



INSPIRE
Infrastructure for Spatial Information in Europe

Member State Report: Hungary, 2010

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1 Executive summary

The INSPIRE directive (2007/2/EC of the European Parliament and of the Council) entered into force on 15 May 2007 and will be implemented in various stages, with full implementation required by 2019. The INSPIRE directive aims to create an Infrastructure for Spatial Information in the European Community by harmonising national spatial data infrastructures. This will enable the sharing of environmental spatial information among public sector organisations and better facilitate public access to spatial information across Europe.

A European Spatial Data Infrastructure will assist in policy-making across boundaries. Therefore the spatial information considered under the directive is extensive and includes a great variety of topical and technical themes.

To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas (Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and Reporting). These IRs are adopted as Commission Decisions, and are binding in their entirety.

According to Art. 21.2 of the directive Member States shall send to the Commission a report by 15 May 2010 on the status and process of implementation of the directive. As this is the first report, the implementation is at a very early stage and thus some elements could not be fully developed.

In Hungary it is the Ministry of Environment and Water (MoEW) that has been appointed as a Contact Point, therefore the MoEW is primary responsible for the INSPIRE implementation and it is also the MoEW responsible for keeping contacts with the Commission in relation to this Directive. A committee has been set up to help the work of the Contact Point, namely the National Environmental Spatial Information Coordination Committee (NESICC). The committee is made up of the data owners of the INSPIRE themes.

The compilation of this report is based on an extensive information gathering from all relevant data owners. The frame of the report with all the questions was distributed to the different data owners and each filled in their answers. This included of course the relevant departments of the Ministry of Environment and Water. These separate "reports" were then compiled into one and then uploaded to the coordinating committee's portal for verification and validation.

2 Abbreviations and Acronyms

INSPIRE Directive	Directive 2007/2/EC
MS	Member State
SDI	Spatial Data Infrastructure
MoEW	Ministry of Environment and Water
NEIS	National Environmental Information System
TeIR	Territorial Information System
NESICC	National Environmental Spatial Information Coordination Committee
OKTVF	National Inspectorate for Environment, Nature and Water
MÁFI	Geological Institute of Hungary
WED	Water and Environment Directorate
VÁTI	Hungarian Public Nonprofit Limited Liability Company for Regional Development and Town Planning
FÖMI	Institute of Geodesy, Cartography and Remote Sensing
MoARD	Ministry of Agriculture and Rural Development
MoD	ministry of Defence
MoF	Ministry of Finance
MÁFI	Geological Institute
HUF	Hungarian Forints

3 Introduction

- Background

The INSPIRE directive (2007/2/EC of the European Parliament and of the Council) entered into force on 15 May 2007 and will be implemented in various stages, with full implementation required by 2019. The INSPIRE directive aims to create an Infrastructure for Spatial Information in the European Community. This will enable the sharing of environmental spatial information among public sector organisations and better facilitate public access to spatial information across Europe.

A European Spatial Data Infrastructure will assist in policy-making across boundaries. Therefore the spatial information considered under the directive is extensive and includes a great variety of topical and technical themes. INSPIRE is based on five general principles:

- Data should be collected only once and kept where it can be maintained most effectively.
- It should be possible to combine seamless spatial information from different sources across Europe and share it with many users and applications.
- It should be possible for information collected at one level/scale to be shared with all levels/scales; detailed for thorough investigations, general for strategic purposes.
- Geographic information needed for good governance at all levels should be readily and transparently available.
- Easy to find what geographic information is available, how it can be used to meet a particular need, and under which conditions it can be acquired and used.

To achieve these goals there were a number of components set out. These are:

- Metadata
- Interoperability of spatial datasets and services
- Network services
- Data sharing
- Coordination and complementary measures

To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas (Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and Reporting). These IRs are adopted as Commission Decisions, and are binding in their entirety.

- Method used to compile the report

The Hungarian Ministry of Environment and Water (MoEW) is primary responsible for the INSPIRE implementation in Hungary. According to art.19 of the directive in Hungary the Ministry of Environment and Water has been appointed as Contact Point for Hungary and therefore the MoEW is responsible for contacts with the Commission in relation to this Directive. A committee has been set up to help the work of the Contact Point.

The compilation of this report is based on an extensive information gathering from all relevant data owners. The frame of the report with all the questions was distributed to the different data owners and each filled in their answers. This included of course the relevant departments of the Ministry of Environment and Water. These separate "reports" were then compiled into one and then uploaded to the coordinating committee's portal for verification and validation. After this procedure the report was finalised and made ready for sending to the Commission.

4 Co-ordination and quality assurance (Art. 12)

4.1 Coordination (Art. 12.1.)

4.1.1 Member State contact point

Art. 12.1. (a) the name, contact information, role and responsibilities of the Member State contact point;

Name and contact information

Member State Contact Point	
Name of the public authority	Ministry of Environment and Water
Contact information:	H-1011, Budapest Fő u. 44-50 HUNGARY
Mailing address	H- 1394, Budapest P.o.Box 351. HUNGARY
Telephone number	+36-1-457-3300
Telefax number	+36-1-457-3354
Email address	info@mail.kvvm.hu
Organisation's website URL	www.kvvm.hu
Contact person (if available)	Dezső Mikus
Telephone number	+36-1-487-8585
Email address	mikus@kvvm.gov.hu
Contact person - substitute (if available)	
Telephone number	
Email address	

Role and responsibilities

4.1.2 The coordination structure

Art. 12.1.

- (b) the name, contact information, role and responsibilities, organisation chart of the coordinating structure supporting the contact point of the Member State
- (c) a description of the relationship with third parties;
- (d) an overview of the working practices and procedures of the coordinating body;
- (e) comments on the monitoring and reporting process.

Name and contact information

Coordinating structure supporting the MSCP	
Name of the coordination structure	National Environmental Spatial Information Coordination Committee
Contact information:	
Mailing address	
Telephone number	
Telefax number	
Email address	
Organisation's website URL	http://inspire.kvvm.hu
Contact person (if available)	Dezső Mikus
Telephone number	+36-1-487-8585
Email address	mikus@kvvm.gov.hu
Contact person - substitute (if available)	
Telephone number	
Email address	
Date and period of mandate	

Role and responsibilities

The National Environmental Spatial Information System will work as a Spatial Data Infrastructure in Hungary. It is built up by the Hungarian Environmental Information System, maintained by the Ministry of Environment and Water and the Information Systems run by other spatial dataset owners.

The Hungarian Ministry of Environment and Water (MoEW) is primary responsible for the INSPIRE implementation in Hungary. Therefore the Contact Point (CP) for Hungary is the Ministry of Environment and Water and a contact person has been appointed for these tasks. The contact person is responsible for the following:

- keeping contacts with the Commission in relation to the INSPIRE directive as well as to co-ordinate the implementation of the directive in Hungary.
- co-operating with CPs of other member states
- compilation of member state country report
- fostering distribution of information received from the Commission regarding INSPIRE
- gathering, harmonising and distributing advices and comments regarding all legal acts related to INSPIRE (the Directive and the implementing rules)
- informing the public on the process of INSPIRE implementation
- surveying the expectations of spatial data providers and users of spatial data services
- keeping contact with spatial data providers and users of spatial data services
- co-ordinating the tasks of spatial data and spatial data services providers regarding data sharing and spatial data services
- operating a web forum for information and data dissemination purposes

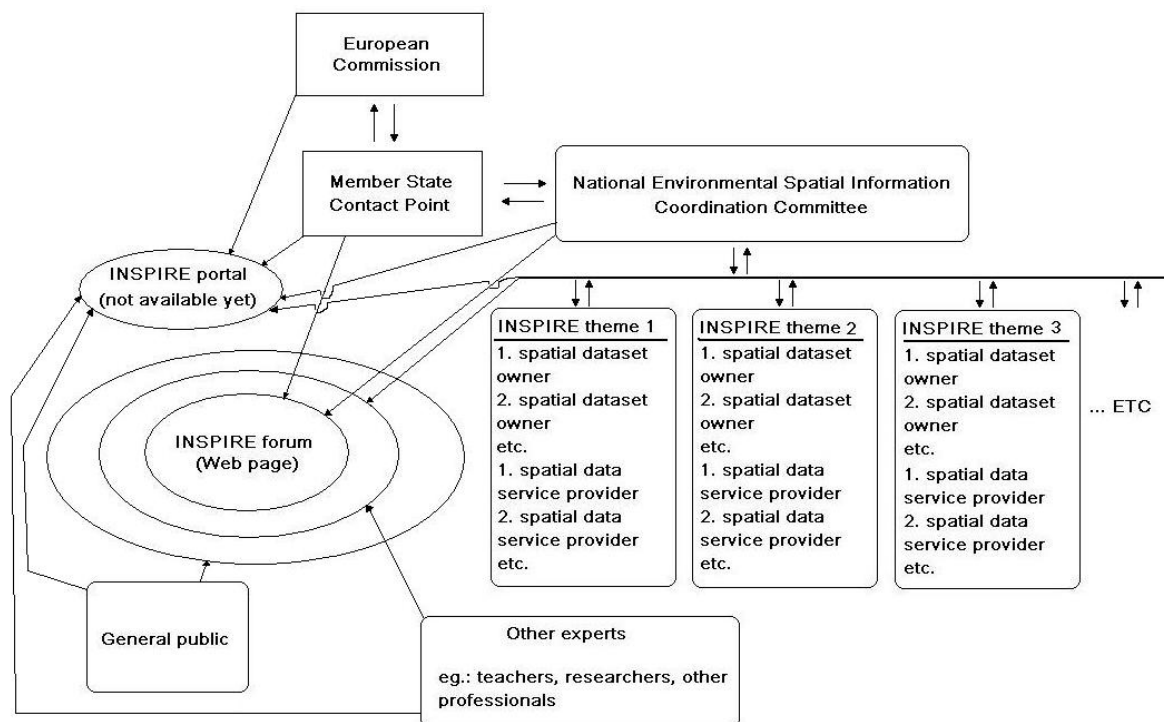
There is a co-ordinating committee helping the CP in fulfilling the above tasks. It is called the National Environmental Spatial Information Coordination Committee and it was established by a government decree. For each INSPIRE themes there is a member in the Committee. Since the themes may cover more than one spatial data set the members of the committee help in gathering information.

If needed the Committee may establish subcommittees for special purposes.

The Committee has the following roles and responsibilities:

- advises the CP on the developments of co-operation of the spatial data owners regarding spatial data services and sharing spatial data.
- initiates measures set out in the National Environmental Spatial Information System
- advises the CP on the composition of the delegation taking part in the discussion of the EU legal acts concerning the INSPIRE directive
- advises the Committee on the strategy of creating spatial datasets in a harmonised and economic way
- follows with attention the costs occurring in relation with the setting up of the National Environmental Spatial Information System
- follows with attention the developments of spatial data owners that are necessary for interoperability purposes and required by the INSPIRE directive

Organisation chart



Relation with third parties

According to the Hungarian law of Environmental Protection, any third party can join the National Environmental Spatial Information System if they are in possession of a dataset determined by the INSPIRE directive and fulfil the technical requirements to join the system. For joining a request should be sent to the National Environmental Spatial Information Coordination Committee which has to consider it and give access if the third party complies with the above mentioned requirements.

The web portal operated by the Hungarian Contact Point serves as a linkage amongst the Hungarian CP, the members of the Committee and third parties.

Overview of working practices and procedures

The main co-ordination tasks regarding INSPIRE implementation are made by the National Contact Point. In the decision making and implementation process the National Environmental Spatial Information Coordination Committee is giving help to the CP. In practice this means that the final decisions are made by a consensus vote of the Committee. The Committee meets at least every three month but keeps contact in between meetings through the Web portal operated by the CP.

A portal has been set up in order to keep informed the Committee members and to receive advices and comments from other spatial data set owners and experts who are not in the Committee. The portal can be accessed in three different levels. There is one for only Committee members where they can upload and download working documents and can exchange ideas. The second level is for experts, where they can give their opinion on documents finalised by the Committee and the third level is for informing the general public.

4.1.3 Comments on the monitoring and reporting process

4.2 Quality Assurance (Art. 12.2.)

4.2.1 Quality assurance procedures

Art. 12.2. (a) a description of quality assurance procedures, including the maintenance of the infrastructure for spatial information

In Hungary there aren't any legal documents or standards for a National Spatial Data Infrastructure which means that currently there are no common quality assurance procedures regarding spatial data infrastructure. Even so, some of the dataset owners do have their own quality assurance methods. Below there is an enumeration of these per dataset owner:

Quality Management in Civilian Lands and Mapping Administration

The ministerial executive order of the Act LXXVI of 1996 on Surveying and Mapping Activities says that all the surveyors creating so-called national base geodata must have a quality management system, which corresponds to the International Quality Standards. The Act also says that the Land Offices managing the land surveying and maintaining maps and data must also have their own quality management system matching the International Quality Standards. The task of quality control of cadastre belongs to the responsibility of Institute of Geodesy, Cartography and Remote Sensing (FÖMI) as a central surveying organisation. The quality management system (QMS) of FÖMI based on the Standard ISO 9001:2000 was certified in 2003 by the Bureau Veritas Quality International Hungary Ltd. (BVQI). The validity of the certification expired in 2006. In 2004 FÖMI created an Information Security Management System based on the Standard BS 7799 certified by Société Générale de Surveillance Hungary Ltd. (SGS). In consideration of expiring the validity of the QMS Certification, the Management Board of FÖMI decided the integration of the two (ISO & BS) management systems in order to operate them easier, more cheaply and more effective. The integrated management system (IMS) was certified in 2006 for three years also by SGS. International Standardization Organization has accepted ISO 27001 Standard on information technology, security techniques, and information security management systems. The Standard is nationalized by the Hungarian Standardization Board. That is why no more possibility to certify an information security management system by the BS 7799 British National Standard in Hungary. In 2006 FÖMI has revised the IMS by the new International Standard & the certification organization (SGS) successfully certified the modified management system in May 2007. The ISO 9001 Standard was also modified in 2008. For this reason we had to review and update our management systems. At FÖMI the quality management system and the information security system operate as an integrated management system (IMIR). It was successfully audited and certified by the Standards ISO 9001:2008 and ISO/IEC27001:2005 for 3 years (till 2012) in May 2009 also by SGS. At the end of the year 2000 FÖMI got the certification of the Gödöllő Base Line as an accredited calibration laboratory (K-GEO). The Hungarian National Accreditation Board (HNAB) issued the certification. In possession of the certification FÖMI is authorised to calibrate distance measuring devices and total stations used for creation of national basic geodata. The activity of the Calibration Laboratory was extended in 2002 for calibration of GPS devices. HNAB issued the certification of the Calibration Laboratory for the extended activity. Certification of K-GEO was renewed by HNAB in 2007 for three years again.

Quality control at the Hungarian National Disaster Control Directorate General

The Hungarian National Disaster Control Directorate General will receive the certification according to the **MSZ EN ISO 2001:2009** standard. The development of detailed quality control procedures will follow the receipt of the qualification.

4.2.2 Analysis of quality assurance problems

Art. 12.2. (b) an analysis of quality assurance problems related to the development of the infrastructure for spatial information, taking into account the general and specific indicators

The major problem is that there is no common quality assurance and no indicators at all.

4.2.3 Measures taken to improve the quality assurance

Art. 12.2. (c) a description of the measures taken to improve the quality assurance of the infrastructure

The Hungarian INSPIRE Contact Point will submit the issue of quality assurance to the National Environmental Spatial Information Coordination Committee. It will then establish a subcommittee to create a guideline which will be set as a requirement for joining the National Environmental Spatial Information System. The guideline will contain the indicators for quality assurance purposes. The Committee will supervise the use of the quality assurance tasks.

4.2.4 Quality certification mechanisms

Art. 12.2. (d) where a certification mechanism has been established, a description of that mechanism

5 Functioning and coordination of the infrastructure (Art.13)

5.1 General overview description of the SDI

- Vision / policy / strategy (where applicable, reference could be given to existing documents, as well as a short summary within the report)

A National Spatial Data Infrastructure Strategy has been developed by the Information Society Co-ordination Interministerial Committee a few years ago which lays down the main goals and vision of a Hungarian SDI. Unfortunately the realisation of the strategy has not been started and there is a great expectation from the Hungarian stakeholders in relation to the implementation of the INSPIRE directive since it may finally help the creation of the National SDI in line with the NSDI strategy. Most of the dataset owners created their own SDI and although those do not add up to a national SDI, at least it is a good start and serves as a basis for INSPIRE implementation. Below there is an enumeration of these per dataset owner:

The Ministry of Environment and Water

A spatial data infrastructure is made up of four elements: hardware, software, data and operation.

Operation:

According to the act on the General Rules of Environmental Protection (1995), the environmental Minister is responsible for the running of the National Environmental Information System. It is the Sectorial IT Department within the ministry that is responsible for the day-to-day operation of the system.

Hardware:

The visualisation of spatial data of the National Environmental Information System is running on a load balanced system of five servers. The database is on separate database servers.

Software:

The NEIS is - in accordance with the SEIS principles - based completely on free and mostly open source components using LAMP (Linux-Apache-MySQL, PHP) architecture. For mapping functionalities it uses UMN Map server and Ka-Map API. The load distribution is ensured by HAProxy.

The main database is in Oracle.

Data:

Parameters reflecting the state of the environment (e.g those of air quality, water and soil) have been observed for decades in Hungary. Most of the data is provided by monitoring systems, each according to the needs and the technical as well as the socio-economic conditions of the time they were set-up. The systems were being continuously altered, always putting emphasis on observing the most affected environmental elements or geographical regions. These data collected regularly form the backbone of the spatial data infrastructure in the Ministry of Environment and Water.

The National Environmental Information System (NEIS) contains data on all relevant environmental issues using relational databases. The NEIS contains the following sub-systems:

- KAR – Environmental Base Register
- KARTER – General environmental GIS query system
- OKIR web – Presenting environmental data on the web
- IR – Registry system
- HNYR – Registry system for authorities
- HSZR – System for resolution editing
- FAVI – Environmental registry for groundwater and geological medium
- VAL – Registry for waste water emissions
- VIKAR – Information system of water quality and *damage prevention*
- LAIR – Information system on air pollution control
- FEVI – Registry for surface water data
- HIR – Waste management information system
- LNYR – Registry for facilities and installations under IPPC and PRTR obligation
- TIR – Information System for Nature Conservation

- LANDFILL – Registry for communal solid waste deposits
- LEUR – Facilities for traditional disposal of municipal liquid waste

Each thematic subsystem consists of several modules such as monitoring, data collection, data procession, and analyses, which are also accessible for the public.

There is a unified identification system among all the subsystems, assuring that all data are both spatially referenced and interoperable.

The Ministry for National Development and Economy

The National Territorial Information System of Hungary (hereinafter referred to as TeIR) contains the spatial data sets and spatial data services concerning territorial development and spatial planning. The data sets mentioned above are included in the spatial data themes *Area management/restriction/regulation zones and reporting units* (INSPIRE Directive Annex III Paragraph 11) and *Land use* (INSPIRE Directive Annex III Paragraph 4).

The operating of TeIR is based on the regulation of the Hungarian Government 31/2007 above the information system concerning territorial development and spatial planning and the obligatory supplying of data.

The TeIR receives processes and stores in unified database structure the status of the regions, the data of regional subvention structures, digital maps of spatial data of territorial development and spatial planning.

The TeIR metadata for spatial data sets represents which spatial plans and local physical plans are available in the system. Currently, TeIR metadata structure is different from the metadata attributes required in the INSPIRE Directive, but can give a base for SDI.

The TeIR integrates the spatial data sets of other public authorities responsible for other spatial data themes, but the reference versions of those spatial data sets are operated by other public authorities mentioned above or third parties.

aim of the system:

The aims of the TeIR as a part of the SDI are

- to provide opportunity to get acquainted with, to monitor, to inform and to make comparisons of the population, the economy, the status of built and natural environment and other territorial features of Hungary,
- to serve information by visualizing indicators and analyses and by introducing the concepts and programmes of territorial development, spatial plans and local plans on texts and maps,
- to help for decision makers, experts, planners with serving information on regions, counties and settlements for
 - preparing and making decisions of territorial development and spatial planning,
 - assessing and analysing the environmental, social and economical impacts of decisions by monitoring territorial processes,
 - making territorial and local development concepts and programmes as well as spatial plans and local physical plans.
- to ensure information for regional development councils and their organisations for planning, programme management, conducting tender procedure, monitoring.

accessibility:

The TeIR has a web based surface and it is available free for government and public administration, regional development councils and authorities in the area of Hungary. Although there are public applications, civil users have to pay for using TeIR after registration on the Electronic Governmental Spinal Network. There is a web surface called TERPORT supported by TeIR serving information and documents (analyses, assessments, news, laws, guidelines, examples of best practice, glossaries etc.) of territorial data free for everybody.

For the spatial data sets a related metadata-base is available including origin, updating time, description, dimension, date of collection, reference territorial unit and its period as well as the related law of the collection of the spatial data set. This metadata-base ensures for VÁTI to keep records of data in register, so thus spatial data sets can be searchable and analysed even via network services. It is also possible to transform and visualize spatial data sets on maps.

5.2 INSPIRE Stakeholders

Art. 13 (a) an overview of the various stakeholders contributing to the implementation of the infrastructure for spatial information according to the following typology: users, data producers, service providers, coordinating bodies

Stakeholders contributing to the implementation of the SDI could be classified according to the following typology: users, data producers, service providers, coordinating bodies)

Users:

Users are the largest group of stakeholders since some of the spatial data providers are users of other data at the same time.

Data producers and service providers:

Currently there aren't many services running yet and those are provided by the data producers. Later on these two categories will most probably separate and there will be service providers who are not data producers at the same time.

The main co-ordinating body contributing to the implementation of the infrastructure for spatial information is the National Environmental Spatial Information Coordination Committee. The NESICC together with the representative of the National Contact Point co-ordinate the INSPIRE implementation. These co-ordinating bodies will rely much on the work of the Hungarian Information Society Co-ordination Interministerial Committee, as well on European best practices and on INSPIRE Implementing Rules.

5.3 Role of the various stakeholders

Art. 13 (b) a description of the role of the various stakeholders in the development and maintenance of the infrastructure for spatial information, including their role in the coordination of tasks, in the provision of data and metadata, and in the management, development and hosting of services

As mentioned above there are a number of stakeholders and they have different roles.

The users have no direct role, but they can send feedback and have an effect on the whole infrastructure since it is crucial to serve their needs.

The data producers and service providers are all somehow connected to the coordinating body which is the NESICC. The main co-ordination tasks regarding INSPIRE implementation are made by the National Contact Point. In the decision making and implementation process the National Environmental Spatial Information Coordination Committee is giving help to the CP. According to the act on the General Rules of Environmental Protection (1995), it is the Ministers in charge and in control of spatial data providers are responsible for the development and maintenance of the infrastructure for spatial information.

Because currently there is no common SDI in Hungary, below there is a summary of the most important stakeholders (who are responsible for the data in Annex I. and II. of the INSPIRE directive) and their roles.

The Ministry of Environment and Water

Ministry of Environment and Water, MoEW (*Környezetvédelmi és Vízügyi Minisztérium, KvVM*), the central governing body for environment and nature protection and water affairs in Hungary is the successor of the Ministry of Environment and Water Management (*Környezetvédelmi és Vízgazdálkodási Minisztérium, KVM*) founded by the Parliament in December 1987. The Ministry carries out the special fields' sectorial, expert management and regulatory tasks in the areas of environment and nature protection, water management and meteorology. The Ministry's responsibilities include policy development, tasks connected to governmental work and the continuation of the ever far-reaching international collaboration.

The National Inspectorate for Environment, Nature and Water

The National Inspectorate for Environment, Nature and Water (OKTVF) is a ministerial organisation under the supervision of the minister for environment and water, its budget is part of the central administration's budget. Its quarterly publication is called The Green Authority Bulletin.

The *authority work* performed by regional inspectorates is *coordinated and controlled* by the National Inspectorate. its jurisdiction covers the whole area of Hungary and mainly as an authority at second instance. Based on appeals or as a supervisory body, the first instance decisions related to environmental issues are reviewed by the National Inspectorate.

As first instance authority - set by legislation for environment, nature and water - the National Inspectorate issues permits for certain activities, gives expert authority opinions, imposes fines and penalties.

Concerning transboundary environmental issues, it coordinates international co-operations. In the field of authority work, it plays role in the implementation of international co-operation individually, but the ministry may charge other tasks also in this regard.

It takes part in the tasks connected to the EU integration, in EU co-financed projects, may contribute to the formulation of environmental policy and works actively in the IMPEL, the informal network of environmental inspectors of the EU.

The 10 regional inspectorates for environment, nature and water

The 10 regional inspectorates for environment, nature and water and 2 sub-offices are the 'green authorities' at first instance. Besides the regulatory tasks, they carry out expert management tasks, in their jurisdiction they operate the environmental monitoring and statistical systems, they are responsible for monitoring, surveillance, coordination of data supply on state of environment and outlooks, mitigation of environmental effects of damages. They provide publicly available data, they support public initiatives. Moreover, they carry out tasks relevant to

The 10 national park directorates

The range of duties of the 10 national park directorates varies from nature conservation management, maintenance and operation, surveying, analysis and monitoring, rangers' service, involvement in the approval of regional forest plans and regional game management plans to declarations on protection, offences and repurchase and expropriation of protected natural areas.

The Central Directorate for Water and Environment

Central Directorate for Water and Environment is responsible for the managements of the Hungarian Water Information System. The data collection and **data processing is at the regional directorates (12)**

The 12 Directorate for Water and Environment

The main task of the 12 Water and Environment Directorate (WED) is to service and develop all state owned, water related objects (dikes, reservoirs etc.). The WEDs are responsible for watercourse maintenance and water management. Prepares regional waste management plan as environmental body assigned by the state. Besides the above and other tasks, the WEDs gather and provide data on their scope of duties to sectorial IT systems and they co-operate with other monitoring and information systems.

The Meteorology Service

The Meteorology Service is also supervised by MoEW. The Meteorology Service collects and processes surface, atmospheric, and remote sensed data and stores the data in a meteorological database.

The Geological Institute (MÁFI)

Just very recently the Geological Institute (MÁFI) was made subordinate to Moew as well. MÁFI is the oldest still functioning scientific research institute in the country. As a national geological survey, MÁFI is responsible for advancing geoscientific knowledge of Hungary's landmass by systematic acquisition, interpretation, management and dissemination of geoscientific data.

The civil lands and mapping organisation

The tasks have been prescribed in Act No. LXXVI of 1996 on Surveying and Mapping Activities (later on: the Act on Surveying and Mapping).

Act No. LXXVI of 1996 on Surveying and Mapping Activities

In the Act LXXVI of 1996 on Surveying and Mapping Activities, the Hungarian Government defines the tasks and projects related to land surveying and mapping activities as well as provide the conditions to meet the national demands for map supply in a cost-effective way and in accordance with uniform professional standards.

The primary aim of the Act was to regulate

- The basic tasks of the government in respect of land surveying and mapping;
- Mapping of the country's territory based on surveys of uniform principles;
- Establishing and maintaining horizontal and vertical control networks serving as a basis for all land surveying and mapping activities;
- Establishing the map bases for linking land registers and geoinformation systems;
- The system of management, utilisation and supply of the basic state geodata;
- The conditions of performing the land surveying and mapping activities;
- The land surveying and mapping administration;
- The resources of the expenses of basic state land surveying and mapping duties.

According to this Act on Surveying and Mapping, the basic state duties are the following:

- supplying the country with state maps;
- supplying the defence forces with maps;
- handling, storing, maintaining and providing basic state geodata for the basic state land surveying and mapping activities;
- fulfilling the tasks arising from international obligations;
- determining, filing and supplying the geographical names;
- performing the related technical R+D activities.

For proper map supply, the Hungarian State arranges for the basic state surveying and mapping duties as follows:

- creating and continuous updating of state surveying base maps and their index maps;
- creating and continuous updating of state topographic maps;
- creating and maintaining of control point networks;
- surveying of state border;
- determining and filing the geographical names according to special laws and in co-operation with the Hungarian Committee on Geographical Names.

According to *Joint decree No. 21/1997 (12 March) of the ministers of MoARD and MoD* on implementation of the Act on Surveying and Mapping, the task of supplying the country with state and defence maps, map supply has been allocated to:

- the Land Offices,
- the Institute of Geodesy, Cartography and Remote Sensing,
- the Geoinformation Service of the Hungarian Defence Forces,
- the Ministry of Defence Mapping Company.

The way and scheduling of producing state topographic maps, the establishment of the geodetic frameworks of the country, as well as the standardisation and regulation are specified in a joint directive of the two responsible ministers.

The way of handling and supplying the surveying and mapping state data, as well as the fees of data supply are regulated in the *Joint decree No. 63/1999 (21 July) of the ministers of Ministry of Agriculture and Rural Development, Ministry of Defence and Ministry of Finance*.

The management of Lands Affair

Within the meaning of the Act on Surveying and Mapping Activities the civil lands and mapping organisation is responsible for establishing, maintaining and supplying of the geodetic control networks, the large scale base maps including the cadastral ones, the land registry, land protection, utilization and valuation, the topographic maps of selected scales and the remote sensing.

As mentioned before the civil lands and mapping organisation belongs to the Ministry of Agriculture and Rural Development. The supervisory body for the civil national mapping is the Department of Land Administration and Geoinformation (DLAG of MoARD). The tasks of the civil organisation are carried out by the following institutional network

- Institute of Geodesy, Cartography and Remote Sensing (FÖMI) as governmental organisation with nation-wide competence,
- 19 County Land Offices (CLO) and the Budapest Land Office as governmental organisations with territorial competence,
- 119 District Land Offices (DLO) and 3 Capital Districts Land Offices as governmental organisations with territorial competence,
- Office for National Cadastral Programme as a non-profit organisation.

Department of Land Administration and Geoinformation

The Department of Land Administration and Geoinformation is responsible for the general and specific supervision, regulation, monitoring and completing of governmental duties concerning land registration, land surveying, mapping, remote sensing, land tenure policy (land use, land consolidation) and supervising of the implementation. DLAG is divided into three divisions with the following main responsibilities:

- Division of Surveying, Mapping and Geoinformation: tasks relating to control point networks, national cadastral and topographic maps as well as regulations and rules on national mapping, surveying and geoinformation. Technical upgrade of the land offices IT development, control of Land Parcel Identification System for IACS, support of the planning and implementation of various international co-operations, remote sensing applications and developments on spatial data infrastructure (SDI) through nationwide networking.
- Division of Land Registration: land and property registration, land area data supply, legal measures pertaining to DLAG that revises the appeals against land office decisions.

- Division of Land Protection and Land Use: tasks relating to licensing of non-agricultural use of croplands, supervision of land use registration and land classification, control of utilisation obligation of croplands, support of land restoration and land use as well as judgement of applications on subsidized land consolidation.

Institute of Geodesy, Cartography and Remote Sensing (FÖMI)

Main activities of FÖMI are as follows:

- Development and maintenance of control point networks,
- Co-ordination, managing and budgeting of national mapping,
- Quality control and acceptance,
- Archiving and supply of lands and mapping data and aerial photographs,
- Quality management of lands and mapping section,
- Supporting the system of Land offices,
- Training management and documentation for lands and mapping,
- R+D for geodesy, mapping, land registry, GIS and LIS as well as for remote sensing,
- National boundary survey,
- Remote sensing for agriculture and environment,
- Distribution and archiving of remote sensing data including aerial photographs,
- Recording and supply of geographical names,
- Deriving and supplying value added data,
- Representing Hungary and taking part in common activities of the surveying and mapping agencies and bodies of all over the world.

County Land Offices (CLOs) and Budapest Land Office

The 19 County Land Offices and the Budapest Land Office are responsible for the budgeting, administration, quality control, and the hearing of appeals against District Land Office decisions. Their main tasks are as follows:

- Managing and supervising of District Land Offices,
- Acceptance and quality check of cadastral data,
- Cadastral, land and survey data supply,
- Value added data supply.

District Land Offices (DLOs)

Main tasks of the 119 District Land Offices and the 3 Capital Districts Land Offices are as follows:

- Land and real property registration activity,
- Surveying and mapping maintenance,
- Tasks concerning land classification and protection,

Public data supply.

The Ministry for National Development and Economy

The role of the Territorial Information System in the SDI is currently undetermined, but its significance is obvious. Although there are reference spatial data sets only from two spatial data themes of the INSPIRE Directive, it should be considered that TeIR receives a huge number of data collected by other public authorities, and compose those data into adequate groups, transforms them by making maps, makes metadata related those data and makes those data published on the web, therefore the spatial data services, network services and data-sharing can be ensured through one information system.

5.4 Measures taken to facilitate sharing

Art. 13 (c) a general description of the main measures taken to facilitate the sharing of spatial data sets and services between public authorities and a description of how sharing has improved as a result

As we are at an early stage of INSPIRE implementation there has not been new measures taken yet regarding data sharing. Currently there exist two types of data policy in Hungary. One is the free exchange of data, in which case the government has to bear all costs of data collection, process and dissemination and the other is a shared cost system where part of the costs are paid by the users.

The data policy of the MoEW is based on that all environment related data should be freely available to everyone. In this case it is the government that is paying for the collection, process and dissemination of the data but there is no charge at all which may affect the data access.

The data policy of the mapping agency states that as the production of geographic information requires considerable investments and other expenses, the Act on Surveying and Mapping stipulates that the organisations managing the national surveying and mapping base data shall provide the requested information for a fee specified in a separate legal regulation (Joint Decree No 63/1999. [VII. 21.] of the ministers of MoARD, MoD and MoF on the management, supply of and fees to be paid for national basic geodata). It also states that the data supply fee shall cover a one-time use of the data within a single procedure. The use of national base maps for the purposes of spatial information systems shall be made on the basis of an agreement between the user and the supplier, and for the service an extra fee shall be paid. The right to use the versions of the national base geodata made for military purposes may be restricted by law to the Hungarian Army. All the revenues coming from the fees of the supply of national base geodata shall be used for performing the fundamental tasks and projects of the government.

The national SDI has to state how spatial data sets and services will be shared between public authorities, thus the creation of the National SDI is inevitable. Currently there are separate agreements between public authorities which enable the data sharing. It will be the task of the NESICC to create a proposal for the government regarding the sharing of spatial data.

5.5 Stakeholder cooperation

Art.13 (d) a description of how stakeholders cooperate

This could for example include the description of:

- Written framework for cooperation
- Working groups (list of active working groups)
- News letters, other publications (references)
- Description of the National geoportal (including URL), and where relevant regional or thematic portals

There are separate co-operation agreements between various spatial data providers and users. Examples of these are the agreement between the MoEW and the Statistical Office, MoEW and Geoinformation Service of the Hungarian Defence Forces (GEOS HDF); FÖMI and Geoinformation Service of the Hungarian Defence Forces (GEOS HDF); FÖMI and the State Forestry Administration; FÖMI and GEOX Ltd.

A Geoportal for the Hungarian Land Affair Data (until now for one region only) is being developed. The deadline of the Geoportal is end of August 2010.

The Statistical Office and the FÖMI co-operates in the Vineyard and Orchard Census of 2001 and the Farm Structure Survey of 2010. According to this co-operation agreement the FÖMI ensures quality control as well as the geo codes in order to identify the geographical position of orchards and farms in the survey.

There is a co-operation between the local governments and VATI. According to this co-operation agreement the local governments have to serve the documents of their spatial plans and local physical plans for the Centre of Documents also operated by VÁTI according to the Government decrees n° 16/2010 and 277/2008. The data of the served documents are prepared by VÁTI to make them suitable for publishing in TeIR.

5.6 Access to services through the INSPIRE Geoportal

Art.13 (e) a description of the access to the services through the Inspire geo-portal, as referred to in Article 15(2) of Directive 2007/2/EC

Currently there is no INSPIRE geo-portal set up in HUNGARY. We plan to create one and to connect to the INSPIRE geo-portal at community level (<http://www.inspire-geoportal.eu/>). The technical details of setting up a network of services will be elaborated this year by the NESICC.

6 Usage of the infrastructure for spatial information (Art.14)

6.1 Use of spatial data services in the SDI

Art.14 (a) the use of the spatial data services of the infrastructure for spatial information, taking into account the general and specific indicators

This could include an explanation of how this information was collected, and how it should be interpreted/understood.

As already mentioned earlier, in Hungary there does not exist a common SDI yet and thus there are no spatial data services running as part of a National infrastructure. With the help of the INSPIRE implementation and the co-ordination procedures, spatial data services will be introduced and then the use of these services can be monitored.

6.2 Use of the spatial datasets

Art.14 (b) the use of spatial data sets corresponding to the themes listed in Annexes I, II and III to Directive 2007/2/EC by public authorities, with particular attention to good examples in the field of environmental policy

The use of spatial data sets plays a great role in fulfilling all sort of tasks such as Water Framework Directive reporting, making reports to the European Commission regarding water utilities, in the work of watershed planning and management, in the execution of projects on flood mapping and risk analysis, in the visualisation of day-to-day and long term data usage and other information, as primary data and part of planning and registry etc.

There is an ad-hoc use of spatial data sets for issues regarding transboundary waters. The correction of connecting points on the maps of transboundary waters in order to fulfil the Water Framework Directive reporting.

The spatial datasets of TeIR are primarily used in the territorial monitoring system promoting territorial and spatial planning activities. The territorial monitoring system is developed, operated and applied by VÁTI Directorate of Territorial Planning and Assessment, governed by the Ministry of National Development and Economy with the participation of Hungarian ministries

The main users of TeIR are local governments, ministries, regional authorities responsible for territorial development, spatial planning and local planning, regional and micro-regional development councils, agencies, higher educational institutes.

The Disaster Management bodies use their spatial data sets internally for the following purposes:

- for planning the allocation of disaster control forces
- the classification of areas from the point of view of disaster management
- for deployment management

There is cross border data supply to the RODOS, Real time Online Decision Support System for nuclear emergency management which uses standardised methods internationally and to the SPIRS (Seveso Plants Information Retrieval System) which falls under SEVESO II directive.

6.3 Use of the SDI by the general public

Art.14 (c) if available, evidence showing the use of the infrastructure for spatial information by the general public

6.4 Cross-border usage

Art.14 (d) examples of cross-border use and efforts made to improve cross-border consistency of spatial data sets corresponding to the themes listed in Annexes I, II and III to Directive 2007/2/EC

In cases of cross-border spatial planning TeIR is accessible for the states involved in the planning process.

Until now there is has been no request for cross-border data usage from the customers of the Central Data and Maps Archives of FÖMI.

The FÖMI Satellite Geodetic Observatory has maintained the HUPOS (GNSS) service – transmitting RTK and RTCM corrections – which is part of the EUPOS service of EUROPA.

The cross-border data harmonisation is managed by Eurogeographics – using the FÖMI data - when the European-wide reference products and services are prepared and developed ie.: EuroDEM, EuroBoundaryMap, EuroGlobalMap, EuroRegionalMap, EuroGeoNames

6.5 Use of transformation services

Art.14 (e) how transformation services are used to achieve data interoperability

On the homepage of FÖMI there is an on-line transformation service is available which performs transformations between EOVS and WGS-84 projection systems.

Other transformation services for data interoperability will be developed on the geoportal.

7 Data sharing arrangements (Art.15)

7.1 Data sharing arrangements between public authorities

Art.15 (a) an overview of data sharing arrangements that have been, or are being, created between public authorities

Data sharing arrangements are not too common. Most of the time data is exchanged on an ad-hoc basis with new agreements for each data exchange.

The Disaster Management bodies have data sharing arrangement only with the Hungarian Cultural Heritage Office.

Regarding the National Development and Economic affairs, the Government decree n^o 31/2007 states that public authorities are required to serve their reference data to the National Territorial Information System. These reference data are processed in respect of the aims of the system and via the network services of TelR web surface data-sharing is feasible. The TelR web surface is available free for public authorities of Hungary through the Electronic Governmental Spinal Network.

According to the Joint Decree No 63/1999. [VII. 21.] there are the following Data Usage Contracts at the FÖMI:

- FÖMI and the Ministry of Environment and Water for topographical maps at scale 1:10.000 and ortophoto, full coverage of the country
- FÖMI and the PannonGSM Co. for topographical maps at scale 1:10.000, full coverage of the country

7.2 Data sharing arrangements between public authorities and Community institutions and bodies

Art.15 (b) an overview of data sharing arrangements that have been, or are being, created between public authorities and Community institutions and bodies, including examples of data sharing arrangements for a particular spatial data set

Just like at the previous point it can be stated that data sharing arrangements are not too common.

In 2005 and 2006 data sharing arrangement was prepared between FÖMI and EUROSTAT for the LUCAS activities.

The EUROSTAT has licensed 15139 pcs color imagerettes (year 2005, pixel size 0.5 m) with the topographical maps at scale 1:10000.

7.3 Barriers to the sharing and the actions taken to overcome them

Art.15 (c) a list of barriers to the sharing of spatial data sets and services between public authorities and between public authorities and the Community institutions and bodies, as well as a description of the actions which are taken to overcome those barriers

The main barriers to the sharing of spatial data, is the cost of the data. The public authorities do not share their data amongst each other free of charge even in those cases where they would have to work in close co-operation to match an EU obligation.

Most of the time there is a willingness to share at the personal level, but the financing method of the public authorities makes the free flow of data impossible even between public authorities.

A clear example of the main barriers of easy data sharing is the situation at the field of Land Affairs: According to the Act LXXVI of 1996 on Surveying and Mapping Activities and the Joint Decree No 63/1999. [VII. 21.] of the ministers of MoARD, MoD and MoF on the management, supply of fees to be paid for national basic geodata, the usage of spatial data sets are charged apart from a few occasions

i.e.: limited sample data for scientific research or for higher education. Moreover the Hungarian Land Affairs are not financed by the state budget since 31st December 2006, therefore revenue for data and services are essential for maintaining the Land Affairs as well as for updating the data and developing the services. A possible solution to this special case would be to get financial support from the central state budget since it is stated in the act LXXVI of 1996 on Surveying and Mapping Activities that the national basic mapping activities have to be planned in the state budget.

To overcome this barrier the government has to recognise this problem. There is a need for change in regulation with which the available spatial data could be organised centrally and given access (with strict access rights) to all public authorities. To reach this goal the CP together with the NESICC will provide the government the necessary documents.

8 Cost / Benefit aspects (Art.16)

8.1 Costs resulting from implementing INSPIRE Directive

Art.16 (a) an estimate of the costs resulting from the implementation of Directive 2007/2/EC

These costs could be subdivided as follows:

- *metadata*
- *data harmonisation*
- *network services*
- *monitoring and reporting*
- *coordination and horizontal measures*

Since the implementation of the INSPIRE directive has just been started, currently we cannot give exact costs resulting from the implementation. There has been a thorough cost-benefit analysis made in 2009 which of course had a lot of uncertainties. Below is the table summarising the result of the cost analysis in HUF:

Megnevezés	Jelenérték	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
(a) Yearly costs regarding Annex I.	604 867	–	78 333	78 333	78 333	78 333	78 333	78 333	78 333	78 333	78 333	78 333
(b) Yearly costs regarding Annex II.	634 311	–	82 146	82 146	82 146	82 146	82 146	82 146	82 146	82 146	82 146	82 146
(c) Yearly costs regarding Annex III.	916 334	–	118 669	118 669	118 669	118 669	118 669	118 669	118 669	118 669	118 669	118 669
(d) Total yearly costs referring to GIS tasks d= a+b+c.	2 052 868	–	279 149	279 149	279 149	279 149	279 149	279 149	279 149	279 149	279 149	279 149
(e) One-off costs regarding the metadata of Annex I.	1 114 803	599 547	599 547	–	–	–	–	–	–	–	–	–
(f) One-off costs regarding the metadata of Annex II.	979 408	526 730	526 730	–	–	–	–	–	–	–	–	–
(g) One-off costs regarding the metadata of Annex III.	986 820	–	278 295	278 295	278 295	278 295	–	–	–	–	–	–
(h) One-off costs regarding the spatial data services of Annex I.	132 421	48 626	48 626	48 626	–	–	–	–	–	–	–	–
(i) One-off costs regarding the spatial data services of Annex II.	130 253	–	30 085	30 085	30 085	30 085	30 085	–	–	–	–	–
(j) One-off costs regarding the spatial data services of Annex III.	151 376	–	34 964	34 964	34 964	34 964	34 964	–	–	–	–	–
(k) Total one-off costs k=e+f+g+h+i+j	3 434 679	1 174 903	1 518 247	391 970	343 344	343 344	65 049	–	–	–	–	–
(l) The costs regarding the tasks of the Contact Point	3 309 315	–	450 000	450 000	450 000	450 000	450 000	450 000	450 000	450 000	450 000	450 000
(m) Costs that can not be directly connected to spatial data sets (k*10%)	343 468	117 490	151 825	39 197	34 334	34 334	6 505	–	–	–	–	–
(n) Total costs n=d+k+l+m	9 140 329	1 292 393	2 399 220	1 160 316	1 106 827	1 106 827	800 703	729 149	729 149	729 149	729 149	729 149

8.2 Benefits observed

Art.16 (b) examples of the benefits observed, including examples of the positive effects on policy preparation, implementation, evaluation, examples of improved services to the citizen as well as examples of cross-border cooperation.

Since the INSPIRE implementation has just started, there are not many benefits to be observed yet. One positive effect though is that the spatial data providers are brought together and the available datasets are recognised. Also there is a driving force to produce a National SDI and to co-operate.

There are great expectations about INSPIRE implementation regarding the wide usage of available spatial data as well as regarding the streamlining of data handling by putting an end to overlapping datasets.

In the field of Land Affairs the main benefits are expected when the Hungarian Land Affair Geoportal will be operational and an efficient and fast data services will serve the citizens and the private and public institutes as well.

Conclusions

The implementation of the INSPIRE directive has just been started, so there are a lot of gaps and missing themes. There are great expectations about INSPIRE and the need for a national SDI is recognised. The spatial data providers are brought together and an overview of the existing datasets and services is being made which provides a good basis for the implementation process. Up till now Hungary could keep all the deadlines set out in the directive and hopefully with good co-operation and co-ordination it will be possible to fulfil all the requirements on time in the future as well.

9 Annexes

9.1 List of organisations – names and contact details

Hungarian Central Statistical Office

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Ministry of Agriculture and Rural Development

- Péter Halász (agriculture); peter.halasz@fvm.gov.hu; (36) 1 301-44-14
- Károly Szalai (forestry); karoly.szalai@fvm.gov.hu; (36) 1 301-35-36
- Sándor Tóth (Land affairs); sandor.toth@fvm.gov.hu; (36) 1 301-46-88
- Dr. Szabolcs Mihály; foigazgato@fomi.hu; (36) 1 460-40-01

Ministry of Transport Telecommunication and Energy

- Antal Szvetnik (mining); szvetnik.antal@khem.gov.hu; (36) 1 471-82-67
- László Rózsa (energy politics); rozsa.laszlo@khem.gov.hu; (36) 1 795 1700
- Miklós Mihályi (transport); mihalyi.miklos@khem.gov.hu; (36) 1 795 1700

Ministry of Health

- László Bizzer ; laszlo.bizzer@eum.gov.hu; (36) 1 795-10-37

Ministry of Social Affairs and Labour

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- Lajos Vermes (vocational training); vermes.lajos@szmm.gov.hu; (36) 1 472-80-65

Ministry of Defence

- Gábor Csák; hmikh@hm.gov.hu; (36) 1 358-61-20

Ministry for National Development and Economy

- Gáborné Sándor (industry); gaborne.sador@nfgm.gov.hu; (36) 1 475-34-17
- Friderika Babus (spatial development and spatial planning); friderika.babus@nfgm.gov.hu; (36) 1 441-77-39

Ministry of Education and Culture

- Gábor Veres (culture); gabor.veres@okm.gov.hu; (36) 1 795-4357
- Henrietta Simon (education); simon.henrietta@okm.gov.hu; (36) 1 795-4003

Ministry of Local Government

- József Máté (Disaster control); jozsef.mate@katved.hu; (36) 1 469-41-46

Prime Minister's Office

- László Kóta (Public sector IT); laszlo.kota@ekk.gov.hu; (36) 1 441-25-95

Ministry of Environment and Water

- Ida Nagyné Sós (water); nagyneso@kvvm.gov.hu; (36) 1 457-33-00
- Dr. András Attila Takács (nature conservation); takacs@kvvm.gov.hu; (36) 1 457-33-00
- Dezső Mikus (environment / INSPIRE Contact Point); mikus@kvvm.gov.hu; (36) 1 487-85-85

9.2 List of references for the compilation of the report