



# Spatial Data Infrastructures in Czech Republic: State of play 2010



SPATIAL APPLICATIONS DIVISION  
K.U.LEUVEN RESEARCH & DEVELOPMENT

Celestijnenlaan 200 E, B-3001 LEUVEN  
TEL.: 32 16 32 97 32 FAX: 32 16 32 97 60  
URL: <http://www.sadl.kuleuven.ac.be>



## Report meta-information

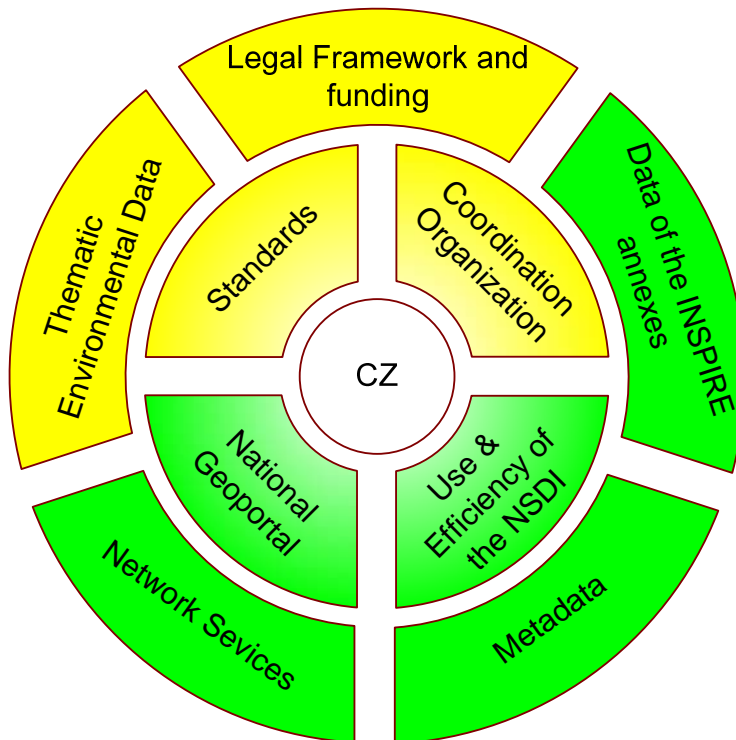
<b>Title</b>	Spatial Data Infrastructures in the Czech Republic: State of Play 2010
<b>Creator</b>	Danny Vandembroucke & Dimitrios Biliouris(SADL)
<b>Date Issued</b>	2010-09-01
<b>Subject</b>	INSPIRE State of Play – Activities 1, 3 & 4
<b>Publisher</b>	K.U.Leuven (SADL + ICRI)
<b>Description</b>	This report is summarizing the review of SDI in the Czech Republic
<b>Contributor</b>	Danny Vandembroucke & Dimitrios Biliouris (SADL), Katleen Janssen (ICRI), Joep Crompvoets (OE)
<b>Previous Contributor</b>	Jos Van Orshoven (SADL), Danny Vandembroucke (SADL), Katleen Janssen (ICRI),
<b>Format</b>	MS Word 97/2000
<b>Audience</b>	
<b>Identifier</b>	rcr09CZv101.doc
<b>Language</b>	EN
<b>Coverage</b>	Autumn 2009 – Spring 2010

Version number	Date	Modified by	Comments
1.0	2002-11-05	Thérèse Steenberghen (SADL) & Peter Beusen (ICRI)	First version
2.0	2002-12-05	Thérèse Steenberghen (SADL)	Reorganisation according to standardized template
3.0	2002-12-20	Jos Van Orshoven (SADL)	Completion & harmonization with 31 other country reports
4.0	2003-08-08	Jos Van Orshoven (SADL)	Integration of information provided by Mr. Josef Hojdar (extract from the updated GINIE-report); Addition of executive summary, abbreviations and acronyms; Harmonisation with the 31 other country reports
5.0	2004-06-16	Katleen Janssen (ICRI)	General review, correction and update of legal framework
6.0	2004-07-05	Jos Van Orshoven (SADL)	Integration of comments from Mr. Josef Hojdar, Czech

			representative for INSPIRE and of results of a limited review of web sites General review, correction and update Addition of table pointing to changes with regard to Version 4
7.0	2005-05-31	Jiří Hradec (CENIA) and Milan Konečný (MUNI)	First revision of the Status of 2005
7.1	2005-06-15	Jiří Hradec (CENIA)	Data sources updated reflecting drafting process
7.2	2005-08-03	Danny Vandembroucke	Review of the report
7.3	2005-08-04	Katleen Janssen (ICRI)	General review, corrections and update of legal framework
7.4	2005-09-23	Danny Vandembroucke	Final report based on minor comments from Commission
8.0	2006-12-22	Katleen Janssen (ICRI)	General review, corrections and update of legal framework
8.1	2006-12-28	Danny Vandembroucke	Adding new information from visit and consolidation
9.0	2008-03-26	Katleen Janssen (ICRI)	Correction and update legal and organizational framework
9.1	2008-04-15	Danny Vandembroucke, Ludo Engelen (SADL)	Integration results survey
9.2	2008-07-23	Danny Vandembroucke (SADL)	Metadata and final changes
10.0	2010-06-11	Dimitrios Biliouris (SADL)	Review of the 2009 update
10.1	2010-06-17	Katleen Janssen (ICRI)	Review of the legal framework

## Change matrix 2010 versus 2007

A concise graph is added to indicate changes of the various paragraphs compared to the previous report. Two colours are used: Green and Yellow indicating major and minimum changes respectively compared with the 2007 State of Play. This graph does not reflect the country situation. Merely it represents our findings/changes per section on our preparation of the desktop analysis.



## Executive summary

Nemoforum, a cadastral and GIS user forum, started in 1999 the project National Geo-Information Infrastructure (NGII, further termed NSDI) that covers many important information sources at national level and was adopted in 2001 by the most important state administrative bodies and private sector actors. The NGII Project has ten priority areas including aiming at formalizing the NGII-initiative, giving it a legal foundation and making it evolve with respect to data content and technical performance. All five theoretic SDI-components are addressed (legal issues, reference and core thematic data, metadata, access services, standards). Standardisation is based on Czech and CEN-standards but has moved towards ISO.

The Czech Environmental Information Agency, CENIA, has been created in April 2005 to perform synthetic research in ecology and environmental protection and provide professional support to public administrations in the area of integrated prevention. Since beginning of 2006, CENIA is responsible for the implementation of the INSPIRE Directive. The Ministry of Environment (MoE) and Ministry of Informatics (MoI) prepared the transposition of INSPIRE into national law. The final text has been published and came into force in November 2009. These ministries now play a major role in communicating both on EU and national level on the INSPIRE status, needs and obstacles. Special attention will be paid to balancing the financial issues such as return of investment compared to benefits of public access to data aiming a win-win situation.

Although there is not yet a national geoportal the CENIA geoportal acts as one since it includes datasets from the Ministry of Environment, Transport, Health, Research Institute of Soil, etc.

The most visible outcome so far is the creation of the various geoportals and the meta-information systems of the ministry of Environment as well as MIDAS. Furthermore, a dedicated webpage to INSPIRE for Czech Republic has been established providing update information about the transposition as well as links concerning the NSDI.

## Table of Contents

<b>CHANGE MATRIX 2010 VERSUS 2007 .....</b>	<b>4</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>5</b>
<b>TABLE OF CONTENTS .....</b>	<b>6</b>
<b>ABBREVIATIONS AND ACRONYMS.....</b>	<b>7</b>
<b>1            GENERAL INFORMATION .....</b>	<b>9</b>
1.1      METHOD.....	9
1.2      THE CZECH SDI-SCENE .....	9
<b>2            DETAILS OF THE NSDI-SITUATION IN THE CZECH REPUBLIC.....</b>	<b>10</b>
2.1      GENERAL INFORMATION .....	10
2.2      COMPONENT 1: COORDINATION AND ORGANIZATIONAL ISSUES .....	14
2.3      COMPONENT 2: LEGAL FRAMEWORK AND FUNDING.....	15
2.4      COMPONENT 3: DATA FOR THEMES OF THE INSPIRE ANNEXES.....	19
2.5      COMPONENT 4: METADATA .....	24
2.6      COMPONENT 5: NETWORK SERVICES .....	25
2.7      COMPONENT 6: THEMATIC ENVIRONMENTAL DATA .....	31
2.8      STANDARDSI .....	35
2.9      USE AND EFFICIENCY OF SDI .....	37
<b>3            ANNEXES .....</b>	<b>39</b>
3.1      SDI ADDRESSES & CONTACTS FOR THE CZECH REPUBLIC.....	39
3.2      LIST OF REFERENCES FOR THE CZECH REPUBLIC.....	41

## Abbreviations and acronyms

ATI	Army Topography Institute
CAGI	Czech Association for Geoinformation
CCSS	Czech Centre for Science and Society
CCO	Czech Coordination Office
CENIA	Czech Environmental Information Agency
CGS	Czech Geological Survey
CHMI	Czech Hydrometeorological Institute
CLF	Czech Land Fund
COSMC	Czech Office for Surveying, Mapping and Cadastre (CUZK)
CZSO	Czech Statistical Office (CSO)
DMU	DMU
EEA	European Environmental Agency
EIA	Energy Information Administration
EU	European Union
EULIS	European Land Information Service
FIR	Further Investigation Required
GEMET	General Multilingual Environmental Thesaurus
GI	Geographical Information
GINIE	Geographic Information Network in Europe
GIS	Geographical Information System
GMES	Global Monitoring for Environment and Security
IACS	Integrated Agricultural Control System
ISS	Information Society Services
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
MICKA	Czech Metadata System
MIDAS	Main on-line metadata service for GI
MIS	Metainformation system
MIT	Ministry of Industry and Trade
MoA	Ministry of Agriculture
MoE	Ministry of the Environment
MoH	Ministry of Health
MoI	Ministry of Informatics
MRD	Ministry for Regional Development
MS-NPSA	Map Service of NPSA
MUNI	Masaryk University in Brno
NIA	No Information Available

---

NGII	National Geo-Information Infrastructure
NGO	Non Governmental Organisation
NLCA	Nature and Landscape Conservation Agency
NPSA	National Portal of State Administration
NSDI	National Spatial Data Infrastructures
OGC	Open Geospatial Consortium
OSS	Open Source Software
PPP	Public-private partnerships
PSI	Policy and legislation on access to public sector information
RBA	River Basin Administrations
RA	Regional Administrations
SDI	Spatial Data Infrastructures
SEIS	Shared Environmental Information System
SME	Small and Medium Enterprise
TRC	Transport Research Centre
UNGIWG	United Nations Geographic Working Group
UNSDI	United Nations Spatial Data Infrastructure
URL	Universal Resource Locator
WFS	Web Feature Service
WMS	Web Mapping Service
WRI	Water Research Institute
ZABAGED	Czech Office for Surveying, Mapping and Cadastre (COSMC)



# 1 GENERAL INFORMATION

## 1.1 Method

This report is summarizing the review of SDI in the Czech Republic, and aims at reflecting the degree to which the SDI situation in the Czech Republic is similar to the ideas set out in the INSPIRE position papers<sup>1</sup> and the more recent INSPIRE scoping documents.

The 2002 report was based on the analysis of various documents, project references and web sites readily accessible. An important part of the information presented in the 2003 version was found in the GINIE-report and its update for Czech Republic as compiled by representatives of the Czech Association for Geoinformation. The 2004 update was based on new information compiled by the Czech Ministry of Environment and by the Czech Association for Geoinformation. Also the presentation made by Hojdar, Hradec and Konecny at the INSPIRE for enlargement workshop in Ispra, Italy on 13-14 May 2004 was considered.

The 2005 report updated the previous document with the latest developments. The significance of the INSPIRE proposal for a Directive has been reflected in workshops and seminars organized by CAGI, Nemoforum and JRC. The INSPIRE negotiators discoursed role, impacts and benefits of INSPIRE addressing relevant data creators and users alike.

The update for 2006 was reviewed after the 2-day visit to Prague beginning of December 2006. For the update of 2007, input was received from the CZ authorities: both data sets and service templates were completed; information on the use of the infrastructure was provided; the questions regarding data sharing were answered.

For the 2009 report a number of presentations in various GI conferences/workshops were used as well as information retrieved from the Internet and the survey questionnaire. In this version obsolete information was removed, while a conclusion paragraph regarding the status of each indicator was added for each component.

## 1.2 The Czech SDI-scene

The Czech republic has not only developed a clear framework for NSDI as part of a broader national information infrastructure, but has also gone quite far in implementing its key components which include coordination, core data and metadata. Since a few years, portals and network services have been developed as well. Efforts have been devoted in particular to the national meta-information system MIDAS, the environmental meta-information system and web mapping services.

Benefits from INSPIRE proposal differentiated approaches of data providers but still due to the cooperation efforts between different SDI-players, the situation in the Czech Republic can be considered as a single SDI, covering the entire country. Description is available from the following major players involved in the coordination effort:

- The Ministry of Environment ([www.env.cz](http://www.env.cz)) and CENIA, the Czech Environmental Agency;
- The Ministry of Informatics (<http://www.mvcr.cz>);
- The Czech Office for Surveying, Mapping and Cadastre (<http://www.cuzk.cz>);
- The Czech Association for Geoinformation (CAGI) (<http://www.cagi.cz>) and
- The platform for co-operation of the state administrative bodies, regional and local authorities, different professional unions and associations, representing users in the commercial sector, universities: Nemoforum (<http://www.cuzk.cz/Dokument.aspx?AKCE=GEN:UVOD&PRARESKOD=99>).

## 2 Details of the NSDI-situation in the Czech Republic

### 2.1 General Information

Nemoforum, a cadastral and GIS user forum started in 1999 the project National Geo-Information Infrastructure (NGII, further termed NSDI) that covers many important information sources at national level and was adopted in 2001 by the most important state administrative bodies and private sector actors.

Thus major effort has been spent on publishing of available data sources in accord to INSPIRE principles. Supported by the **Ministry of Environment and the Ministry of Informatics** introduced in 2004 a new Map Service as an integral part of National Portal of State Administration (NPSA). MS-NPSA publishes more and more information sources in accord with INSPIRE Annexes I-III. While environmental data was the first choice, other areas are under negotiations as well such as hybrid cadastral maps. The Activities of Nemoforum are focused on four main topics agreed by the member organisations:

- **National Geoinformation Infrastructure**
- **Spatial Identification in Basic Public Registers**
- **Cadastral of Real Estates**
- **Support of Land Market**

While the current topics are:

- a INSPIRE

- b Basic registers of public administration
- c Financial issues
- d Valuation, standards for price maps
- e Digitizing and use of cadastral maps
- f Digital map of public administration, technical maps
- g Spatial planning, methodology
- h Land consolidation

The **Czech Office for Surveying, Mapping and Cadastre (COSMC)** is an autonomous supreme body of the state administration of surveying, mapping and cadastre in the Czech Republic. The president of COSMC is subordinated only to the prime minister of the Government. COSMC established NGII in order to achieve better communication between data providers and users. The MoE, the MoI in collaboration with the COSMC are the coordinating organisations as well as the responsible organisations for the technical implementation of the INSPIRE directive in Czech Republic. COSMC publishes annual reports providing a detailed overview of its important activities and results.

(<http://www.cuzk.cz/Dokument.aspx?PRARESKOD=998&MENUID=10384&AKCE=DOC:10-ANNUAL>)

**CAGI** is a civil professional association of the individuals and legal persons working in the sphere of geo-information in the Czech Republic. One of the aims of CAGI is to create the conditions for a universal development of geo-information systems and for a wide use of geo-information in all areas. CAGI initiated or participated in a series of projects dealing with geo-information. To accomplish this, expert groups and committees are established with their own budgets and organization structure, whilst controlled by the board of CAGI.

**Nemoforum** members from the Public platform include: Czech Office for Surveying, Mapping and Cadastre, Ministry of Finance, Ministry of Regional Development, Ministry of Interior, Ministry of Agriculture, Union of Towns and Municipalities of the CR, Office for State Information System. Members from the professional platform are: Association of Real Estate Offices of Bohemia, Moravia and Silesia, Czech Association for Geoinformation, Czech Society of Certified Property Valuers, Chamber of Notaries of the CR, Chamber of Surveyors and Cartographers, Masaryk University Brno, Union of Land Owners and Private Farmers in the CR, University of West Bohemia in Pilsen, Utilities East Bohemia, Utilities West Bohemia. Nemoforum has currently (2009) 20 plenum members and 5 board members. Ongoing activities based on the four topics mentioned before include: web portals of technical maps and communication between, SDI in the Czech Republic and INSPIRE and round table discussion on digitisation of cadastral maps. Nemoforum is participating in other activities as well such as conferences and professional studies. The costs of the Nemoforum secretariat are covered by COSMC. Nemoforum has also financial support from the Dutch Cadastre.

The “programme of further development of the National Geo-Information Infrastructure (NGII, further termed NSDI) for 2001-2005” has been set in place in 1999. In 2001 all members of the Association Nemoforum adopted the NGII program as well as the private sector. COSMC has the intention to review the NGII program and this will be addressed in 2010.

The starting point of the programme was the assessment that a lot of NSDI elements already existed, but that there was a clear lack of coordination and cooperation, and a lack of a strategic plan for further development. The objective of the programme is:

- The creation of legal standardised, organisational and technological prerequisites for co-ordinated acquisition, processing and provision of GI from the entire country, both to the public administration and the private sector;
- The further development of the national meta-information system of geodatasets MIDAS into an advanced web-based service;
- The improvement of the knowledgebase, both of the professionals and the end-users.

Particular attention is being given to the development of the policy framework including conditions for access to PSI, with specific conditions for public administration and education establishments, and the update of the copyright framework. A number of priority projects have been identified, every one having a lead player who is responsible for coordination and linkage with related developments either at national or EU level.

The Czech NSDI can be described as a system of interconnected conditions that in the Czech environment enables to ensure access for a maximum number of uses to a wide range of geo-information in a user-friendly way with the full use of the modern geo-information and communication technology potential.

With a clear focus on the implementation of the INSPIRE Directive, CENIA brings together all the SDI stakeholders involved: the relevant Ministries, Agencies dealing with spatial data, the regions, universities and private companies.

An example of the involvement of research and private sector is the Czech Centre for Science and Society (CCSS). It is an association of SMEs, the public administration and research organisations; an independent, non-profit and non-governmental organisation; a virtual centre of excellence with the focus on the implementation of new communication and navigation technologies which have potential for sustainable development. CCSS is looking for:

- Co-operation with a wide range of institutions and individuals, home and foreign ones;
- International activities in the field of international projects;
- Utilisation of modernist technologies;

- Co-operation networks of the small and medium business;
- INSPIRE activities.

CCSS is active in the field of land management, risk management, ecology, municipal and regional management, the development of IS applications and SDI components and training. Members are: UHUL, MJM, Lesprojekt, Lesinfo, Help Forest, MU, Zapadoeska Universita and CrossCzech. More information about projects and activities can be found at: <http://www.ccss.cz/> .

Several projects have been finished or are ongoing in the field of SDI. One of them is NaturNet (<http://www.naturmet.org>). It consists of a metadata system (MICKA), map applications, a web processing server, multimedia and 3D tools, and a mobile and e-learning solution.

Important new project is EULIS+: European Land Information Service; Czech participants in this EU project are Czech Research institute of geodesy, topography and cartography and Czech Office for Surveying, Mapping and Cadastre.

<http://www.issc.cz/archiv/2006/download/prezentace/suchanek.ppt#9>). Currently Czech Republic is still on pending connection status (<http://www.eulis.eu/countries/profile/czech-republic>).

### 2.1.1 Conclusions of Component 1

The Czech Republic's SDI approach is truly national. SDI building blocks have reached a significant level of operationality. CENIA plays a coordinating and stimulating role together with the MoE, the MoI and the two Associations CAGI and Nemoforum, but also takes the lead in development of components of the infrastructure. The CAGI and Nemoforum associations/platforms are helping to bring together all the SDI stakeholders through different initiatives. CAGI is bringing together the users of the regional and local levels, the NGO's, universities and private companies, while Nemoforum includes also authorities.

Based on these conclusions we score the indicators as follows:

- The approach and territorial coverage of the SDI is truly national
- One or more components of the SDI have reached a significant level of operationality (5)
- The officially recognised or de facto coordinating body of the SDI is a NDP, i.e. a NMA or a comparable organisation (No)
- The officially recognised or de facto coordinating body for the SDI is an organisation controlled by data users

- An organisation of the type 'national GI-association' is involved in the coordination of the SDI
- Producers and users of spatial data are participating in the SDI
- Only public sector actors are participating in the SDI (No)

## **2.2 Component 1: Coordination and organizational issues**

The Czech Environmental Information Agency, CENIA, has been created in April 2005 to perform synthetic research in ecology and environmental protection and provide professional support to public administrations in the area of integrated prevention. Since beginning of 2006, CENIA is responsible for the implementation of the INSPIRE Directive. There is a strong cooperation with the EEA. The working model and types of activities are very similar. Major projects that are currently ongoing are the ETC/water of which CENIA is the leader, the set-up of a satellite receiving station, the creation of a register on emission resources, and the creation of an assessment centre. The list of current and completed projects can be found at:

[http://www.cenia.cz/\\_C12572570032F2DB.nsf/\\$pid/MZPMSFX2CDW9](http://www.cenia.cz/_C12572570032F2DB.nsf/$pid/MZPMSFX2CDW9)

CENIA plays a coordinating and stimulating role together with the MoE, the MoI and the two Associations CAGI and Nemoforum, but also takes the lead in development of components of the infrastructure.

The CAGI and Nemoforum associations/platforms are helping to bring together all the SDI stakeholders through different initiatives. CAGI is bringing together the users of the regional and local levels, the NGO's, universities and private companies. Neoforum includes also authorities. CAGI wants to focus on best practices and creation of awareness through the organisation of conferences, info days, etc. It also stresses the need for education and training and organises an award for "Best geo application of the year". Neoforum started more from the idea to develop potential applications in the Real estate Market using cadastral data. Neoforum is focusing also on the organisation of seminars and events which it sometimes organises jointly with CAGI.

CENIA is currently preparing a cost/benefit study for the implementation of the SDI. The study is looking into key benefits at the strategic/general level (transparency, creation of market, possibilities eGovernment, ...), but also to benefits at the macro-economical level for which indicators will be used.

In the Environmental sector of Czech Republic there are currently about 40 different information systems that include a variety of geographical and thematic databases ([http://www.cenia.cz/\\_C12571B20041E945.nsf/\\$pid/CENMSFVGSU09](http://www.cenia.cz/_C12571B20041E945.nsf/$pid/CENMSFVGSU09)).

CENIA has created a central geo-portal and developed several Web Mapping Services with basic administrative, topographic and environmental data. The system is maintained in house by two people. The aim is to provide all the data/information that is required by the authorities for their day-to-day work. The services can be used through the portal but can easily be integrated in existing applications as well (for the time-being through copy/pasting the correct URL). The services are free of charge.

The technical set-up has been done in such a way, that they are always operational. There are always two WMS that are balanced: if one fails, the other can take over.

The portal has been set-up in such a way that it allows interaction with the user. New information can be uploaded (e.g. on the status of the environment) after registration and login to the system. Publishing of the information is only done after quality control.

The services are used by several other departments and institutes (Geological Survey, Statistical Office, regions, ...). Some projects, like the project on geo-hazards from the Geological Survey are setup jointly.

The CENIA services are available at:  
[http://www.cenia.cz/\\_C12572570032F2DB.nsf/\\$pid/MZPMSFWIEE9G](http://www.cenia.cz/_C12572570032F2DB.nsf/$pid/MZPMSFWIEE9G).

Since February 2009, the national INSPIRE sites have been accessible at [inspire.gov.cz](http://inspire.gov.cz). This site was established by the MoI. The main purpose of the website is to inform the public about the news and events held in connection with INSPIRE. Users can also find all the necessary documents for transposing the directive and to the implementation rules and links to Czech and European organisations involved in the INSPIRE transposition. Last but not least, the site provides basic information on the activities connected with INSPIRE (GMES, SEIS).

## **2.3 Component 2: Legal framework and funding**

### **2.3.1 Legal framework**

Next to the strategic documents for the NGII programme, which were adopted by the state administrative bodies, regional and local governments, and professional unions and the private sector, the following legal instruments should be mentioned.

First, Law 183/2006 Sb. on landscape planning and building regulations – in force since 1 January 2007 – imposes the development and updating of “spatial analytical data records”, which have the character of spatial data derived from primary sources and expected (even though it is not explicitly required in the law) to be available in digital form. Next, the amendment of the State Statistical Act (act no. 89/1995 Sb o státní

statistické službě) in 2006 imposed the development of system of statistical registers including a territorial Register of census districts and buildings.

The INSPIRE directive was transposed by an amendment of Act No. 123/1998 Coll. On the Right of Access to Environmental Information (Aarhus Convention) and entered into force in November 2009. The executive regulation is currently in preparation. At the same time the Act on the Right of Access to Environmental Information was amended, Act No. 200/1994 Coll. On surveying was also changed.

### **2.3.2 Public-private partnerships (PPPs)**

There is no tradition of PPP's. Nevertheless their usefulness and necessity are now considered to be obvious.

Good examples can be found in several areas, e.g. in the cooperation and functioning of CAGI and Nemoforum. Concrete examples of broader importance are e.g. the cooperation between public and private institutions and organizations in the production of the information system of the cadastre and real estates or the cooperation between the Czech Ministry of Informatics and the Czech Association for Geoinformation.

### **2.3.3 Policy and legislation on access to and re-use of public sector information (PSI)**

In general terms, access to information is regulated by the law on free access to information on public administration activities and actions (Act no. 106/1999), which entered into force in January 2000. The Act gives citizens the right to ask for any information connected with the functioning and dealing of the state administrative bodies, local self-governing authorities and certain other official institutions. Act 106/1999 is based on the Freedom of Access to Environmental Information Act (123/1998 Sb.). This act regulates the compulsory availability to the public of a range of information and adopts the Aarhus Convention and Directive 2003/4 on access to environmental information. Act 106/1999 also implements the PSI directive, by an amendment of 2006.

The transposition of INSPIRE has amended the Act on Freedom of Access to Environmental Information, ensuring that citizens do not need any specific application to access the free of charge maps, and imposing technical parameters on the spatial data. Searching data on the Geo-Portal is free of charge, while charges are made for download, analysis and specific actions.

(see [http://www.epsiplatform.eu/news/news/czechs\\_to\\_get\\_access\\_to\\_spatial\\_info\\_maps](http://www.epsiplatform.eu/news/news/czechs_to_get_access_to_spatial_info_maps))

### **2.3.4 Legal protection of GI by intellectual property rights**

On 1 December 2000 the Copyright Act (Law no. 121/2000 of 7 April 2000 on Copyright, Rights Related to Copyright and on the Amendment of Certain Laws) came into effect.



Article 3 of the Copyright Act determines that copyright protection does not apply to an official work, such as legal regulations, decisions, public charters, publicly accessible registers and the collection of their records, and also official drafts of an official work and other preparatory official documentation including the official translation of such work, Chamber of Deputies and Senate publications, memorial chronicles of a municipality (municipal chronicle), state symbols and symbols of a regional self-governing unit, and other such works where there is public interest in their exclusion from copyright protection.

On the other hand, the act gives traditionally copyright to cartographic products. A related important copyrighted area is the protection of databases schemas.

The Czech Copyright Act of 2000 was discussed in the Parliament in 2005-2006 in order to complete the implementation of the EU Copyright Directive and the EU Enforcement Directive. The amendments were adopted in summer 2006.

### **2.3.5 Restricted access to GI further to the legal protection of privacy**

The individual's privacy is safeguarded by article 7(1) of the 1993 Charter of Fundamental Rights and Freedoms. Article 10 provides the right to human dignity, protection from unauthorized interference in person and family life, and misuse of his or her personal information. Article 13 prohibits the violation of "letters and other papers and records" held privately or communicated through the mail or other means.

Act no. 101 of 2000 on Personal Data Protection came into force on 1 June 2000. It is based on the EU Data Protection Directive as part of the Czech Republic's efforts towards membership of the EU. The new act creates an Office for Personal Data Protection as an independent supervisory body.

The "Act on Information Society Services" (ISS Bill) implements Article 7 of Directive 2000/31/EC and Article 13 of Directive 2002/58/EC.

### **2.3.6 Licensing framework**

Datasets produced and managed by the public administrations are available under very different conditions depending on the bodies and authorities themselves. No general approach or regulations exist yet.

Besides licensing, general trade agreements and other approaches can be found. In general every transfer is considered as a special trade case and no general and prefabricated licenses are available in advance (exceptions exist).

The geodata portal offers map services for on-line access to data and a business module for direct ordering of digital data files and map services, and printed maps of the Land Survey Office. Orders can be made electronically after registering on the website.

Different license agreements are available for personal use and any other use. The agreements have to be printed, signed and sent between the Land Survey and the customer, and then the data are delivered, either by e-mail, download from the server, personal withdrawal or regular mail.

For the INSPIRE geoportal, one universal licence will be applied that will regulate the use of the data and services.

### **2.3.7 Funding model for SDI and pricing policy**

In addition to the funding of specific projects from the individual organizations involved, a central fund was established for the Action Plan of Implementation of the State Information Policy. The funding policy for the implementation of INSPIRE is not clear yet, but some national funds are in any case available for the new national geoportal and the national INSPIRE committee secretariat.

The Czech Office for Surveying, Mapping and Cadastre has its own account in the State budget of the Czech Republic and is partly financed by a cost recovery policy. This is also the case for other state administrations. Free of charge access was exceptional, but this will be increasingly implemented due to the transposition of the INSPIRE directive.

A number of data sets only require the costs of the medium (CD/DVD), such as hydrography, protected sites, land cover, geology, natural risk zones, atmospheric conditions, mineral resources.

### **2.3.8 Conclusions of Component 2**

The strategic documents for the NGII programme were adopted by the state administrative bodies, regional and local governments, and professional unions and the private sector. The INSPIRE directive was transposed by an amendment of Act No. 123/1998 Coll. on the Right of Access to Environmental Information (Aarhus Convention) and entered into force in November 2009. Concrete examples of broader importance are e.g. the cooperation between public and private institutions and organizations in the production of the information system of the cadastre and real estates. The transposition of INSPIRE has amended the Act on Freedom of Access to Environmental Information, ensuring that citizens do not need any specific application to access the free of charge maps, and imposing technical parameters on the spatial data. Searching data on the Geo-Portal is free of charge, while charges are made for download, analysis and specific actions. For the INSPIRE geoportal, one universal licence will be applied that will regulate the use of the data and services. The funding policy for the implementation of INSPIRE is not clear yet, but some national funds are in any case available for the new national geoportal and the national INSPIRE committee secretariat.

Based on these conclusions we score the indicators as follows:

- There is a legal instrument or framework determining the SDI-strategy or – development
- There are true PPP's or other co-financing mechanisms between public and private sector bodies with respect to the development and operation of the SDI-related projects
- There is a freedom of information (FOI) act which contains specific FOI legislation for the GI-sector (In Preparation)
- GI can specifically be protected by copyright (In Preparation)
- Privacy laws are actively being taken into account by the holders of GI (In Preparation)
- There is a framework or policy for sharing GI between public institutions
- There are simplified and standardised licences for personal use (No)
- The long-term financial security of the SDI-initiative is secured (Partially)
- There is a pricing framework for trading, using and/or commercialising GI (No)

## **2.4 Component 3: Data for themes of the INSPIRE annexes**

### **2.4.1 Scale and resolution: European, National, Regional, Local, Other**

Czech Republic provides maps in different scales and resolution according to its need.. Key providers are MoE, COSMC, CZSO, Geodis Brno a.s. and others.

COSMC provides state map series at:

[State Map 1: 5000](#)

[Raster base map CR 1 10 000](#)

[Raster Base Map CR 1: 25 000](#)

[Raster base map CR 1: 50 000](#)

[Raster base map ČR 1: 200 000](#)

[Raster Map of the Czech Republic 1: 500 000](#)

[Raster Map of the Czech Republic 1: 1 000 000](#)

Moreover Administrative and Cadastral Boundaries are available at 1:10 000 and 1:50 000 scale.

Reference geographic data (ZABAGED) created by COSMC are at an equivalent scale of 1:10.000. Data ZABAGED ® is currently providing the map sheets also as Vector and mdb files (in GML or SHP format).

Data are given in S-JTSK, WGS84/UTM or in S-42/1983 coordinate system and vertical reference system for Balt compensation.

The available map products of COSMC can be found at: [http://www.cuzk.cz/Dokument.aspx?PRARESKOD=10&MENUID=10009&AKCE=DOC:30-ZU\\_GEOPODKLADY](http://www.cuzk.cz/Dokument.aspx?PRARESKOD=10&MENUID=10009&AKCE=DOC:30-ZU_GEOPODKLADY).

In addition, the DMU (Digital Map of the Territory) has been created by the Army Topographic Institute at scale of 1:25.000. This datasets is extensively used in military, environmental and risk management applications. This dataset has been based on WGS84-based S-42 coordinate system allowing continuous work when exceeding Czech borders.

#### 2.4.2 Data by resolution or scale range for the INSPIRE themes

Virtually all data relevant to Annexes I-III are available. Key providers are MoE, COSMC, CZSO, Geodis Brno a.s. and others.

In January 2008, CENIA provided the data sets template completed for the entire country. Although most of the themes of the annexes of INSPIRE are covered, there remain still some gaps for certain themes, mostly because it seems not so clear which data sets could be attributed to themes like ‘utility and governmental services’, ‘agricultural and aqua cultural facilities’, ‘production and industrial facilities’, etc. Metadata are available for most of the themes and most of them can be discovered, viewed and downloaded.

A complete list will be presented in the updated report including the information provided by the country in 2010.

#### 2.4.3 Geodetic reference systems and projections

Spatial referencing is done by coordinates.

Data set	Map projection	Datum	Spheroid
SABE	UTM	WGS-84	Int.
ZABAGED1	National oblique conical conformal	Krovak-CZ	Bessel
3D contours	National oblique conical conformal	Baltic Datum (Kronstadt)	
(digital raster data) RZM	Uniform Trigonometric Cadastral Net	Baltic Datum after Adjustment (Bpv)	

	System		
--	--------	--	--

Transformation from the S-JTSK-system to the ED 87 system is done with 2m accuracy and to ETRF system with 3m accuracy.

The national elevation datum with normal heights is derived from middle sea level at Kronstadt - Baltic Datum after Adjustment – Bpv.

#### **2.4.4 Quality of the data**

No special procedures on data quality assessment have been used till now. INSPIRE Implementation Rules will treat the quality issues and will be applied by the Czech Republic.

In the case of the state map series data and the cadastral map (core data) a set of quantitative measures including the positional accuracy, precision and resolution is published and guaranteed by the publishing COSMC Office.

In the case of thematic or core thematic data the situation is partially similar, partially the quality is not stated explicitly.

The meta-information system MIDAS requires unified quality description of the geodatasets. This requirement certainly has improved the quality assessment.

#### **2.4.5 Interoperability**

Mainly world-wide used GIS-products from companies like ESRI, Intergraph, Smallworld etc. are used. Limited use is made of Czech products.

Some of the transfer formats are standardized (standards officially published) by the producer (case of state maps, cadastral map - COSMC Office). They are mainly based on special text-like formats, newly on database structures.

Some of the transfer formats are standardized as formats of the public information systems by the Ministry of Informatics (prepared by CAGI mainly), e.g. for digital forms of technical maps or urban plans or metadata description of geodatasets and its transfer.

In other cases the data transfer is based on unpublished formats following the GIS product formats or obvious raster formats in case of raster data.

Some data are published (and there is a trend to increase this) in the form of OGC compatible web services (WMS, WFS).

Ministry of Environment developed a system Mapmaker acting as an OGC abstraction layer allowing WMS clients to connect to any commercial or freeware map server. This software has been deployed on 80+ installations in the Czech Republic. See 2.5.4.

Important work is going on to harmonise the geological data as far as possible and make them available to the users (geoXML). CGS is working with test beds to test interoperability. One of the services to be developed will integrate knowledge rules to translate the geological maps of CZ into useable information.

The INSPIRE Directive deals with the specification of metadata in its entire chapter II. Article 20. The Directive stipulates that in the formation of the national infrastructure components – i.e. including also the metadata – „standards adopted by European bodies for standardization in accordance with the practice set under Directive 1998/34/EC, and also international standards will be duly taken into account. Consequently, the international and European standards are implemented in the Czech Standards (see tables in Annex 3.3).

#### **2.4.6 Language and culture**

INSPIRE Implementation rules are expected to treat this issue.

Metadata and similar descriptions are mostly in Czech only. An English version is considered as necessary for the near future.

SDI related documents are partially available and published in English too.

A feature catalogue for the ZABAGED fundamental base of geographic data is available in Czech.

The Czech Office for Surveying, Mapping and Cadastre and the Authority of Geodesy, Cartography and Cadastre of the Slovak Republic have co-edited a specialized dictionary containing 859 fundamental terms that describe geographical phenomena on maps in the extent of lists of conventional signs for maps at scales of 1:10 000 and smaller. The dictionary gives simultaneously term definitions in Czech and Russian languages. It is divided into thematic groups: selected general terms, terrain relief, hydrology, pedology and land coverage, settlements, agriculture, industry, transport.

The Czech Association of Geoinformation and the Ministry of Informatics published a general glossary containing about 100 main terms from the field of geoinformatics and related fields to support the unification of terminology.

Ministry of Environment uses GEMET (General Multilingual Environmental Thesaurus) developed by EEA as a standard keyword vocabulary.

### 2.4.7 Geographical names

Geographical names are managed by the COSMC Office in Czech language. The toponymic guidelines of the Czech Republic (ISBN 80-902321-0-8) publication edited in 1997 represents an atypical handbook dealing with geographical names in English. It is designed in the first row for the foreign specialized public.

### 2.4.8 Character sets

ISO8859P2 is the standard character set. WIN CP 1250 or UTF-8 are sometimes used as well.

### 2.4.9 Conclusions of Component 3

Already from the previous CZ's SoP report Geodatasets existed which provide a basis for contributing to the coverage of pan-Europe for the INSPIRE-selected data themes and components while the geodetic reference system and projection systems are standardised, documented and interconvertible. The INSPIRE 2010 MR confirms the statement. 67 data sets have been reported most of which belong to Annex I and Annex II. No special procedures on data quality assessment have been used till now. Ministry of Environment developed a system Mapmaker acting as an OGC abstraction layer allowing WMS clients to connect to any commercial or freeware map server. Moreover, important work is going on to harmonise the geological data as far as possible and make them available to the users. Metadata and similar descriptions are mostly in Czech only, while SDI related documents are partially available and published in English too.

Based on these conclusions we score the indicators as follows:

- Geodatasets exist which provide a basis for contributing to the coverage of pan-Europe for the INSPIRE-selected data themes and components
- The geodetic reference system and projection systems are standardised, documented and interconvertible
- There is a documented data quality control procedure applied at the level of the SDI (No)
- Concern for interoperability goes beyond conversion between different data formats
- The national language is the operational language of the SDI
- English is used as secondary language (Partially)

## **2.5 Component 4: Metadata**

### **2.5.1 Availability**

Metadata are produced for most of the reference and core thematic data.

### **2.5.2 Metadata catalogues availability + standard**

The MoE Metadata portal enables searching and browsing the metadata of geodata and web map services from resort organizations and other organizations in Czech Republic. It is based on catalogue service defined by [Open Geospatial Consortium](#) and supports ISO 19115, 19119, 19139 standards.

The MIDAS-metadata catalogue is on-line (see 2.61). The catalogue contains metadata of more than 3.000 geodatasets.

Metainformation system MIS (see 2.6.1) covers about 1000 environmental data sources.

### **2.5.3 Dublin core metadata standards for GI-discovery**

The used standard (see above) respects the Dublin core metadata recommendations as well.

### **2.5.4 Metadata implementation**

The Metadata service is implemented and coordinated by the Ministry of Informatics representing the public sector bodies and the Czech Association for Geoinformation representing the users and the private sector. CAGI has developed and is maintaining the MIDAS.

There is implemented simple basic thematic classification as well as GEMET thesaurus in the MIDAS presently. Other thesauri and classifications may be simply added. Both thesaurus and classification is bi-lingual (Czech and English).

There are formalized update procedures, technologically possible both in on-line and in off-line version. The off-line version is supported by a special freely available software product MIDASLite.

Per month some 10.000 to 18.000 accesses to the MIDAS-system are registered. The most frequent visitors are public authorities and commercial firms from the area of geoinformation technologies.

Priority of the CSO will go to the development of WMS and the development of a metadata system (ISO compliant – ISO 19115, ISO 19119, ISO 15836).



**National metadata portal** – The National metadata portal is established by CENIA (MoE) and allows searching (simple and advanced) and browsing of metadata for geodata and web map services from resort organizations and other organizations in Czech Republic. It is based on catalogue service defined by [Open Geospatial Consortium](#) and supports ISO 19115, 19119, 19139 standards. The portal operates also in English and to our knowledge provides 846 metadata sets

## 2.5.5 Conclusions of Component 4

Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes. The 2010 MR reveals that for the reported datasets of INSPIRE (94%, 100% and 80% of the data sets have metadata for annex I, II and III respectively). The MoE Metadata portal enables searching and browsing the metadata of geodata and web map services from resort organizations and other organizations in Czech Republic. The metadata service is implemented and coordinated by the Ministry of Informatics representing the public sector bodies and the Czech Association for Geoinformation representing the users and the private sector.

Based on these conclusions we score the indicators as follows:

- Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes
- One or more standardised metadata catalogues are available covering more than one data producing agency
- There is a coordinating authority for metadata implementation at the level of the SDI

## 2.6 Component 5: Network Services

On the next page an overview of services and their characteristics are given for several stakeholders of the CZ SDI. There are several discovery, viewing and download services. However, often the portal through which services can be reached is given as reference ID.

### 2.6.1 On-line access service for metadata: discovery services

The main geographic information metadata service is MIDAS, developed by CAGI. MIDAS is an on-line (<http://www.cagi.cz/midas>) catalogue of geodata of the public administration. It allows an overview of existing data for the GIS community and is a tool for system analysis (coordinating requirements, removing duplicities, possible data sharing etc.). A pilot version was developed in 1999. MIDAS system was completed in 2009. It is freely accessible and provides complete set of records for download.

Environmental metainformation system MIS (<http://mis.cenia.cz/>) has a well established user base and provides metadata of numerous organisations such as cuzk.. More than that MIS has been linked to MS-NPSA (<http://geoportal.cenia.cz>) and Environmental Portal (<http://portal.env.cz>) allowing portal visitors access to data description of the maps shown.

The websites of COSMC (EN and CZ) and CZSO (EN and CZ) provide descriptions of the available data products of these institutions at [www.cuzk.cz](http://www.cuzk.cz) and [www.czso.cz](http://www.czso.cz) .

The portal of geohazards provides map applications, which allow access to geoscientific data from geodatabases and the Digital Archive of the Czech Geological Society. The CGS Map Sever was started in the 2003 and is based on ESRI technology – ArcIMS map server and ArcSDE spatial database (<http://www.geology.cz/extranet-eng/geodata/mapserver>).

Services					
Service <sup>2</sup>	Organisation responsible	Type of service <sup>3</sup>	Metadata (N/Y/ISO) <sup>4</sup>	Open for Public (Y/N)	
<a href="http://www.cagi.cz/midas">http://www.cagi.cz/midas</a>	CAGI	discover	N	Y	
<a href="http://mis.cenia.cz/">http://mis.cenia.cz/</a>	MoE/CENIA	discover	ISO	Y	
<a href="http://portal.env.cz">http://portal.env.cz</a>	MoE	discover	N	Y	
<a href="http://www.czso.cz">http://www.czso.cz</a>	CZSO	discover	Y	N	
<a href="http://geoportal.cuzk.cz/%28S%28e15cjfy2ho3hmd55gfhd5sy2%29%29/default.aspx?lng=CZ&amp;mode=Mapa&amp;head_tab=sekce-01-gp&amp;menu=11">http://geoportal.cuzk.cz/%28S%28e15cjfy2ho3hmd55gfhd5sy2%29%29/default.aspx?lng=CZ&amp;mode=Mapa&amp;head_tab=sekce-01-gp&amp;menu=11</a>	COSMC	view	ISO	Y	
<a href="http://mapmaker.nature.cz">http://mapmaker.nature.cz</a>	MoE/ ANCLP	view	ISO	Y	
<a href="http://www.geology.cz/extranet/geodata/mapserver">http://www.geology.cz/extranet/geodata/mapserver</a>	MoE/CGS	view	ISO	Y	
<a href="http://mapmaker.geofond.cz">http://mapmaker.geofond.cz</a>	MoE/CGS-Geofond	view	ISO	Y	
<a href="http://voda.gov.cz">http://voda.gov.cz</a>	MoA, MoE	view	ISO	Y	
<a href="http://geoportal.cenia.cz">http://geoportal.cenia.cz</a>	MoE/CENIA	d, v, d, t, i	ISO	Y	
<a href="http://heis.vuv.cz">http://heis.vuv.cz</a>	MoE/WRI	download	Y	Y	
<a href="http://maps.jdvm.cz/mapmakernet/MapWin.aspx?M_Site=cdv">http://maps.jdvm.cz/mapmakernet/MapWin.aspx?M_Site=cdv</a>	TRC	download	Y	Y	
<a href="http://www.uhul.cz/carto">http://www.uhul.cz/carto</a>	MoA	download	ISO	Y	
<a href="http://sez.cenia.cz">http://sez.cenia.cz</a>	MoE/CENIA	download	ISO	Y	

<sup>2</sup> List the names/IDs and where possible the link (URL) of all the discover, view, download, transformation and invoking services that are part of your infrastructure

<sup>3</sup> Indicate the type (discover, view, download, transformation and invoking services)

<sup>4</sup> Indicate whether the service has no metadata (N), or metadata according to ISO 19119 (ISO).

<sup>5</sup> Whether or not the service is free for use.

## 2.6.2 On-line access service for data: download services

Ministry of Informatics publishes authorized geodata on <http://geoportal.cenia.cz> as a national geoportal. Further development towards future Implementation Rules is expected.

CENIA provides several web mapping services with basic administrative, topographic and environmental data. The geoportal enables authorised users to upload new data sets. Discovery and view services are available free of charge in the geoportal while downloading, transformation and invoke services are available according to charging procedures. The geoportal offers an access to 4 terabyte of data through 90 local and 15 remote map services (Horák et al., 2009).

Ministry of Environment commenced extensive data publishing on the Environmental Portal. Map services covering around 100 datasets are now integrated in the CENIA geoportal.

Geocodes and names of administrative and other territorial units, streets and buildings (gazetteers) are available on [www.mpsv.cz](http://www.mpsv.cz) (Ministry of Social Affairs) and/or on [www.mmr.cz](http://www.mmr.cz) (Ministry of Regional Development).

## 2.6.3 Inter-linkages of on-line access services for metadata and data

See 2.6.1.

## 2.6.4 OpenSource software for access services

The news developments have been following the OpenSource ideas and recommendations. The “mapmaker” portal software facilitating access to various map services (OGC, ESRI, Intergraph, ...) has been published under GPL license. It has been deployed on 80+ sites in the Czech Republic saving extensive funds.

Several services have been developed in an OSS environment, including GeoNetwork from FAO.

## 2.6.5 Availability of viewing service(s)

Web-mapping services have been developing in an increasing amount during last two years. The above mentioned access-to-reference-and-core thematic data services (see section 2.5.2) are fully based on them. The list of available WMS servers is available in MIDAS. Both the portals of CENIA and CUZK give access to several services. Data that can be discovered and viewed are topographic base maps, road infrastructure, geology, environment, registers, population data, etc.

The CSO was supposed to focus on the preparation of map services in 2007 but no information regarding this was found for 2009.

Furthermore, Czech Republic participates in the United Nations Spatial Data Infrastructure (UNSDI) with The Czech Coordination Office (CCO) that was established in the United Nations Geographic Working Group (UNGIWG)-UNSDI initiative on the 18th of May 2006. The CCO is supported by the [Czech Centrum for Science and Society](#) and its goal is coordinate Czech activities for the establishment of a UNSDI and coordinate Czech national activities with the UNGIWG Membership. More detailed information about UNGIWG-UNSDI can be found on [www.ungiwg.org](http://www.ungiwg.org).

The portal.UNSDI.cz provides a package of applications that allows users to work with maps in a web environment based on OGC web services. These include a catalogue for metadata searching and a web map client. This client allows viewing maps based on OGC web services and other formats (Google maps, KML, MapServer, GML) (<http://www.unsdi.cz/map/>).

The Basic functions are:

- Viewing web services(OGC WMS, WFS) selected by user from catalogue or directly by address.
- Saving user defined map('project') on local hard drive a rereading of this saved composition (OGC WMC)
- Distance and area measurements.
- Searching in map.
- Inserting user defined objects into map.
- Large format print in PDF.
- Showing legends, metadata and querying in map.

### **2.6.6 Availability of catalogue services to regulate access**

FIR.

### **2.6.7 Availability of catalogue services that perform payment operations**

Not available.

### **2.6.8 Availability of catalogue services to extract and send data to a user application**

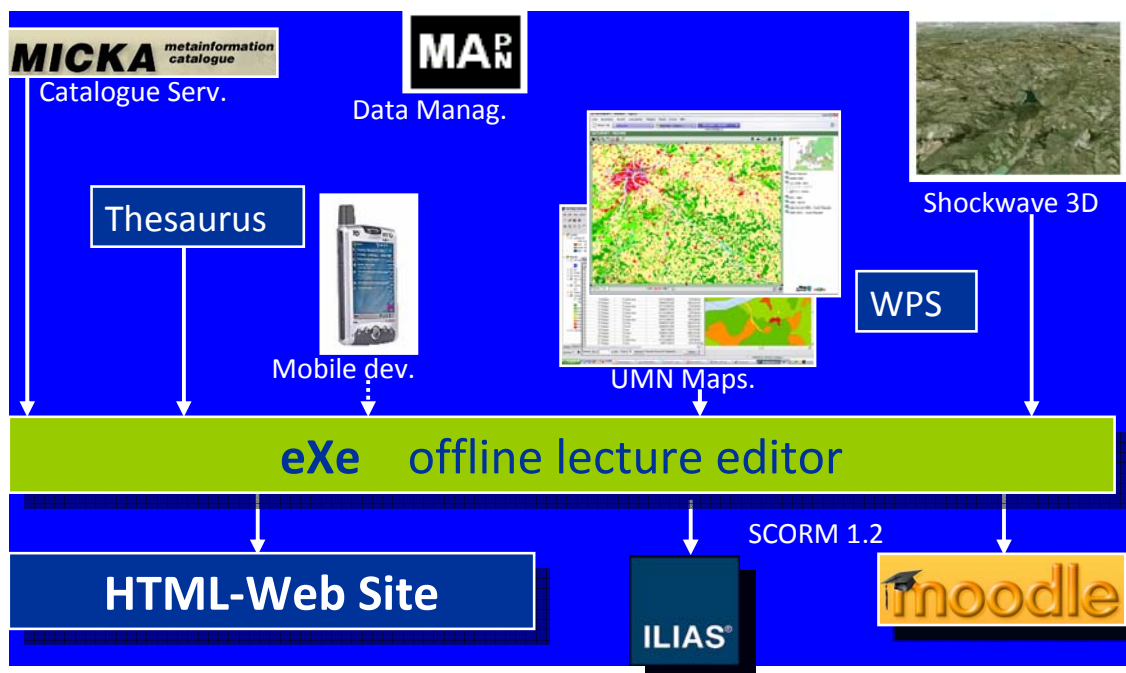
Not yet available.

### 2.6.9 SDI user applications

Not only public administration bodies and institutions but also the non-governmental and commercial organizations and firms and the public are users and a lot of different applications exist. The best user applications have been awarded in an every-year contest "Geoapplication of the year", organized by CAGI. The awarded applications are presented in English on WEBCASTLE (see GINIE project) - [www.ec-gis.org/ginie](http://www.ec-gis.org/ginie) and are part of the case studies used for INSPIRE Impact Assessment. In Czech they are available through CAGI website [www.cagi.cz](http://www.cagi.cz).

CSO will prepare its Census 2011 in a different way: checking of the state territory at decided time in 2011 – cooperation with Map Agency and municipalities; preparation of dynamic services for cooperation, presentation; creation of house and flat lists (with addresses) for the census commissioners, including situation maps and provision of digital data packet of Territorial Information of Census 2011.

Another example of an integrated approach is in the NatureNet project offering the user the possibility to publish data, to discover and view it. The project is using UMN Mapserver. An overview of the architecture is given in the figure below:



### 2.6.10 Conclusions of Component 5

The main geographic information metadata service is MIDAS, developed by CAGI. MIDAS is an on-line (<http://www.cagi.cz/midas>) catalogue of geodata of the public administration. MIDAS system is freely accessible and provides complete set of records for download. CENIA provides several web mapping services with basic administrative,

topographic and environmental data. The geoportal enables authorised users to upload new data sets. Discovery and view services are available free of charge in the geoportal while downloading, transformation and invoke services are available according to charging procedures. However the latter services are not yet clear how they operate.

Based on these conclusions we score the indicators as follows:

- There are one or more discovery services making it possible to search for data and services through metadata
- There are one or more view services available for to visualise data from the themes of the INSPIRE annexes
- There are one ore more on-line download services enabling (parts of) copies of datasets
- There are one or more transformation services enabling spatial datasets to be transformed to achieve interoperability (Not so clear)
- There are middleware services allowing data services to be invoked (Not so clear)

## **2.7 Component 6: Thematic environmental data**

### **2.7.1 Application of the legal framework and funding principles to thematic environmental data**

Environmental management is based on national legislation – large set of acts and regulations. Some of them are related to issues how to use or evaluate environmental data (not only spatial data).

### **2.7.2 Application of data characteristics to thematic environmental data**

A large set of environmental data is maintained by institutions supporting the Ministry of the Environment of the Czech Republic ([www.env.cz](http://www.env.cz)):

- A portal to environmental information (<http://portal.env.cz>) with its map services ([http://geoportal.cenia.cz/mapsphere/MapWin.aspx?M\\_Site=cenia&M\\_Lang=cs](http://geoportal.cenia.cz/mapsphere/MapWin.aspx?M_Site=cenia&M_Lang=cs)) provides access to information sources within the environmental sector and mutual links between various systems:

- CENIA, Czech Environmental Information Agency ([www.cenia.cz](http://www.cenia.cz)): EIA, IPPC, cross-media data
- Agency for Nature Conservation and Landscape Protection of the Czech Republic ([www.nature.cz](http://www.nature.cz)): Information System of Nature Conservation - localities, protected areas, zoology, botany, memorial trees
- Czech Geological Survey ([www.cgs.cz](http://www.cgs.cz)): geotlas of the Czech Rep., geodatabase of maps, geochronology, geochemistry of surface waters, ore objects, radon measurement, waste disposal sites etc.)
- Czech Hydrometeorological Institute ([www.chmi.cz](http://www.chmi.cz)): Air Quality Information System (air pollution sources, air quality monitoring, models), Meteorology, Hydrology (ground & surface water volume and quality)
- Czech Environmental Inspection Agency ([www.cizp.cz](http://www.cizp.cz)): inspection and prevention activities – water protection, accidents caused by hazardous chemicals, waste management
- Geofond of the Czech Republic ([www.geofond.cz](http://www.geofond.cz)): geological objects, hydrogeology, landslides and dangerous slope deformations, undermined areas, mineral deposits, mining claims, recultivated areas, spas and natural curative resources, geochemistry, fault tectonics etc. Geofond provides a list of web applications at: <http://www.geofond.cz/en/web-applications/list-of-applications>
- The State Environmental Fund of the Czech Republic ([www.sfzp.cz](http://www.sfzp.cz)): supported activities and their environmental benefits
- Administration of Protected Landscape Areas of the Czech Republic (<http://www.ochranaprirody.cz/index.php?lang=en>): protected landscape area (large, small), zones of nature conservation, memorial trees
- administration of national parks (NP) - the Krkonose National Park ([www.krnep.cz](http://www.krnep.cz)), the Sumava NP ([www.npsumava.cz](http://www.npsumava.cz)), České Svycarsko NP ([www.npcs.cz](http://www.npcs.cz)), Podyji NP ([www.nppodyji.cz](http://www.nppodyji.cz)): various geographical data - orthophotomaps, inventories, vegetation, forests, birds, zonation, damages, plans, territorial systems of ecological stability etc.
- Silva Tarouca Research Institute of Landscape and Ornamental Gardening ([www.vukoz.cz](http://www.vukoz.cz)): alternative energy sources, ornamental gardening data, atmospheric deposits etc.
- T. G. Masaryk Water Research Institute ([www.vuv.cz](http://www.vuv.cz)): water management map, basins and watercourses, register of pollution sources, atmospheric deposition monitoring, groundwater resources, inventory of water abstraction and effluent discharges, contaminated sites

Besides these institutions important data are maintained by other national government institutions, ministries and their organisations: Czech Statistical Bureau, Ministry of Agriculture, Ministry of Transportation, Ministry of Public Health etc. Ministry of the



Environment produces every year report on the state of the environment of Czech Republic where information sources are indicated.

Aerial photos and land-use data are obtained also on commercial base (e.g. Geodis Brno a.s., Argus company). Other environmental data are created and used in research institutes and universities (Charles University in Prague, University in Ostrava etc.).

Environmental data are created, maintained and used by regional and local governments (regional development, planning). An example of specific local activities is Prague Environmental Information System organised by the City of Prague, managed by the Prague City Hall – IT Department. This system collects data from various sources, maintains databases and set of spatial data based on city background data (from Institute of Municipal Informatics), initiates studies such as air pollution modelling and noise mapping, produces regular reports on the state of the environment, provides information for the public (report, CD, website). Specific information output of the system is Atlas of the Prague Environment that presents more than 70 thematic maps in the interactive GIS application on the web ([www.premis.cz/atlasen](http://www.premis.cz/atlasen)).

### **2.7.3 Application of metadata issues to thematic environmental data**

A large project for development and compilation of the metainformation system for the environmental sector was completed by the Ministry of the Environment in 2000. The MIS catalogue has been produced as one of the outputs of the project (printed and on the web <http://mis.cenia.cz/>). The definition of metadata was based on the EEA Catalogue of Data Sources, now converted to ISO19115:2000. GEMET thesaurus has been adopted for the description of the sources. Specific attributes and auxiliary database were used for geographic data. MoE developed spatial and temporal thesauri for unified description of all possible types of information sources (data, information, services, documents, experts, ...)

Related documents:

- Catalogue of Data and Information Sources, Ministry of the Environment of the Czech Republic, 2000;
- Prague – Environment 2002, Prague City Hall, 2003.

### **2.7.4 Application of access services issues to thematic environmental data**

There are some good examples of on-line access services for environmental data:

- "mapmaker" - access to maps and data from environmental and other sectors have been provided by the Ministry of Environment (see [map.env.cz](http://map.env.cz)) – this system provides data based on INSPIRE structure covering nearly all of the data required and is now integrated in the Cenia geoportal;

- “public administration portal” – on-line access to government services and information – utilizes “mapmaker” for map, data and metainformation publishing (<http://geoportal.cenia.cz>);
- "data store of forestry data" - access to maps and data used in forestry sector maintained by Forest Management Institute of Ministry of Agriculture - [www.uhul.cz](http://www.uhul.cz) .

### **2.7.5 Application of standards issues identified to thematic environmental data**

Both ZABAGED and DMU reference datasets have been used in the environmental data creation combining advantages of both.

### **2.7.6 Application of update procedures issues to thematic environmental data**

Internal MoE standards have been issued.

### **2.7.7 Conclusions of Component 6**

A large set of environmental data is maintained by institutions supporting the Ministry of the Environment of the Czech Republic ([www.env.cz](http://www.env.cz)).

Based on the information provided on the previous paragraph we score the indicator as follows:

- Thematic environmental data are covered by the described SDI-initiative or there is an independent thematic environmental SDI

## 2.8 Standards

### 2.8.1 Plan of publication ISO standards 19100 and Czech standards derived from them in the years 2003 - 2006

International standards	Czech technical standards		European standards
	Indication	Name	
ISO 19101:2002	ČSN ISO 19101:2003	Geografická informace – Referenční model	EN ISO 19101:2005
ISO/TS 19103:2005	ČSN ISO/TS 19103:(2006)	Geografická informace – Jazyk konceptuálního schématu	—
ISO 19105:2000	ČSN ISO 19105:2003	Geografická informace – Shoda a zkoušení	EN ISO 19105:2005
ISO 19106:2004	ČSN ISO 19106:2005	Geografická informace – Profily	EN ISO 19106: 2006
ISO 19107:2003	ČSN EN ISO 19107:2005	Geografická informace – Prostorové schéma	EN ISO 19107:2005
ISO 19108:2002	ČSN ISO 19108:2003	Geografická informace – Časové schéma	EN ISO 19108:2005
ISO 19109:2005	ČSN ISO 19109:(2006)	Geografická informace – Pravidla pro aplikační schéma	—
ISO 19110:2005	ČSN ISO 19110:(2007)	Geografická informace – Metodologie katalogizace vzhledů jevů	—
ISO 19111:2003	ČSN ISO 19111:2004	Geografická informace – Vyjádření prostorových referencí souřadnicemi	EN ISO 19111:2005
ISO 19112:2003	ČSN EN ISO 19112:2005	Geografická informace – Vyjádření prostorových referencí geografickými identifikátory	EN ISO 19112:2005
ISO 19113:2002	ČSN ISO 19113:2004	Geografická informace – Zásady jakosti	EN ISO 19113:2005
ISO 19114:2003	ČSN EN ISO 19114:2005	Geografická informace – Postupy hodnocení jakosti	EN ISO 19114:2005
ISO 19115:2003	ČSN ISO 19115:2004	Geografická informace – Metadata	EN ISO 19115:2005
ISO 19116:2004	ČSN ISO 19116:2005	Geografická informace – Polohové služby	EN ISO 19116: 2006
ISO 19117:2005	ČSN ISO 19117:(2006)	Geografická informace – Zobrazení	—
ISO 19118:2005	ČSN ISO 19118:(2007)	Geografická informace – Kódování	EN ISO 19118:2006
ISO 19119:2005	ČSN ISO 19119:(2006)	Geografická informace – Služby	EN ISO 19119:2006
ISO/TR 19120:2001	ČSN 97 9839:2003	Geografická informace – Funkční normy	—
ISO/TR 19121:2000	ČSN 97 9840:2003	Geografická informace – Obrazová a mřížová data	—
ISO/TR 19122:2004	—	Geografická informace/Geomatika – Kvalifikace a certifikace zaměstnanců	—
ISO 19123:2005	ČSN ISO 19123:(2007)	Geografická informace – Schéma pro geometrii a funkce pokrytí	—
ISO 19125-1:2004	ČSN ISO 19125-1:2005	Geografická informace – Přístup k jednoduchým vzhledům jevů – Část	EN ISO 19125-1:2006

		1: Společná architektura	
ISO 19125-2:2004	ČSN ISO 19125-2:2005	Geografická informace – Přístup k jednoduchým vzhledům jevů – Část 2: Volba SQL	EN ISO 19125-2: 2006
ISO/TS 19127:2005	ČSN ISO/TS 19127:(2006)	Geografická informace – Geodetické kódy a parametry	—

### 2.8.2 Work plan TNK 122 in the year 2006

International standards	Document indication within ČSN	Name	Planned month of proposal dissemination in the year 2006	Degree of completion
ISO 19119:2005	ČSN ISO 19119	Geografická informace (GI) - Služby	March	Approved for publication
ISO/TS 19127:2005	ČSN P ISO/TS 19127	GI - Geodetické kódy a parametry	April	Approved for publication
ISO 19117:2005	ČSN ISO 19117	GI - Zobrazení	May	Approved for publication
ISO/TS 19103:2005	ČSN ISO/TS 19103	GI - Jazyk konceptuálního schématu	June	Approved for publication
ISO 19109:2005	ČSN ISO 19109	GI - Pravidla pro aplikační schémata	July	In proofs
ISO 19118:2005	ČSN ISO 19118	GI - Kódování	September	Ready for proofs

### 2.8.3 Conclusions of Component 7

Based on the tables available in the previous paragraph we score the indicator as follows:

- The SDI-initiative is devoting significant attention to standardisation issues

### 2.9 Use and efficiency of SDI

From the information collected, it is obvious that the Czech GI-producer and user community is very committed to the concept and implementation of an advanced NSDI based on agreements and standards. With the CENIA geoportal, the MIDAS-system and underlying agreements, an important step has been taken in the establishment of the NSDI. Although documentation for more than 3.000 geodatasets is available through the MIDAS-system, the availability of high quality, analytical (vectorial) reference and core thematic data could not be fully verified.

National Geo-portal – from 1 September 2006 it operates at 14 instead of 4 servers. Daily visit rate have grew up until 30 000 unique visits. There are 2 million maps generated each month.

Monitoring system available at

<http://geoportal.cenia.cz/awstats/awstats.pl?config=geoportal.cenia.cz>.

For the 2009 update some monthly figures are given to illustrate the use of the portal.

Statistics 2009 for the Map services of the Portal of the Public Administration operated by CENIA:

Month	Unique visits	Number of visits	Pages	Hits	Volume
Jan 2009	18141	44731	2603462	4397921	195.04 GB
Feb 2009	18909	44867	2798751	4571869	226.73 GB
Mar 2009	17889	48352	3220559	5266323	219.33 GB
Apr 2009	14357	43020	3077455	4674630	204.74 GB
May 2009	13547	39580	2430302	3808092	162.08 GB
Jun 2009	14683	40303	2449667	3713469	189.77 GB
Jul 2009	13956	36596	2252224	3457895	154.87 GB
Aug 2009	15356	38132	2185401	3443178	154.63 GB
Sep 2009	14601	39594	2480567	3663029	223.00 GB
Oct 2009	16653	47197	3199700	4768106	239.27 GB
Nov 2009	16839	50409	3336177	4899525	249.96 GB
Dec 2009	14167	41341	2621364	3823641	199.98 GB
Total	189098	514122	32655629	50487678	2419.40 GB

It is obvious that compared to 2007 we have 100000 more visits (416431 in 2007) and a higher volume of data (1687.51 GB in 2007)

Some examples of sector in which the SDI is used:

- Territorial planning – access to data for planners at all levels of planning
- Environment – EIA/SEA process, report on the wells quality, NATURA accuracy improvements
- Investment occasions – access to the territorial information inc. environmental
- Insurance – flooding zones, land slides, impacts on health
- Development companies – administrative, transport, environmental context
- Education & Research
- Transparency and State administration control - equal data for decision making process for the public administration and citizens

### 3 Annexes

#### 3.1 SDI addresses & contacts for the Czech Republic

**National INSPIRE representatives:**

Environment: Jiří Hradec, CENIA, [jiri.hradec@cenia.cz](mailto:jiri.hradec@cenia.cz)

General: Milan Konečný, MUNI, [konecny@geogr.muni.cz](mailto:konecny@geogr.muni.cz)

Table: SDI contact list			
SDI Name (full)	Web address	Organisational mailing address	Over-all contact person: tel./fax/e-mail
National			
Association Nemoforum	<a href="http://www.cuzk.cz/nemoforum">www.cuzk.cz/nemoforum</a>	Pod Sidlistem 9 CZ-182 11 Praha 8 CZECH REPUBLIC	Ruzena ZIMOVA Tel. 420 284 041 595 Fax: ++ 420 284 041 428 e-mail: <a href="mailto:nemoforum@cuzk.cz">nemoforum@cuzk.cz</a>
Czech Association for Geoinformation	<a href="http://www.cagi.cz">www.cagi.cz</a>	Novotneho lavka 5 Praha 1 CZ-110 00 Praha 1 CZECH REPUBLIC	Milan KONECNY Tel.: ++420- 549 495 135 e-mail: <a href="mailto:konecny@dior.ics.muni.cz">konecny@dior.ics.muni.cz</a> Josef HOJDAR Tel. ++ 420 251 624 762 Fax: ++ 420 251 624 762 e-mail: <a href="mailto:hojdar@chello.cz">hojdar@chello.cz</a> Eva PAUKNEROVA Tel. ++ 420 233 324 472 e-mail: <a href="mailto:eva.pauknerova@cagi.cz">eva.pauknerova@cagi.cz</a> Petr KUBICEK Tel. ++ 420 736 611 915 e-mail: <a href="mailto:pkubicek@ingr.cz">pkubicek@ingr.cz</a> Stepan KAFKA Tel. ++ 420 327 514

			<p>118  e-mail: <a href="mailto:kafka@email.cz">kafka@email.cz</a>  Bronislava  HORAKOVA  Tel. ++ 420 596 995 470  e-mail:  <a href="mailto:bronislava.horakova@vzb.cz">bronislava.horakova@vzb.cz</a>  Jaroslav SOLC  Tel. ++ 420 236 002 682  e-mail:  <a href="mailto:jaroslav.solc@cityofprague.cz">jaroslav.solc@cityofprague.cz</a>  Vaclav CADA  Tel. ++ 420 197 491 129  e-mail:  <a href="mailto:cada@kma.zcu.cz">cada@kma.zcu.cz</a></p>
Ministry of Environment of the Czech Republic	<a href="http://www.mzp.cz/">http://www.mzp.cz/</a>	Vrsovicke 65, CZ-100 10, Praha 10, CZECH REPUBLIC	Miloslav HLAVACEK Tel.: ++420- 267 310 266 e-mail: <a href="mailto:mihl@env.cz">mihl@env.cz</a>
CENIA, Czech Environmental Information Agency	<a href="http://www.cenia.cz">www.cenia.cz</a>	Kodanska 10, CZ-100 10, Praha 10, CZECH REPUBLIC	Jiri HRADEC Tel.: ++420- 267 225 226 e-mail: <a href="mailto:jiri.hradec@cenia.cz">jiri.hradec@cenia.cz</a>
Ministry of Informatics of the Czech Republic	<a href="http://www.mvcr.cz">http://www.mvcr.cz</a>	Havelkova 2, CZ-130 00, Praha 3, CZECH REPUBLIC	Stepan ZEZULA Tel.: ++420- 221-008-111 e-mail: <a href="mailto:stepan.zezula@micr.cz">stepan.zezula@micr.cz</a>
Czech Office for Surveying, Mapping and Cadastre	<a href="http://www.cuzk.cz">www.cuzk.cz</a> <a href="http://www.agi.org.uk/">http://www.agi.org.uk/</a>	Pod Sidlistem 9, CZ-182 11, Praha 8, CZECH REPUBLIC	Jan RAMBOUSEK Tel. ++ 420 284 041 209 Fax. ++ 420 284 041 204 e-mail. <a href="mailto:jan.rambousek@cuzk.cz">jan.rambousek@cuzk.cz</a>
Czech Statistical Office	<a href="http://www.czso.cz">www.czso.cz</a> <a href="http://www.ordsvy.gov.cz">http://www.ordsvy.gov.cz</a>	Sokolovská 142 CZ-186 04	Jaroslav KALINA GIS specialist



	<a href="#">v.uk/</a>	Praha 8 CZECH REPUBLIC	Tel. ++420 274 052 275 Fax. ++420 266 311 243 e-mail. <a href="mailto:kalina@gw.czso.cz">kalina@gw.czso.cz</a>
--	-----------------------	------------------------------	---

### 3.2 List of references for the Czech Republic

Table: list of references used to compile the Country Report	
Web sites:	<a href="http://www.psp.cz">http://www.psp.cz</a> <a href="http://www.vlada.cz">http://www.vlada.cz</a> <a href="http://www.env.cz">http://www.env.cz</a> <a href="http://www.micr.cz">http://www.micr.cz</a> <a href="http://portal.gov.cz">http://portal.gov.cz</a> <a href="http://geoportal.cuzk.cz">geoportal.cuzk.cz</a> <a href="http://geoportal.cenia.cz">geoportal.cenia.cz</a> <a href="http://www.cenia.cz/inspire">www.cenia.cz/inspire</a> <a href="http://arwen.ceu.cz/izgard">arwen.ceu.cz/izgard</a> <a href="http://portal.uur.cz">http://portal.uur.cz</a> <a href="http://www.czso.cz/csu/rso.nsf/i/registr_scitacich_obvodu">http://www.czso.cz/csu/rso.nsf/i/registr_scitacich_obvodu</a> <a href="http://gis.vsb.cz/midas/">http://gis.vsb.cz/midas/</a> <a href="http://www.cagi.cz">http://www.cagi.cz</a> <a href="http://mis.env.cz/">http://mis.env.cz/</a> <a href="http://portal.env.cz">http://portal.env.cz</a> <a href="http://map.env.cz">http://map.env.cz</a> <a href="http://indikatory.env.cz">http://indikatory.env.cz</a>
Publications	Papers at the following conferences: Local and Regional Information Systems (April 2004, Hradec Králové) Local and Regional Information Systems (April 2005, Hradec Králové) Spatial planning and environment (September 2005, Znojmo) Horák, J., Ardielli, J., and Horáková, B., 2009. Testing Web Map Services. GSDI 11, Rotterdam, 2009