

## THE ROLE OF GI IN THE ACCESSION PROCESS FROM THE HUNGARIAN PERSPECTIVE

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Good afternoon Ladies and Gentlemen,

My name is Dr.Norbert Berczi. As Deputy State Secretary at the Ministry of Agriculture and Rural Development, my responsibility includes the supervision of the activity of the Department of Lands and Mapping and its institutional network. This head department is actually a National Land Administration and a National Mapping Agency together. The Ministry is not only the largest producer of GI information in Hungary but also one of the most important user by the way. This is why it was my pleasure to accept the invitation of the representatives of the Hungarian GI community to come to the GINIE Final Conference highlighting the importance and role of Geographical Information from the Hungarian perspective.

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The content of my presentation is as follows:

I will give you a short introduction of the Spatial Data Infrastructure in Hungary, also mentioning the major players. The role of GI will be highlighted from the real needs point of view: except of the AM/FM<sup>1</sup> applications, the majority of the GI-related achievements are in close or direct links with the ongoing national programme of the adoption of the Acquis Communautaire (NPAA) which has a dedicated segment to the lands and mapping. In the second part of my presentation I am dealing with the ongoing developments and applications which are mainly driven by the EU accession and countrywide programs. Finally, my conclusions will point out the effectiveness of the use of GI and the needs for directives, networking and coordination.

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In the past 150 years, the Hungarian lands and mapping administration and its institutional network – compared to the opportunities – have been well adapting themselves to the changing conditions, satisfying the user demands by services. Since 1972, the Hungarian land administration has been working in an integrated system managing land registration and cadastre in the same institutional network showing a remarkable model to be followed. The land and property registration service has significantly contributed to the completion of the land reform realized through the 90s, and has been playing a significant role in solving the

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<sup>1</sup> AM/FM: automated mapping and facility management

problems using novel technologies in tasks related to the EU accession, especially in the field of the agriculture and rural development.

As a result of many hundreds of man/years spent in research and development, up-to-date technologies (satellite-assisted geographical positioning, remote sensing) have been used in the lands and mapping administration from the very beginning of the seventies. Applications for mapping, agricultural and environmental use and also the knowledge basis have been developed; services of European quality were introduced. This is why the GI became a tool not only at many academic institutions but also in the private sector, at governmental agencies and NGOs as well. The Hungarian GI Association has today 84 member institutions covering all disciplines and additional 50 small and medium enterprises are on the market. The flagship of the GI market is the Lands and Mapping's FÖMI Institute.

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#### **Features of the spatial data infrastructure (SDI) in Hungary and the major players**

The Act on Surveying and Mapping activities is the base legislation for GI activities since 1996 as far as core data are concerned. The national GI strategy was elaborated driven by NGOs in 1998. The Governmental Committee on Informatics and Communications made a decision on core SDI elements in 1998 with the following (reformulated) contents:

- Geo-referenced land registry and cadastre
- Topographic maps
- Administrative boundary database
- Nationwide digital orthophoto coverage
- Georeferenced geographical names and addresses
- Parcel-based identification and reference system
- Metadata service and clearinghouse

The National Cadastral Programme started in 1996 with strong Public-Private-Partnership. The National Topographic Programme has been also defined in interministerial co-operation involving NGOs. The National Programme for the Adoption of the Acquis launched a set of GI-projects with multipurpose applicability managed by FÖMI. By the way the College on Geoinformatics of the University of West Hungary achieved an internationally acknowledged rank in GI-related capacity building partly in international co-operation. Foundations and NGOs on GIS have been formed by individuals and professional societies such as the Society of Surveying, Mapping and Remote Sensing and others realised the interdisciplinary synergy power of the GI/GIS in the early 90s.

The majority of the developments and applications are government driven, that is why the most proven operational applications are direct linked with the Regional Development (TeIR- territorial information system), Agriculture (CROPMON, crop monitoring) or Environment (Corine Landcover)

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As it was mentioned, major GI-related achievements are consequences of the preparatory works related to the EU accession. The majority of them were executed by support of the Ministry of Agriculture partly in co-operation with agencies of other sectors. Results of the EU harmonisation tasks of the Lands and Mapping segment include:

- The Land cover database of Hungary at 4 ha resolution was completed this summer.
- The Land cover change database of the period 1990-2000 has been completed at 30%,
- and it will be fully completed by May 2004

- Vectorized digital cadastral maps are available for more than half a million hectares and another 2 millions will be completed by the year 2005. These products will be available for the whole country in 2007.
- Based on the countrywide aerial photo survey taken in the year and seasons of the Overall Agricultural Census of 2000, the national digital orthophoto database and a countrywide digital elevation model at 5 m resolution was recently completed. Based on the R+D results and infrastructure of FÖMI, the nationwide Land Parcel Identification System (in Hungarian: MePAR) for the Integrated Administration and Control System has been set up and also the Control with Remote Sensing technology have been verified in domestic legislation environment in the last several years. Another novel GI application is the GIS support for the vineyard register. 30% of the 22 regions, and 300 vineyard communities are now served and the project has to be completed for the whole country by May 2004.

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GIS supported land consolidation project (22 settlements, 3 microregions in 5 counties) were carried out between 1994-2000 for methodological development. Now, the preparatory works related to the elaboration of a national land consolidation strategy are also underway with special emphasis on institution and capacity building. The area of interest is the River Tisza where an integrated and interdisciplinary work has been started. Land policy implementation in interagency co-operation with water management, rural development and agro-environment is a typical field, where interoperability and the access to GI is vital in the planning and execution phase. The National Land Fund was established in 2002 and became the largest land owner within one year facilitating the land market. In this context, MoARD established with other stakeholders as the World Bank and FAO the Central European Land Knowledge Center (CelkCenter), which started serving all the accession and candidate country as well as the West Balkan countries driven by beneficiary needs.

The fundamental role of the remote sensing and GIS based crop monitoring and yield estimation program of FÖMI should be underlined here. It is operational in the past 7 consecutive years, focusing on 8 industrial crops providing information 5 times per calendar year. The intellectual expertise, gained experiences as well as the technological, infrastructural and data assets are results of several hundreds man-year of application-oriented research and development, which were many times mobilized in natural disaster mitigation applications (flood, logwaters, fires, draught).

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This figure shows the evolution of the GI-related EU harmonisation tasks during the last 5 years. I would call your attention here on the National Orthophoto programme of FÖMI, which can serve as image layer for another SDI components. Combined with digital elevation model data, the multipurpose applicability of these products is very promising.

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The figures shows the components of the spatial data infrastructure developed by the Lands and Mapping sector.

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As far as the further developments of the lands and mapping sector are concerned, the following actions have priorities

- Architectural & GI supported upgrade of the web based capabilities in the land office network, enabling online access to data and products including cadastral maps,
- Enabling dm accuracy countrywide online positioning capability
- Rapid renewal of the topographic maps at 1:10 000 (using gis/rs providing digital products for the whole country)

In the e-Agrar program, the following four priorities have been approved:

- Support of the CAP IIER by LPIS (MePAR) and Control with Remote Sensing
- GIS support of the sustainable agricultural production,
- Ensuring access to value-added data and services for all interested parties
- Support of the national agro-environment programme and national rural development plan by GI

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Driving forces of additional developments are related to

- Completion of the pre-accession NPAA tasks in the lands and mapping sector by the date of the EU accession,
- high priority applications where GI are inevitable or support competitiveness
  - EU policy implementations (Common Agriculture Policy, AgroEnvi Measures etc),
  - Following directives, initiatives and programs (e.g. European Water Framework Directives, INSPIRE Initiative, Public Sector Information, e-Europe and e-Government)
- Applications which are generated by the national economy development plan and other sectorial, intersectorial or even cross border initiatives

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Very shortly I would like also emphasize the importance of the international (European) multilateral and bilateral co-operation and networking. The Hungarian involvement in this context is shown on the slide, mentioning the different fora which serves for exchange of views, experiences and sharing knowledge in the field of GI. Please note, majority of the listed entities are closely connected with the profession lands and mapping or their services.

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In the institutional links with European institutions - among the DGs operating the Phare, ISPA, Transition Facility, Framework Programmes, - the following institutions have to be mentioned: EUROSTAT, DG Information Society, DG Environment and the European Environment Agency, DG Joint Research Center as well as DG Research. The slide gives examples on the subject of the institutional links.

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Finally, before drawn the conclusions, let me allow to illustrate how important GI is from the Information Society point of view. The UN summit gives the floor also for the GI communities to formulate their vision on the value of the spatial data infrastructure for the society after the sessions of the World Forum on Information Technology and Digital Divide in Geneva. Hungary's contribution has been accepted and the evolution of the NGOs will be introduced.

Another important event focuses on the Intelligent Transportation Systems, where the location based services, the availability and useability of digital maps are vital. The conference will be hosted by the Hungarian capital in late May next year.

In the land related GI (LIS) context the activity of the Central European Land Knowledge Center has to be mentioned. Having only ten months of operation, it achieved an international

reputation by introducing user driven services for the beneficiary countries including Hungary in the field of property rights and land market development building bridges between donors and beneficiaries. The Hungarian Land Administration has applied for the venue of the 2005 Spring Workshop of the EU WPLA with the theme „Impact of the EU on Land Administrations of the Accession Countries - one year after the accession”

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## **CONCLUSIONS**

Based on experiences of operational applications in the past decade from utility management to agricultural and environmental monitoring the effectiveness of the use of GI/GIS has been proven. Hungary belongs to those of the countries, where the fundamentals of the national spatial data infrastructure is well founded based on the cadaster and related public registers and scientifically sound reference system.

However EU directives, guidelines, recommendations are needed as shown on the slide which facilitates the wider use of GI on national, European, cross-border and Global level. In many cases, the best practices of the Accession Countries could be taken into account as example or illustration. Hungary is supporting both the need for an infrastructure for spatial information in Europe and a legal framework to achieve the objectives formulated by the INSPIRE initiative, which has created a lot of expectations and as well as actions also in Hungary. This work has allowed to converge to a consensus on what is needed for all accession countries including Hungary. The progress proves that INSPIRE is needed to support. An efficient implementation of environmental legislation is particularly important for accession countries who have limited resources and therefore have to get the maximum out of existing information collection activities.

By the end I would call your attention on the importance and usefulness of networking and co-ordination. Both are needed on local, national, european and global level. GINIE made a committed step in this direction offering the GI Network in Europe and the Advisory Board on Geographic Information.

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Thank you for your kind attention !