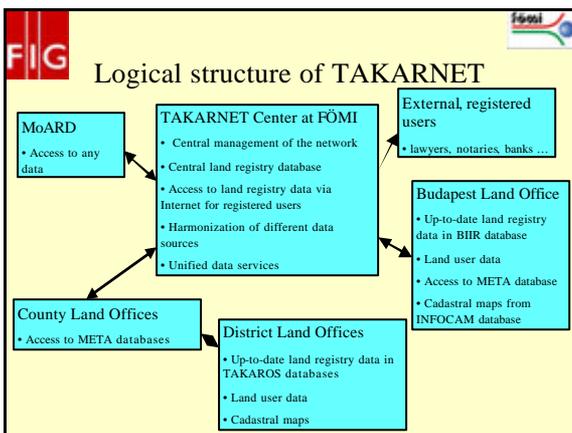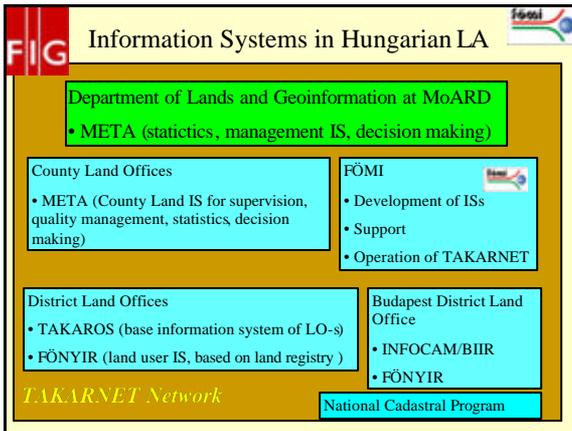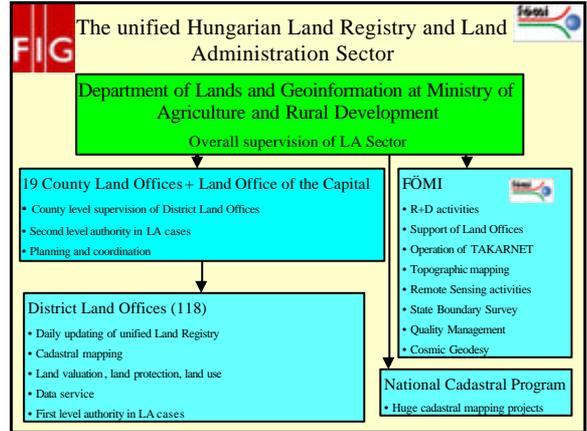## Slide 1

Expansion of Land Information Services in Hungarian Land Management

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FIG **fömi**

SHAPING THE CHANGE
FIG XXIII Congress and XXIX General Assembly
8-13 October, 2006., München, Germany

Slide 2

FIG — The unified Hungarian Land Registry and Land Administration Sector

Department of Lands and Geoinformation at Ministry of Agriculture and Rural Development
Overall supervision of LA Sector

19 County Land Offices + Land Office of the Capital
• County level supervision of District Land Offices
• Second level authority in LA cases
• Planning and coordination

FÖMI
• R+D activities
• Support of Land Offices
• Operation of TAKARNET
• Topographic mapping
• Remote Sensing activities
• State Boundary Survey
• Quality Management
• Cosmic Geodesy

District Land Offices (118)
• Daily updating of unified Land Registry
• Cadastral mapping
• Land valuation, land protection, land use
• Data service
• First level authority in LA cases

National Cadastral Program
• Huge cadastral mapping projects

Slide 3

FIG — Information Systems in Hungarian LA

Department of Lands and Geoinformation at MoARD
• META (statictics, management IS, decision making)

County Land Offices
• META (County Land IS for supervision, quality management, statistics, decision making)

FÖMI
• Development of ISs
• Support
• Operation of TAKARNET

District Land Offices
• TAKAROS (base information system of LO-s)
• FÖNYIR (land user IS, based on land registry)

Budapest District Land Office
• INFOCAM/BIIR
• FÖNYIR

TAKARNET Network

National Cadastral Program

Slide 4

FIG — Physical structure of TAKARNET

A TAKARNET hálózat fizikai felépítése

Slide 5

FIG — Logical structure of TAKARNET

MoARD
• Access to any data

TAKARNET Center at FÖMI
• Central management of the network
• Central land registry database
• Access to land registry data via Internet for registered users
• Harmonization of different data sources
• Unified data services

External, registered users
• lawyers, notaries, banks …

Budapest Land Office
• Up-to-date land registry data in BIIR database
• Land user data
• Access to META database
• Cadastral maps from INFOCAM database

County Land Offices
• Access to META databases

District Land Offices
• Up-to-date land registry data in TAKAROS databases
• Land user data
• Cadastral maps

Slide 6

FIG — Cadastral Mapping

• Cadastral maps has been existed for the whole country since the end of the XIX. century in analogue form
• In the 90's a new standard has been formed for cadastral map database (MSZ 7772-1)
• In National Cadastral Program such databases has been established for 97 settlements of the country (550 000 ha)
• For gearing up NCP two projects has been started (KÜVET, BEVET) for the rural and built-up areas of the country
• In KÜVET, the cadastral maps of the rural areas had been digitized. The project was finished in 2005.
• In BEVET, the built-up areas and gardens are digitized. The planned finish of the project is the end of 2007.
• For the management of DAT databases, NCP has made developed a software (DATView), which does not integrate land registry and cadastral map data
• In BEVET and KÜVET program the format of digitized map is ITR (Hungarian Mapping software), which is a „spaghetti" format
• In order to solve data heterogeneity of map data, and fully integrate land registry and cadastral maps, FÖMI has developed a software „DATR"

Slide 1

DATR, the IT system for unified land registry

The base of the developments has been the following visions:

– In the unified land registry cadastral maps are the geometric attributes of land records registered in land registry,
– The system should provide authentic updating of land registry and cadastral maps together,
– The developments should be independent of any commercial GIS software,
– The system should cover all the business procedure in District Land Offices,
– The system should fit into the existing IT systems in Hungarian Land Administration.

Slide 2

Core data model of DATR

The core data model of DATR is conformed with the Cadastral Domain Model defined by our Dutch Colleagues

Slide 3

Real property transactions in DATR

Slide 4

TAKARNET services

• Base services:
  • Copy of Land record of any real property countrywide

• Expanded services:
  • Copy of cadastral map (if available in digital form) of any real property countrywide
  • Billing information
  • Downloadable standardized documents for applications
  • countrywide queries based on ownership (only for authorized bodies, Tax Office, National Intelligence Agency)
  • Land record change monitoring (on e-mail or SMS)

Slide 5

Integrated map services from Budapest Land Office

Graphic engine is DATR

Slide 6

Map services from ITR maps

Integrated map services with orthophotos I.

- Digital Orthophoto Database of Hungary (MADOP 2005)
  - Technical characteristics:
    - Original photos' scale 1:30 000
    - 0,5m ground resolution
    - 24 bit color depth
    - rectified by the high resolution (5m) DEM of Hungary, produced by FÖMI
    - available in 1:10 000 scale topographic sheet unit (6km x 4km)
- The services are under construction and testing

Services for built-up areas (1:1 000)

Services for built-up areas (1:2 000)

Services for rural areas (1:4 000)

Fees, legal procedure & statistics

- Connection to TAKARNET is licensed by MoARD
- Licensed user concludes a service contract with FÖMI, and FÖMI gives a digital certificate for the user
- Fees:
  - For digital certificate:
    - For 3 years: 145 Euros + 20% VAT
    - For 6 years: 254 Euros + 20% VAT
  - Other fees:
    - For network usage: 2 Euros + 4 cents / hit
    - For a copy of land record: 7,2 Euros
    - For a copy of cadastral map: 11 Euros
  - Land record change monitoring: 6,5 Euros/property/year
    - change message: 6 cents/e-mail
- Number of users: 2 500, Number of digital certificate: 4 500
- No. of queries of land record: avg. 2 million / year

Conclusions

Standardization in Cadastral Domain is one of the most important condition for an effective land information services

- The Hungarian unified land registry provides a flexible background to implement integrated services
- Our solution (DATR), which is operating on the standardized Hungarian Cadastral Domain, shows that the full integration of land registry and cadastral maps goes to the best results
- Amplifying and integrating of ,,raw" land administration data with other GIS datasets (e.g. DEM, orthophotos, satellite images) results in a better services and recognition of land management sector

Thank you for your attention

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