of legal framework of Hungarian Land Administration. Changes should be made, but these transforms should not effect the well-operating, traditional structure of Hungarian Unified Land Registry and its environment.

The first change, which can be derived from technological changes is that, traditional, paper maps are not existing anymore (except if we print out them from the database). Databases are present, which contains geometric information about Land Registry or Topographic objects. Therefore the legislation should be changed to database-linked environment. This means that the State Map Databases should be inserted into the new legislation. State Map Databases are the Databases, which contains geometric and topological information about State Base Data. State Map Databases are the following:

- State Cadastral Map Databases
- State Topographical Map Databases
- State Orthophoto Databases.

Since State Cadastral Map Databases are integrated with the legal part of the Hungarian Unified Land Registry, these two, integrated databases compose Database, which is the Unified Land Registry Database. The concept is shown on Figure 2.

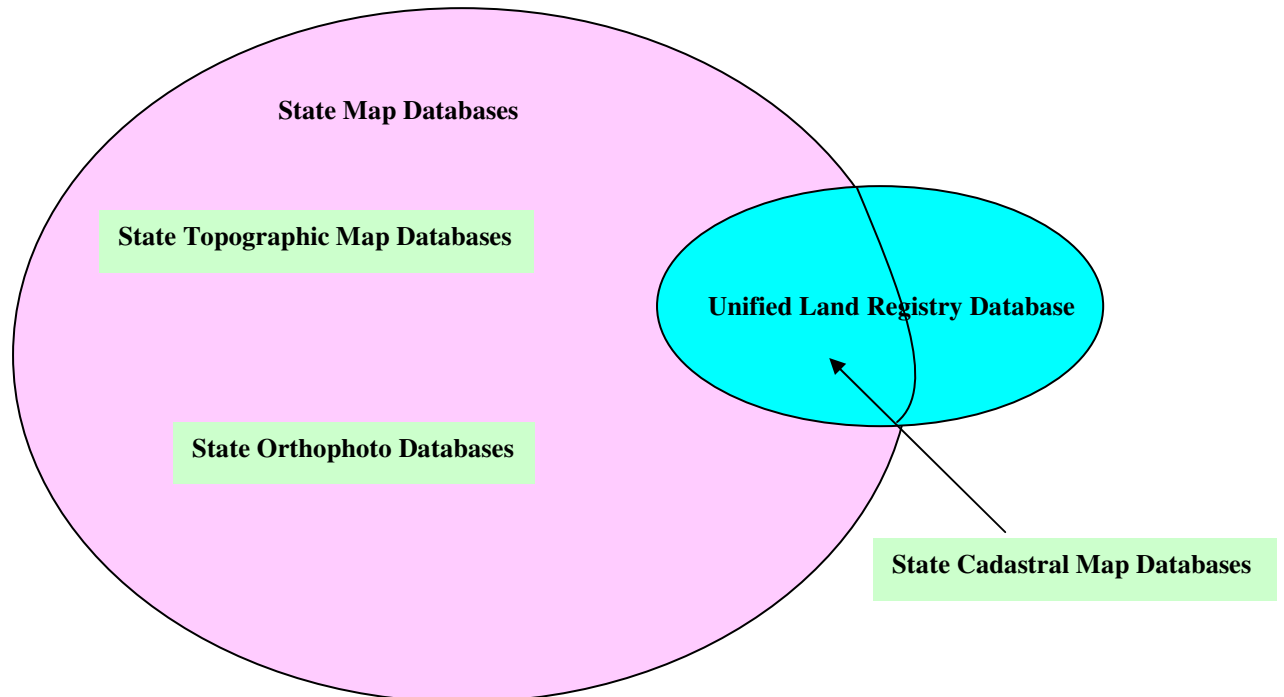


Figure 2.: State Map Databases concept

This concept also contains the connections, constraints and relations among the different State owned databases.

The other important aspect in the new concept is the changing of the strict cadastral parcel demarcation procedure. As it was mentioned demarcation of parcels is only available on the field in the present legislation. We are planning the change the demarcation procedure, which will be based on orthophotos. Orthophoto based demarcation provides cheaper and more effective database renewing technologies in the part of Hungary, where there are problems with the consistency between legal and real situation.

Legally defined interoperability among databases provides better and more reliable SDI for the whole country. In new legislation electronic document handling, electronic registration, on-line data services and applications should be regulated.

In the changing of Act on Lang Registry the opening to a real 3D Cadastre is planned. This means, that the definition of properties should be expanded. Beside the already defined real properties the under-ground and above-ground passes objects, structures, which has homogenous ownership and/or handler relationships should be an independent property. With this action utilities, overcrossings and other objects should be registered as an individual property and 3D legal relationships can be modeled in Hungarian Unified Land Registry.

6. CONCLUSIONS

In the last chapters we would like to describe the technical and legal situation in Hungarian Land Administration Sector. Technical developments, carried out in the last decade, enforce the changing of legislation in the Land Administration Sector. Beside the technical developments force a legal constraint is arisen, which is the handling of 3D legal issues, the 3D Cadastre.

Our new concept in map databases, including the renewed cadastral parcel demarcation procedure, electronic document handling, on-line data services and application increases efficiency of these databases, which results a better governance and public services.

Changing in the definition of properties, opening to a real 3D Cadastral system, also extends the productivity of the Hungarian Land Administration Sector.

These changes are under construction, the proposal will be sent at this spring to the Ministry and we hope, that our concept will be accepted by the State, for a new, more effective Land Administration in Hungary.

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BIOGRAPHICAL NOTES

Gyula IVÁN (46): has a master degree in civil engineering (faculty of surveying and geodesy) from Technical University of Budapest, HUNGARY. He is currently the Chief Adviser of Director General of FÖMI. He was the vice-chair of administration in FIG Commission 7 (Cadastre & Land Management) between 2006-2010. He is a member of Hungarian Association of Surveying, Mapping and Remote Sensing, member of FIG.

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