

Spatial Data Infrastructures in Poland: State of play 2011



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This document does neither represent the position of the Member States and countries under study.

Executive summary

During the last years, the Polish Spatial Data Infrastructure has made major steps forward. From a legal perspective, the transposition of INSPIRE is adopted in the form of the Act on Spatial Information Infrastructure. From an organisational perspective, the tasks of the different organisations are clarified. From a technological perspective, the national geoportal geoportal.gov.pl is established.

The most comprehensive scope of spatial data is regulated by the Act of law – geodetic and cartographic law, which was passed in 1989 and amended only slightly since then. The system of keeping the state geodetic and cartographic register, described by that act of law, is obsolete and does not suit the presently functioning systems of managing organizations and information. This geodetic and cartographic register does not take into consideration the progress in technology, and is not adjusted to the current expectations of users which is increasing with technological progress. The system of keeping the register fails also to modern standards of law-making. The situation appears to be similar as regards technical standards of keeping the state geodetic and cartographic resource. Due to entrusting the task of running the resource to local government units, those issues are regulated by legal rules of common law. At present the legal system contains several enactments concerning procedural issues, and data issues, as well as standards of administrative documentation required in administrative processes. Technical standards are regulated by means of instructions and technical guidelines developed several years ago. In practice, also modern standards are in use, which function in the administrative circulation as “good practice” recommended by the Surveyor General of Poland. The new regulations concerning technical standards call for authorization by law, in compliance with the present law-making practice, which is connected with amending the act of law.

The transposition of the INSPIRE Directive in Poland is carried out through a separate Spatial Information Infrastructure Act together with the amendments of some related acts and regulations concerning the spatial data resources already existing in Polish legislation. The spatial data resources which constitute the Polish spatial information infrastructure are dispersed among various institutions responsible for development, maintenance and dissemination of these data. For the effective establishment of the infrastructure it appears to be essential to concern for proper organization ensuring collaboration of interested authorities. New solutions introduced in the Polish law enable fulfilling this crucial condition for a successful implementation of the Directive. Legal provisions secure governmental bodies with tools for monitoring the process of creation and development of the infrastructure. Moreover, the public institutions responsible for the implementation become engaged in operational management and planning of the process. Transposition of the INSPIRE Directive in Poland gives an opportunity for comprehensive revision of the national data resources, technical standards, data flows and update procedures. As a result a number of technical regulations were prepared in order to reorganize the system of conducting the public registers, especially in the field on geodesy and cartography. The new strategy for implementing this system includes legal, financial and organizational issues. Moreover, in accordance with the governmental strategy for building the information society, INSPIRE constitutes a coherent module of

this interdisciplinary infrastructure and sustains its harmonized development. As a part of the mentioned above strategy further modernization of administration is foreseen.

This report presents the Polish State of Play in February 2011 concerning the implementation of national spatial information infrastructure in Poland with the emphasis on the legal, organizational and technical solutions and their influence on the development of public administration systems.

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Abbreviations and acronyms

BDO	General Geographic Database (Baza Danych Ogólnogeograficznych)
CEN	Committee European de Normalisation / European Committee for Standardisation
CODGiK	Main Centre of Geodetic and Cartographic Documentation
CSD	Central Data Depot
CSO	Central Statistical Office
CSW	Catalog Services for the Web
EFRR	European Fund for Regional Development in Poland
GEOREF	World Geographic Reference System
GI	Geographical Information
GINIE	Geographic Information Network in Europe
GIS	Geographical Information System
GML	Geography Markup Language
GUGiK	Head Office of Geodesy and Cartography
HOGC	Head Office of Geodesy and Cartography
HTTP	Hypertext Transfer Protocol
IKAR	Integrated System of Geological Cartography
IMGW	Institute of Meteorology and Water Management
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
ISO	International Organization for Standardization
KERM	European Committee of Council of Ministers
NATO	North Atlantic Treaty Organisation
NGO	Non-Governmental Organizations
NSDI	National Spatial Data Infrastructures
ODGiK	Geodetic and Cartographic Documentation Centre
OGC	Open Geospatial Consortium
PASI	Polish Association of Spatial Information (PTIP)
PSI	Policy and legislation on access to public sector information
PzgiK	State Geodetic and Cartographic Resources
RMP	Raster Map of Poland
SDI	Spatial Data Infrastructures
SEM	State Environmental Monitoring System
SIS	Spatial Information System
SoP	State of Play
TBD	Topographic Database
UTM	Universal Transverse Mercator

XML	Extensible Markup Language
WMS	Web Map Service
WODGiK	Wojewódzki Ośrodek Dokumentacji Geodezyjnej i Kartograficznej
WP	Geographic Services of the Polish Army

1 GENERAL INFORMATION

1.1 Method

This report summarizes the state of play of SDI in Poland, and reflects the degree to which the SDI in Poland is similar to the ideas set out in the INSPIRE-directive.

In comparison with the previous country reports, this report has been updated to the situation of Spring 2011. In order to achieve this, Joep Crompvoets visited the Surveyor General of Poland 1-2 July 2010, and had meetings with Ewa Surma and Marcin Grudzień. Ewa Surma is the representative of the INSPIRE National Contact Point, and Marcin Grudzień (Main Geodetic & Cartographic Documentation Centre of Head Office of Geodesy and Cartography) is the manager of the National Geo-portal. Starting point of discussion were the texts in Annals of Geomatics written by J. Orlińska and J. Gaździcki about the English version of the Act on Spatial Information Infrastructure. On the basis of this new information, the country report has been improved and updated. In addition, several web site were re-visited and the latest literature about the Polish NSDI was used. The updated text was sent to Ewa Surma for confirmation and where necessary modified. Finally, outdated information was removed, while a concluding paragraph regarding the status of each indicator was added for each component.

For more background about the method applied, see Vandenbroucke, D., Zambon, M.-L., Crompvoets, J., and Dufourmont, H., 2008. Chapter 16, INSPIRE Directive: Specific requirements to monitor its implementation. In: J. Crompvoets, A. Rajabifard, B. van Loenen, and T. Delgado Fernández (Eds.), *A Multi-view Framework to Assess Spatial Data Infrastructures*. The Melbourne University Press, Melbourne, Australia, pp. 327-355.

1.2 The NSDI-scene in Poland

1.2.1 Polish SDI

The establishment, maintenance and development of the Polish SDI is coordinated by the Minister of Internal Affairs and Administration.

The Surveyor General of Poland plays a key role in the implementation process of the Polish SDI. The implementation body of the Surveyor General is the Head Office of Geodesy and Cartography that prepares and submits, through the mediation of the Minister of Internal Affairs and Administration, the drafts of government programmes regarding the execution of tasks in the field of SDI.

Another important player is the Ministry of Environment being the active leader of the implementation measures with regard to environmental data themes.

In 2007, the Surveyor General of Poland established the Council for INSPIRE implementation as the advisory body and inter-ministerial cooperation platform for the transposition and implementation of the INSPIRE-directive. In this Council for INSPIRE implementation, the several ministries and governmental agencies as INSPIRE key stakeholders were represented.

Since the adoption of the Spatial Information Infrastructure Act, the National Council for Spatial Information Infrastructure is appointed. This new Council for Spatial Information Infrastructure is an inter-ministerial committee, in which the leading authorities are represented, as well as other agencies of the state administration, agencies of local authorities, along with interested scientific institutions and NGOs. The Council provides its opinion for the undertakings planned regarding the development of infrastructure, and initiates improvements regarding the efficiency of infrastructure, organization and technical issues, as well as broaden its thematic scope, which assures real influence of the involved ministries, organizations, and institutions upon the directions of its development.

In the new Act on Spatial Information Infrastructure (2010) twelve leading bodies are listed. It is through the cooperation of these leading bodies that the Polish Spatial Information Infrastructure is established, maintained and developed. Each leading body coordinates the work and assures the implementation within the scope of a specified theme related to the 34 (INSPIRE) themes of the Polish Infrastructure.

Finally, it is necessary to mention that many authorities at national level as well as at local level, universities, NGOs (e.g. great involvement of PASI – Polish Association of Spatial Information), research institutes (e.g. Institute of Geodesy and Cartography) and private sector are strongly involved in projects concerning spatial information concerning the update of data models, harmonization of databases, interoperability of spatial data sets and services, use of ISO-norms, model and exchange standards based on XML and GML, and also INSPIRE implementing rules.

2 Details of the Polish NSDI

2.1 Introduction

The first initiative to establish a Polish SDI was the research project *"The concept of the Polish Spatial Information System"* (SIS) that was funded by the State Committee for Scientific Research and conducted by the Institute of Geodesy and Cartography in Warsaw (1998-2000). The key objective of the project was to propose a general concept for the Polish NSDI as an integrated system based on existing and future geographic information systems.

In September 2004 the Ministry of Environment approved a document entitled: *"Policy of the ministry in the domain of geological cartography (for the years 2005-2020)"*. This document contained a summary of previous activities concerning geological cartography, general directions of further studies for the years 2005-2020, as well as a financial assessment of the implementations. One of the main directions of activities was the establishment of Integrated System of Geological Cartography (IKAR).

Under the Geodetic and Cartographic Law (1989), coordination of the NSDI in Poland was entrusted (however not in a straightforward way) to the Surveyor General of Poland, the director of the Head Office of Geodesy and Cartography (GUGiK) under the Ministry of Internal Affairs and Administration. Most of the other important bodies participating in the Polish NSDI were representative bodies for geodetic and cartographic services (the Association of Polish Surveyors, the Association of Polish Cartographers, the Institute of Geodesy and Cartography, the Polish Spatial Information Association). The coordination activities were funded by the Ministry of Infrastructure. In the National Land Information System Decree the scope and content of the NSDI and bodies responsible for the establishment and management was defined, meanwhile in the Geodetic and Cartographic Law the NSDI was defined as a database, procedures and techniques for collecting, updating and disseminating spatial data. The Polish NSDI consisted roughly of two types of components: core components (reference datasets) managed by the Surveyor General, and thematic components managed by various ministries (e.g. Ministry of Infrastructure, Ministry of Environment) and institutes (e.g. State Institute of Geology). Until recently, the Polish NSDI could have been characterized as a patchwork of more than 100 geographic information systems at different administrative levels and sectors across the country. Therefore, one of the key tasks of the Polish SDI was to integrate the existing systems and activities into the NSDI.

The Act on Spatial Information Infrastructure as the transposition text for the INSPIRE-directive came into force on June 7th 2010. This Act amends the acts of law on: Geodesy and cartography, Geology and mining, Public Statistics, Environmental protection, and Nature protection. In the Act on SII (art.13 and art 22) there are two statutory delegations for regulations to issue by the minister competent over public administration. Those regulations are already in force:

- 1) Regulation on the register of spatial data sets and services, included in the spatial information infrastructure of 20th October 2010 (entry into force: 13/11/2010) ;
- 2) Regulation on Council for Spatial Information Infrastructure of 13th September 2010 (entry into force: 16/10/2010).

The Act on SII together with two mentioned above regulations completely ends the transposition process of the INSPIRE directive in Poland.

2.2 Component 1: Coordination and organizational issues

All tasks in the field of geodesy and cartography defined by the Geodetic and Cartographic Law are tasks of the Geodetic and Cartographic Service created by government and self-government bodies.

Local government units perform those tasks as delegated functions. The delegation of state administration tasks by the Geodetic and Cartographic Law was made to 379 county (district) chief offices, to 75 municipalities, as well as 16 Marshall offices. The correct functioning of local governments in that respect is supervised by state administration – provincial inspectors acting on behalf of the voivode (governor of province) and at central level by the Surveyor General of Poland. Summing up, it should be stated that the organizational structure of the Geodetic and Cartographic Service is complex. In total, the tasks concerning geodesy and cartography in Poland are carried out by 487 offices. The high number and the high diversity of involved authorities during the INSPIRE-transposition phase formed one of the main problems to overcome. Therefore, a better cooperation between responsible public authorities is needed.

Document “Framework programmes for creation of Spatial Information Infrastructure 2009-2010” provides the strategy regarding the SDI-implementation in Poland. This strategy document includes organisational as well as technical aspects, and an implementation plan.

The establishment, maintenance and development of the Polish SDI is coordinated by the Minister of Internal Affairs and Administration. The minister performs the necessary tasks with the assistance of Surveyor General of Poland, who:

- 1) draws up draft plans of the participation of administration bodies in the creation and operation of infrastructure, making the necessary arrangements with leading bodies to ensure the completeness of the infrastructure in terms of themes, area and variability in time, as well as preventing unnecessary collection of the same data by more than one administration body;
- 2) monitors, in cooperation with the leading bodies, the progress of work on the creation and operation of infrastructure and its development;
- 3) organizes undertakings and performs tasks supporting the development of infrastructure;

- 4) cooperates with the European Commission in matters relating to the infrastructure;
- 5) cooperates with voivodes and local self-government units in their actions concerning the establishment and operation of the infrastructure;
- 6) determines, under bilateral agreements, the scope and conditions of data exchange concerning facilities located at the border between the Republic of Poland and the neighbouring countries and adjacent to these borders, in order to ensure consistency of data within the infrastructure for spatial information in Europe.

The Surveyor General of Poland is responsible for contacts with the European Commission in matters hereby specified. In addition, the Surveyor General of Poland organizes training programmes in the domain of geodesy and cartography (including conferences, seminars, e-learning courses), cooperates with scientific/R&D centres and professional organizations in providing these trainings, in the context of continuous advancement of technologies and thorough changes of the law. Besides being responsible for the implementation of many INSPIRE-themes (15), the Surveyor General of Poland also manages the Polish National Geoportal, and serves currently the Polish National Contact Point for INSPIRE.

The Council for INSPIRE implementation was established in 2007. This council is the advisory body and inter-ministerial cooperation platform for the transposition and implementation of the INSPIRE-directive. In this Council for INSPIRE implementation, the following eight ministries and seven governmental agencies are represented: Ministry of Infrastructure, Ministry of National Defence, Ministry of Agriculture and Development of Rural Areas, Ministry of Regional Development, Ministry of Environment, Ministry of Culture and National Heritage, Ministry of Health, Ministry of Interior and Administration, Central Statistical Office, Polish Geological Institute, Chief Inspectorate of Environmental Protection, Chief Nature Conservator, Chief Sanitary Inspectorate, Head Office of Geodesy and Cartography, and National Water Management Authority.

In the new Act of Spatial Information Infrastructure twelve leading bodies are listed. Through cooperation of these leading bodies the Polish Spatial Information Infrastructure is established, maintained and developed. Each leading body, within its jurisdiction, organizes, coordinates and monitors the operations connected with the Polish spatial data infrastructure within corresponding spatial data themes. These leading bodies make resources available to the administration bodies and third parties, the information necessary to perform the tasks involving the introduction of technical solutions to ensure interoperability of spatial data sets and services and the harmonization of these sets and services. The following persons represent the twelve leading bodies: minister competent over the construction, housing and spatial planning; minister competent over maritime economy; minister competent over culture and national heritage; minister competent over agriculture; minister competent over environment; minister competent over health; Surveyor General of Poland; Chief Geologist of Poland; Chief Inspector of Environmental protection; Chief Nature Conservator; President of the Central Statistics

Office; and President of the National Board of Water Management. The leading bodies within their jurisdiction are obliged to create and implement training schemes including issues of creation, updating and sharing of metadata.

Administration bodies in consultation with the leading bodies may, by agreement, establish and maintain shared elements of the infrastructure with a view of minimizing the costs of construction and maintenance of this infrastructure, optimizing access to spatial data sets and services as well as harmonization, security and quality of these sets and services.

As mentioned before, the Polish infrastructure is established, maintained and developed, as well as functions as a result of cooperation among subjects that make it up. In this context, as well as due to the necessity of providing uniform and efficient spatial information infrastructure, the Act of law provides for the establishment of the Council for Spatial Information Infrastructure. The tasks of the Council include:

- 1) giving opinions, at the request of the minister of Internal Affairs and Administration, on bills, standards, standards, organizational, scientific and educational undertakings, plans and reports relating to infrastructure, including those relating to coordination and cooperation and contacts with the European Commission;
- 2) presenting initiatives concerning the improvement of infrastructure in terms of organizational and technical aspects as well as extending its thematic scope.

The Council is composed of Surveyor of Poland, Chief Geologist of Poland, Director General of Environmental Protection, Chief Inspector of Environmental Protection, President of the National Board for Water Management, President of the Central Office, Head of the Navy Hydrographic Office, Representatives of other government administration bodies in rank of secretary or undersecretary of state, four representatives of territorial self-government units, and four representatives of academic institutions or NGOs.

2.2.1 Conclusions of Component 1

The Polish SDI approach is truly national. SDI building blocks have reached a significant level of operability. The establishment, maintenance and development of the Polish SDI is coordinated by the Minister of Internal Affairs and Administration and assisted by the Surveyor General of Poland. In the new Act of Spatial Information Infrastructure twelve leading bodies are listed. Through cooperation of these leading bodies the Polish Spatial Information Infrastructure is established, maintained and developed. The Head Office of Geodesy and Cartography (HOGC) acts as NCP for INSPIRE and plays a key leading role in INSPIRE implementation. Also associations play an important role in the Polish NSDI scene: the Association of Polish Surveyors, the Association of Polish Cartographers and the Polish Spatial Information Association.

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 (4)
- The officially recognised or de facto coordinating body of the SDI is a NDP, i.e. a NMA or a comparable organisation
- The officially recognised or de facto coordinating body for the SDI is an organisation controlled by data users (No)
- An organisation of the type ‘national GI-association’ is involved in the coordination of the SDI (partially)
- Producers and users of spatial data are participating in the SDI (Yes)
- Only public sector actors are participating in the SDI

2.3 Component 2: Legal framework and funding

2.3.1 Legal framework

In Poland, the implementation of NSDI is a complex process. In the legal system, there was no one act of law that which in a complex manner would regulate the issues concerning spatial information. Like in other countries, the issues of spatial information are regulated in suitable branch-specific provisions, many times in a non-uniform manner. There are several acts of law and enactments, which refer directly or indirectly to spatial data. At the same time, there are connections between specific acts of laws by means of administrative procedures that make reference to spatial data, or procedures of other public registers. Hence, it was necessary to amend the entire legal system; several acts of law that are inter-related with one another.

The geodetic and cartographic activity in Poland is carried out on the basis of the “Geodetic and Cartographic Act” approved by the Polish government on 17 May 1989. This Law is supplemented by other lower level legal acts which describe in detail the particular items of this law. This law together with lower level legal acts constitutes the core guidelines for the geodetic and cartographic activity at all levels: country, regional and local. This Act of Law amended only slightly since then.

The system of keeping the state of geodetic and cartographic registers, as described by this act of law, was obsolete and did not suit the presently functioning systems of managing organizational and (spatial) information. Moreover, it did not take into consideration the progress of technology, and was not adjusted to the current expectations of users. This situation is changing through the amendments caused by the SII Act.

The central body of government administration appropriate for issues of geodesy and cartography is the Head Office of Geodesy and Cartography, while Ministerial services deal with thematic SDIs. The Head Office of Geodesy and Cartography (GUGiK) with its seat in Warsaw works nation-wide through Provincial Inspectors of Geodetic and Cartographic Supervision in each province (16).

The Polish Geodetic and Cartographic Service is responsible for the establishment and updating of the basic geodetic network as well as gravimetric and magnetic networks for the total territory of Poland. These networks constitute the general framework for all geodetic and cartographic works conducted in Poland.

An important step towards the implementation of the NSDI was the Decree issued by the Minister of Regional Development and Construction on 12 July 2001 establishing a “National Land Information System”. This decree defines the scope and contents of the system on all levels of public administration and bodies responsible for the establishment and management of this system. The Polish Geodetic and Cartographic Service is responsible for the establishment and management of the Land Information System.

Preparatory activities went on to draft regulations related to the INSPIRE implementation (in the Geodetic and Cartographic Law). An Interdepartmental Task Force for Geoinformation Infrastructure (2001-2003) and an NSDI Commission (2004-2006) played an active role.

In July 2007, the Surveyor General establishes the Council for INSPIRE implementation in Poland. The chairman of the Council is Prof. Jerzy Gaździcki, PhD, who is also the president of the Polish Association of Spatial Information (PASI). The Council responsibilities are to support activities connected with legal, organizational and economic aspects of creating the Polish Spatial Information Infrastructure, to recommend interdepartmental activities and enterprises in the field of geoinformation, to propagate geoinformation applications in public administration and economy and also to promote the use of standards in the field of geographic information.

In January 2008, the Surveyor General of Poland was assigned with the transposition of INSPIRE into Polish law, in accordance with the procedure accepted by the European Committee of the Council of Ministers (KERM) in April 2007.

For the implementation of INSPIRE, it was decided to create a new law on Spatial Information Infrastructure, rather than adapting the law on geodesy and cartography.

The Spatial Information Infrastructure Act makes strong reference to the basic objectives of INSPIRE. The main purpose of this act is to establish a national spatial data infrastructures being a constituent of the European infrastructure. At the same time, it aims to optimize the data acquisition and maintenance by public administration units as well as to make spatial data available to all users.

The Act on Spatial Information Infrastructure comprises amendments of the Geodetic and Cartographic Act. These amendments have the aim of defining spatial databases, stipulating the rules and technical standards to generate those databases, adjusting the regulations that define the competencies of the units of the Geodetic and Cartographic Service, establishing the principles for spatial data exchange within the framework of Polish geodetic and cartographic resources. In addition, other acts of law are also (slightly) amended; Law on geological prospecting and mining, Law on public statistics, Law of environmental protection, and Law on Nature conservation.

2.3.2 Public-private partnerships

Every private company can take part in any tendering process to build GIS data.

The tasks of public administration (central and local) comprise the gathering, maintenance and update of data. The private sector is entrusted with the execution of tasks related to the building of databases. All contractors have been privatised.

In accordance with Article 4 of the geodetic and cartographic Act, any investor interested in obtaining GI has the right to co-finance its gaining, provided that the data will be used for updating of core databases.

Private companies produce data for public institutions, provide value added services.

2.3.3 Policy and legislation on access to and re-use of public sector information

The Parliament approved the Act on Access to Public Information in September 2001. It went into effect in January 2002. The Act creates a presumption of access to information held by all public bodies, private bodies that exercise public tasks, trade unions and political parties. The bodies are also required to publish material on-line. There are exemptions for official or state secrets, confidential information, personal privacy and business secrets. In principle, access is free of charge and fees are only charged in particular cases.

The metadata catalogue has not been made available to a wide extent yet. At present, on-line access is provided only to metadata of the geodetic and cartographic documentation centres.

Directive 2003/4 on the access to environmental information and Directive 2003/98 on the re-use of PSI have been transposed into national law. After the European Commission had initiated an infringement procedure against Poland for not correctly transposing the PSI directive, a new law was proposed in September 2009. A consultation was held during the end of 2009. The new law has not been adopted yet.

Another Act that should be mentioned is the Act of 17 February 2005 on the computerization of business activities of bodies conducting public tasks. This act contains additional obligations for the access to data of the public sector.

In the Act of Spatial Information Infrastructure (2010), the spatial data and services being part of the Polish SDI are subject to access free of charge by other agencies of the administration in the scope for performing their public tasks. This is the consequence of the Act of law on computerization of entities executing their public tasks.

2.3.4 Legal protection of GI by intellectual property rights

The Polish Law on Copyright and Neighbouring Rights (Copyright Act) came into force in May 1994.

Article 4 of the Copyright Act upholds that legal acts and their official drafts, state authorities documents, materials and marks, published descriptions of patents and short press information, are not copyright protected. The use of such works in fair mode should be interpreted in a strict way. The official documents include court, administrative decisions together with governmental documents, legislation and any documents issued by trade organizations, local government, professional associations etc. while fulfilling duties delegated legally by the state.

Polish intellectual property law has to be amended to achieve harmonization with the EU intellectual property protection in many aspects. To harmonize the level of protection with the EU, Poland has to implement the EU Database Directive of 1996. The Polish Copyright Act was amended on 9 June 2000 to implement the Copyright Term Directive of 1993, with its extension of this term to 70 years after an author's death and to provide for the revival of copyright for a work which had not been published, fell into the public domain and whose protection is revived for at least 25 years from the date of its first publication.

Concerning the implementation of the EU Database Directive of 1996, Poland will have to introduce sui generis protection for databases which cannot be protected as creative complications under Polish Copyright Act. A Polish law on the legal protection of databases was adopted (Law of 27 July 2001) and came into force on 10 November 2002.

The issue has been regulated in an inefficient manner. Both the geodetic and cartographic Act and the Copyright Act classify map studies (analogue, digital) as those protected by copyright. In practice, numerous doubts arise.

As regards the regulations concerning basic information, where geodetic and cartographic data belong, such protection is doubtless and enforced. As regards derivative studies, the regulations are less precise.

The assessment of database protection made so far indicated compatibility with the directive, yet practice indicates substantial gaps. The legal framework concerning SDI contains insufficient stipulations regarding copyright.

In spring 2004, the Copyright Act was amended in order to include the regulations of the 2001 Directive on copyright in the information society.

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

Article 47 of the Polish Constitution recognizes the right to legal protection of privacy and family as well as "honour and good reputation". Article 49 protects the privacy of communications. Article 51 secures five privacy-related principles: the right to not be forced to divulge personal information, protection from public authorities acquiring personal information "other than that which is necessary in a democratic state ruled by law", the right of individuals to access data collected on their persons within limitation, the right of individuals to correct untrue or incomplete information, and the principles and procedures for private information collection and access as defined by statute.

The Law on the Protection of Personal Data was approved in October 1997 and took effect in April 1998 (Law on Protection of Personal Data, Dz.U. nr 133, poz. 833, October 29, 1997). The law is based on the European Union Data Protection Directive. In August 2001, the Act was amended in order to bring it into full compliance with the European Directive (Act of August 25, 2001 amending the Act on Personal Data Protection). Among other changes, the amendment redefined the term "personal data". The Act on protection of personal data is mentioned in the geodetic and cartographic Act, which means that with respect to SDI it is binding to the full extent.

Directive 2002/58 on privacy and electronic communications was transposed by the Polish law on Providing Services by Electronic Means of July 18, 2002, and the Telecommunications Act of July 16, 2004. With the enactment of the Telecommunications Act, the Act on Providing Electronic Services has lost its meaning in the area of privacy and electronic communications, but it has not been amended nor abolished yet.

2.3.6 Licensing framework

A licensing framework is under construction consisting of standard agreements/licenses for all or groups of stakeholders, including a description of the use conditions.

2.3.7 Funding of SDI and pricing policy

Despite the fact that INSPIRE does not require collection of new spatial data, and refers only to those resources, which already exist in electronic form, the implementation of the stipulations of the Directive and development of infrastructures involve costs. These refer to: establishment of metadata for spatial data and services as well as updating them,

harmonization of registers and spatial data, establishment and operating the national geo-portal, and training and ongoing building of capacity. These costs are made in a time of crisis. Therefore, the financial resources to finance these costs are limited.

In general, funding of NSDI-related activities is provided mainly by Surveyor General of Poland within the framework of the legal acts that refer to the gathering, updating, and making data available. The funding is mainly for the coordinating body structure, metadata creation, data harmonization, service development, and setting-up registers.

Certain projects concerning the construction of the NSDI have already been implemented. Several of those have been financed by the EU within the framework of the Phare programme. The concept study of the Spatial Information System for Poland has been financed by the Committee for Scientific Research.

Thematic SDI-initiatives are mainly financed by public means, partly via the Committee for Scientific Research.

Despite all these findings, the funding of NSDI remains concerning.

A legal framework for pricing of GI has not been explicitly set. Currently, the most applicable pricing policy is cost recovery. The pricing policy as proposed in the Spatial Information Infrastructure Act will not be applicable for spatial data that are binding to international agreements, public security, national security, secrecy or other regulations.

The newly developed GEOPORTAL.GOV.PL has obtained co-financing from EU funds. Due to substantial investment outlays and costs of project maintenance it has been assumed that the implementation of the project is possible only if it receives financial support of the European Fund for Regional Development in Poland (EFRR). The co-financing in Poland is provided by the Surveyor General of Poland. The project GEOPORTAL.GOV.PL is a non-profit activity, i.e. not meant to generate profits from charges for making available the cadastre data, but an activity meant for self-financing. The portal shall enable access against payment.

2.3.8 Conclusions of Component 2

The Spatial Information Infrastructure Act is adopted by the Council of Ministers and Parliament (status final text). The transposition of the INSPIRE Directive in Poland is carried out through this Spatial Information Infrastructure Act together with the amendments of some related acts and regulations concerning the spatial data resources already existing in Polish legislation. End of 2009, Poland proposed a draft new law transposing the PSI Directive. In the Act of Spatial Information Infrastructure (2010), the spatial data and services being part of the Polish SDI are subject to access free of charge by other agencies of the administration in the scope for performing their public tasks. This is the consequence of the Act of law on computerization of entities executing their public tasks. A licensing framework is under construction consisting of standard agreements/licenses for all or groups of stakeholders including a description of the use

conditions. Despite the fact that funding is an item of concern, there is no separate additional funding foreseen, but there are a series of European projects supporting INSPIRE implementation and there are dedicated budgets from the overall budget.

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 (Not clear)
- 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
- There is a framework or policy for sharing GI between public institutions (Yes)
- There are simplified and standardised licences for personal use (In Preparation)
- The long-term financial security of the SDI-initiative is secured (No)
- There is a pricing framework for trading, using and/or commercialising GI (Yes)

2.4 Component 3: Data for themes of the INSPIRE annexes

2.4.1 Data sets of different resolutions covering the INSPIRE and other themes

In Poland, the spatial data of the public sector are organised in the State Geodetic and Cartographic resource.

The Geodetic and Cartographic Service keeps several registers containing spatial data having a reference character for other data of the NSDI, such as real estate cadastre, large scale maps, including basic map and maps of utilities (territorial development), as well as topographic products in medium and small scales, geodetic and surveying control, and systems of spatial referencing, etc.

At present, the resource of geodetic and cartographic documentation has its organizational structure identical with the structure of units of the Geodetic and Cartographic Service, and is kept at the centres of geodetic and cartographic documentation of county (sometimes municipal) level, provincial level, and the main centre.

Organization of the state geodetic and cartographic resource

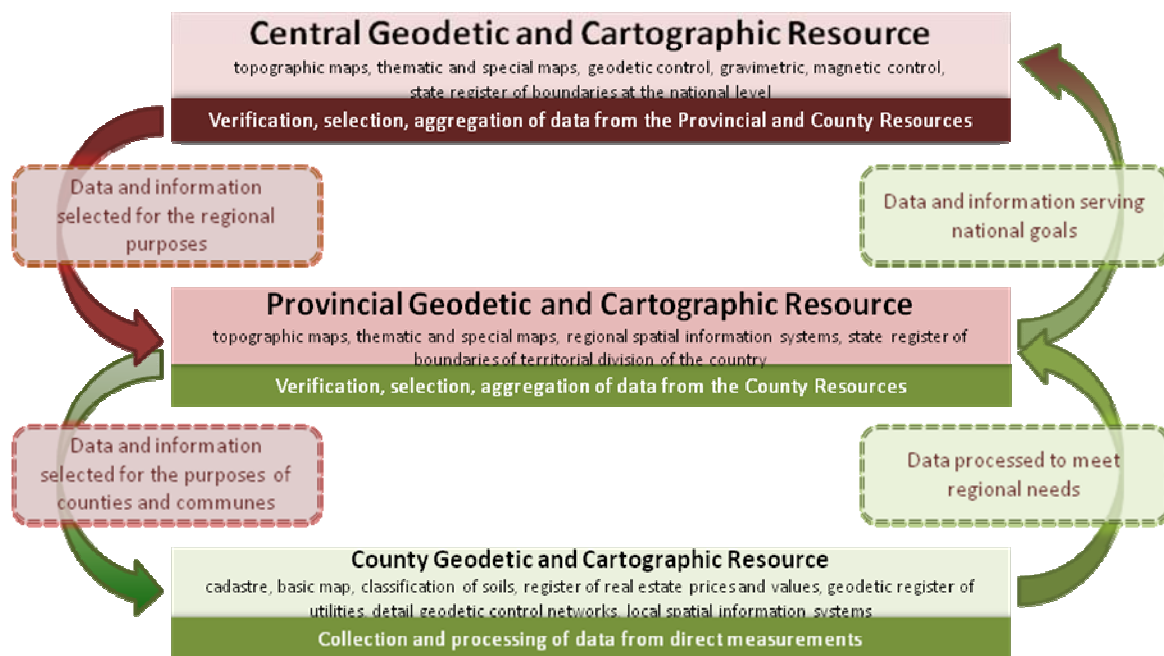


Figure: Organization of the state geodetic and cartographic resource

At the district level, large scale resources are maintained: cadastre, basic map, classification of soils, register of real estates prices and values, geodetic register of utilities, detail control networks, and local spatial information systems.

At provincial (voivodeship) level: topographic maps, thematic and special maps as well as regional spatial information systems, and the state register of boundaries of territorial division of the country in the given province.

At the central level: topographic maps, thematic and special maps as well as geodetic control, gravimetric and magnetic control, state register of boundaries at the national level.

All those resources, both in terms of procedures and technology functioned independently of each other so far.

Scale and resolution

European scale levels supported: 1:500.000 (general map of Poland including topography, hydrography and transport network), 1:750.000 (administrative division map).

Regional scale levels supported: 1:50.000 (e.g. topographic map of Poland, topographic maps of agglomerations, sociological map of Poland, and hydrographical map of Poland), and 1:10.000 (topographic map of Poland).

Local level supported: 1:10.000 (commune maps)

Spatial data themes for the INSPIRE themes

The GEOPORTAL.GOV.PL project includes also activities related to the purchase and production of high resolution satellite photographs and orthophoto-maps to cover 60,000 km² of Poland's surface, as well as to the reconstruction and update of land and building registers in Poland. In addition, the establishment and related activities of the Central Data Depot (CSD) as the national archive of spatial data held by the main geodetic and cartographic documentation centres at different administrative levels form also part of the project.

Spatial data sets listed in Annex 1 of the INSPIRE Directive are maintained by the Geodetic and Cartographic Service, and stored in Geodetic and Cartographic Documentation Centres. They have different spatial resolutions, qualities and relevance. In addition, spatial datasets from Annex I are also maintained by Ministry of Environment, in particular in the context of European Ecological Network Nature 2000.

Spatial data sets referring to Annex II themes are maintained by Head Office of Geodesy and Cartography, and Chief Geologist of Poland. They all are already in place in digital form.

Spatial Data sets referring to Annex III themes are maintained by many governmental authorities dealing with environment, health, infrastructure, regional development, economy, agriculture, and others. These datasets have different scales and qualities, and sometimes unclear rights.

2.4.2 Geodetic reference systems and projections

The geodetic reference system has been introduced by the Enactment of the Council of Ministers at 08.08.2000 on the State Spatial Reference System. The Enactment introduces adjustments of the geodetic reference system EUREF-89 based of the referential ellipsoid GRS 80, normal altitudes system and two systems of rectangular flat coordinates "1992" and "2000".

- The data sets Hydrography, Environment and Natural resources are in Gauss-Krüger (6°) projection (Datum "1942", Spheroid: Krasowski's ellipsoid, Parameters $a = 6378137.00000$ m, $f = 1:298.257222101$)
- The data sets Hydrography, Environment, Natural resources and Topographic maps are in Gauss-Krüger (12°) projection (Datum EUREF-89, Spheroid: GRS'80, Parameters $a = 6378245.00000$ m, $f = 1:298.257222101$)
- The administrative boundaries are in Gauss-Krüger projection (Datum EUREF-89, Spheroid: GRS'80, Parameters $a = 6378137.00000$ m, $b = 6356752.3141$ m, $1/298.257223563$).

For representation and mapping of regional statistics at national and regional level the same map projections have been used as for other geodetic and cartographic studies.

For the maps at large scale, so far the "1965 system" has been used, at present the Gauss Krüger projection is being implemented, with three degree strips, known as the "2000system".

For maps of small scale, so far the "1965 system" and the "1942 system" have been used. At present, the Gauss Krüger secant projection is used, with middle meridian 19^0 – single zone, called "system 1992"

The same projections are used for raster data.

Algorithms are available and used for the conversion of co-ordinates from the co-ordinate systems used in the SDI to ETRS89.

The height reference system for vertical measurements was Kronsztad so far; however, advanced preparations for conversion to Amsterdam have been made.

Since 1999 all products published by the Geographic Services of the Polish Army (WP) have been prepared in NATO standard, in the geodetic reference system WGS-84 and universal transverse mapping by Mercator – UTM or geodetic conformal mapping by Lambert. On the basis of the coordinate networks: UTM and geographical ones, military reporting systems have been introduced: UTM (UTM Reference System) and GEOREF (World Geographic Reference System).

2.4.3 Quality of the data

The national register of borders and areas/surfaces is a central resource in Poland, maintained by Surveyor General of Poland. Data is provided by Provincial Surveyors and is based upon the register of properties. The division into provinces and other units of administration results from the decision of the Council of Ministers, in accordance with the applications from local authorities. The physical registering of borders is a task of the cartographic services of the Main Office (GUGiK).

Names are given by the way of enactment of the Council of Ministers. The Main Office (GUGiK) currently revises the official list of names. The maps of the National Register of Borders differ in accuracy. The state border follows the accuracy of surveys, or is based upon digitalisation of topographic maps (1:10,000 and larger). This work has been done at provincial level (2001) on the basis of data from provinces.

The formal surface area of administrative division units is collected on the basis of land register. The surface area is subject to approval of the CSO (GUS) and is the official figure concerning the surface area.

The names of towns, villages, and physical elements (some 17,000 in total) have been taken from topographic maps. The attributes comprise: name, local name, type (part of town, village, ...), official status of approval, description, population, location (central or at the border of a unit). This is done using software developed locally in 1995. The software requires upgrading to cope with certain constraints as to the content and compatibility. The data is obtained from local authorities. Geographic co-ordinates have been obtained by scanning maps. Names are placed on the maps in the middle/centre of a given locality. The list of names so obtained are placed in the topographic database, and approved as official list of names after being checked by the Committee for Official Names. That allows for distribution of data having official character, providing users with data of suitable value/quality.

The quality is checked by procedures of checking data received to the state geodetic and cartographic resources (pzzgik).

As regards thematic maps, the checking is done by teams of authors/experts and internal acceptance committees.

The location accuracy is covered by quality assessment.

The logical consistence, the completeness of objects and the transient response, are also covered by quality assessment.

In cadastral systems, special data control programs for data control have been introduced: A-SWDE and V-SWDE.

In the process of accepting the data resources the user is provided with remarks on data quality. Studies by-passing the resources are not covered by quality control procedures. The resources are continuously updated. So far, the average update frequency for the above databases was around 10 years.

Thanks to the existence of documentation centres, conditions exist for ongoing archiving. There are systems for marking data versions and archiving of data. There is no need for users to have access to information about changes themselves in the Polish system, yet possibilities exist. The previous versions of geo-referenced data are archived and should a need arise they may be available.

2.4.4 Interoperability and harmonization of data

In the Polish context, interoperability means the possibility for spatial datasets to be combined and for services to interact, without repetitive manual intervention, in such a way that the result is coherent and the added value of spatial data sets and services is enhanced.

One of the key objectives of (N)SDIs in Europe is the implementation of interoperability principles, defined by the European Interoperability Framework for European Public Services from the legal, organizational, semantic, and technical perspective. It implies that introduction of modern, advanced solutions concerning spatial information infrastructure contributes to the development of electronic government.

Due to the distribution of spatial data resources, a major problem in Poland is the provision of suitable interoperability between all interested authorities. In the Act on Spatial Information Infrastructure, this problem is solved by introducing a hierarchical, three level organizational structure.

- 1) Level 1 – the coordinator for entire infrastructure, being the minister responsible for public administration, who executes his/her coordination tasks with the assistance of the Surveyor General of Poland, and is supported by the Council for Spatial Information Infrastructure, being a consultative body.
- 2) Level 2 – leading bodies in the twelve thematically defined parts of the infrastructure.
- 3) Level 3 – bodies managing public registers that contain spatial data needed to be included in the infrastructure.

All these administration bodies that maintain public registers containing sets related to the 34 themes listed introduce, within their jurisdiction, technical solutions to ensure interoperability of spatial data sets and services, and harmonization of these sets.

The Act of Spatial Information Infrastructures provides implementing rules related to the harmonization of the spatial data collections of state resource, integration and interoperability. Harmonization of the data collection is achieved by applying a common approach for defining and describing of spatial data objects, introducing a uniform system of spatial references, and eliminating unnecessary format applications for data exchange. ISO norms are used for modelling databases and defining standards of data exchange based on XML and GML. Finally, a framework for metadata is developed.

2.4.5 Language and culture

Almost all data resources and accompanying documents (Books, technical guidelines (instructions), technical standards) are written in Polish. Only a very few are translated in English.

There is no homogeneous methodology for feature cataloguing. The methodologies are adjusted to specific projects.

A glossary in Polish is available, protected by copyright for publications.

2.4.6 Conclusions of Component 3

Already from the previous SoP reports spatial datasets exist that provide a basis for contributing to the coverage of pan-European INSPIRE-selected data themes and components while the geodetic reference system and projection systems are standardised, documented and interconvertible. The INSPIRE 2010 Monitoring and Reporting report confirms this observation. 54 data sets have been reported respectively 12, 15 and 27 for Annex I, Annex II and Annex III. The quality is checked by procedures of checking data received from the state geodetic and cartographic resources. The Polish NSDI and the INSPIRE implementation devotes specific attention to interoperability issues which goes beyond data formats. However, there is no clear information on how and if this is achieved. Almost all data resources and accompanying documents are written in Polish. Only a very few are translated in English.

Based on these conclusions we score the indicators as follows:

- Geodatasets exist that provide a basis for contributing to the coverage of pan-European 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
- Concern for interoperability goes beyond conversion between different data formats (Partially)
- 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 of metadata

The GINIE report (2003) already stated that “the documentation of data sets and development of a metadata service are central components of the future Polish SDI”.

Metadata are described concerning most spatial databases of national significance. Actions have been undertaken to systematise metadata gathering and up-dating. Metadata management contains the creation of information catalogues, the ways of making them accessible and references to distributors.

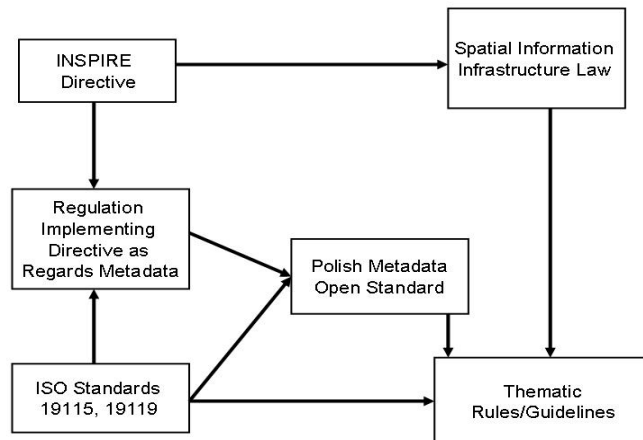


Figure: Metadata management in Poland; the Polish Metadata Open Standard is not formalised.

In the Act on Spatial Information Infrastructure, the creation, update and sharing of metadata is the responsibility of administration bodies responsible within its jurisdiction for the keeping of the public registers containing sets related to 34 themes of spatial, and of third parties whose sets are included in the infrastructure.

2.5.2 Metadata catalogues

In 2007 the Surveyor General of Poland took the initiative to elaborate a Polish profile of metadata for spatial data. During a project, a metadata profile for the data stored in geodetic and cartographic documentation centres (ODGiK) was elaborated. It was finished in April 2007 and was publicly made available (on GUGiK WebPages) for comments. On the basis of the experience gained during this profile for geodetic resources, the Polish profile of metadata for spatial data was developed. It is important to mention that the use of profile is not mandatory. It is in line with both ISO standards concerning metadata (ISO 19115, ISO 19119) as well as the third draft of INSPIRE metadata implementing rules. Therefore, some small discrepancies between Polish metadata profile and the current INSPIRE Metadata Implementation Rules exist.

In the Polish national geoportal a metadata catalogue is available at: <http://maps.geoportal.gov.pl/webclient/default.aspx?activeTab=1>

2.5.3 Metadata implementation

The Surveyor General of Poland is responsible for co-ordination.

The Main Centre of Geodetic and Cartographic Documentation creates and maintains metadata for the purposes of Polish geoportal

There is no standard procedure for metadata update and management at national level. Many organizations follow only their internal procedures for metadata update.

Other metadata activities regarding the key data sets of Poland are the setting up of the INSPIRE services, and the studies on specifying the user needs.

2.5.4 Conclusions of Component 4

Metadata are produced for an important part of geodatasets of the INSPIRE-themes. The 2010 Monitoring and Reporting report reveals that for the reported datasets of INSPIRE (42%, 67% and 4% of the data sets have metadata, for each Annex respectively). In the Polish national geoportal a metadata catalogue is available. The Surveyor General of Poland is responsible for co-ordination of metadata.

Based on these conclusions we score the indicators as follows:

- Metadata are produced for a significant part of geodatasets of the INSPIRE-themes (Partially)
- 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

2.6.1 Geoportal

A very important SDI-related development is the launch of the Polish Spatial Information Infrastructure Geoportal; www.geoportal.gov.pl. This geoportal can be considered as the national geoportal providing a single entry point to numerous (Polish) data and services (including the ones necessary for INSPIRE). In 2004, a project started to build the Polish geoportal and was conducted by the Surveyor General of Poland (GUGiK) as a non-profit activity. A test version was launched in June 2006. The current version is established and maintained by Surveyor General of Poland. The geoportal.gov.pl provides access to the following data: Farming, Biota, Boundaries, Elevation, Environment, Geoscientific information, Imagery, base maps, Earth cover, Inland waters, Location, Cadastral, Society, Structure, Transportation and Utilities communication. These datasets form the

full and thematic range of the Polish SDI. It appears that through this geoportal numerous datasets can be discovered, and numerous datasets be viewed (joined into around 25 layers), and 3 data sets can be downloaded. As the central access point to spatial data and services, geoportal.gov.pl is daily visited by ± 8000 visitors.

The technical infrastructure of the Geoportal.gov.pl covers, above all, the IT systems, telecommunication networks and software, as well as proper equipment. The equipment is placed on three levels: district, provincial (voivodeship) and national.

The architecture of the Geoportal.gov.pl has a layer character. The highest layer, described as “portal services”, is the access layer, with a user-friendly interface. The elements of this layer provide the end users with the access to the spatial data, and are based on the network services provided in the next layer (e.g. catalogue service client CSW (with the interface enabling the searching, browsing and downloading metadata) and the geospatial services client WMS (configurable, interactive map browser). The layer below is the broker layer. This layer mediates between the access layer and the network services, and organizes the access to the remote data. It consists of a central CSW service with options for searching and downloading, and a central WMS service with an option for configuration. The next level below is the network services layer consisting of the linked CSW and WMS services. Finally, at the bottom, is the data layer. The layer assures the data storing and maintenance.

Several activities have been undertaken to assure proper safety e.g. protecting data against being destroyed and unauthorized access. The safety requirements are met by the following activities: firewall installation in the points of contact with the outer network, creation of backup copies of the data bases, use of the intranet to the tele-transmission, and use of antivirus software.

An important objective of the geoportal.gov.pl is to improve the competitiveness of the enterprises by the means of providing the entrepreneurs with online services based on the spatial data (including cadastral data) and on metadata. Other objectives of the geoportal.gov.pl project:

- To develop enterprises and enhance the innovativeness and competitiveness of the companies in the market by providing the access to the spatial data.
- To support the entrepreneurs’ decision process regarding the investments.
- To modernize the public administration (at national, provincial (voivodeship) and local levels) by using modern information technologies.
- To increase entrepreneurs’ knowledge about geographic information and enhance the entrepreneurs’ awareness of the strengths of geographic information (in particular cadastral information).
- To save time and costs of the companies making use of spatial data and services.
- To stimulate companies to supply services in the market

- To enhance participation in the construction of the information society

The follow up activities of the geoportal.gov.pl take place in GEOPORTAL 2 project focusing on the extension of the current functionalities among other issues. This project deals with the improvement of data sharing capabilities making use of Electronic Charging System for transactions, spatial queries (e.g. query for the closest hospital), spatial data and services provision by third parties, address localization service, and the access to the geodetic network database.

Besides geoportal.gov.pl some other geoportals are implemented. They allow discovery and viewing both reference and environmental data, and are maintained by public administration at different levels. Amongst services which support discovery and viewing environmental data are:

- Geoportal – IKAR (<http://ikar.pgi.gov.pl/Portal/>);
- State Forests WebGIS Service (<http://www.lp.gov.pl/mapa/>);
- Service of Main Centre of Geodetic and Cartographic Documentation (http://serwisy.codgik.gov.pl/Przegladowka_foto/default.htm);
- Regional portals (e.g. <http://www.osip.opole.pl/portal/>, <http://156.17.201.140/mapviewer/>);
- Local portals (<http://www.mapa.um.warszawa.pl/>, <http://www.mapa.lodz.pl/>, <http://mapa.gdansk.gda.pl/Plan/Mapa.aspx>).

Reference datasets are most often publicly available by geo-services maintained by governments at the voivodeship level. The most advanced one is from Mazowieckie voivodeship in the GIS Mazovia website, available at: <http://www.gismazowska.pl>. Occasionally, cadastral data are available via geo-services. In these cases the local cadastral data services are integrated by Polish Geoportal creating seamless multi-source view services from a user perspective.

According to the Act on Spatial Information Infrastructures, administration bodies keeping registers containing sets related to the themes of spatial data listed have to establish and operate, within their jurisdiction, a network of services related to spatial data sets and services. These services are the following:

- 1) Discovery services making it possible to search for spatial data sets and services;
- 2) View services making it possible to display, navigate, zoom in/out, pan or overlay viewable sets and display legend information for cartographic symbols and metadata content;
- 3) Download services, enabling copies of sets or their parts to be downloaded and, where practicable, accessed directly;

- 4) Transformation services, enabling sets to be transformed with a view to achieving interoperability.

The Act on Spatial Information Infrastructure provides common and free of charge access to discovery and view services.

2.6.2 Network services

2.6.2.1 Discovery services

On-line access to metadata by Internet – HTTP was already available in the pilot phase for the MATRA project. In addition, several geodetic and cartographic documentation centres e.g. in the provincial centre (WODGiK) in Katowice, in Łódź (2100 metadata sets, 55,000 sets) and thematic projects, brought metadata online. The language was Polish. However, this was not a national initiative. These metadata catalogues were made available providing options for generating files in XML format in compliance with ISO 19115. Concerning thematic data, only for a selected number of geological issues, it was possible to access online metadata.

In the meantime, a metadata portal was developed to make the discovery of spatial data easier. This system is conform ISO standards and has been integrated in the national geoportal (<http://maps.geoportal.gov.pl/webclient/default.aspx?activeTab=1>). It includes now an advanced metadata search engine that users can use to search for datasets, series and services of the following categories, namely: Farming, Biota, Boundaries, Elevation, Environment, Geoscientific information, Imagery, Base maps, Earth cover, Inland waters, Location, Oceans, Cadastre, Society, Structure, Transportation, Utilities communication. Metadata of numerous datasets can be accessed.

The INSPIRE Monitoring and Reporting 2010 reported the existence of 5 discovery services.

2.6.2.2 Viewing services

With the development of the GEOPORTAL.GOV.PL portal, many datasets of numerous different sources can be viewed online.

The INSPIRE Monitoring and Reporting 2010 reported the existence of 4 viewing services.

2.6.2.3 Download services

There are several download services available in the National Geoportal:

- Cadastral data (http://sdi.geoportal.gov.pl/wfs_dzkat/wfservice.aspx)
- Boundaries of administrative units (http://sdi.geoportal.gov.pl/wfs_prg/wfservice.aspx)

- Geographical names (http://sdi.geoportal.gov.pl/wfsg_prng/wfservice.aspx)

2.6.2.4 Transformation services

According to the INSPIRE Monitoring and Reporting 2010, there are 2 transformation services existing in Poland.

2.6.2.5 Invoking services

No information has been found about Invoking services in Poland

2.6.3 Spatial Data Services and other services

The following spatial data services and other services are available:

- Specific management services are common at the local level.
- Coverage services in geodetic and cartographic documentation centres (odgik)
- Glossary service at geodetic and cartographic documentation centres.
- Certification/legalisation services at geodetic and cartographic documentation centres (odgik).
- Services for analysis or data aggregation.
- Services for pricing and ordering at geodetic and cartographic documentation centres.

2.6.4 Use of software

Open source software is frequently used, and there is a high level of awareness about various open source packages. The most commonly used packages are: QGIS, GRASS and uDIG in the Desktop software arena, the Geoserver and the Mapserver with the PostgreSQL and PostGIS supporting databases, and all the necessary tools like Apache Tomcat application server, etc. In general OpenSource software is being used as a tool that provides a chance to struggle for geo-informatics market and image, and as a factor for being innovative. Some QGIS and GRASS-applications have reached a mature stage, and there is a group of people operating around the OSGeoPL.

2.6.5 Conclusions of Component 5

With the development of the geoportal.gov.pl portal, many datasets of numerous different sources can be viewed online. It appears that through this geoportal numerous datasets can be discovered, and numerous datasets be viewed (joined into around 25 layers), and 3 data sets can be downloaded. The Monitoring and Reporting report confirms these observations; 5 discoveries, 4 view, 1 download and 2 transformation services. However at the time of the scoring the download URLs were not working while regarding the

transformation services this is not so clear when they are defined according INSPIRE-definitions.

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 viewing services available to visualise data of the themes of the INSPIRE annexes
- There are one or more on-line download services enabling (parts of) copies of datasets (Not clear)
- 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 (No information found)

2.7 Component 6: Environmental themes and activities

The existing environmental data sets in Poland are:

- Nature2000 dataset of Ministry of Environment describing the protected sites.
- Central Register of Nature Protection Forms describing the protected sites.
- Central Database of Tumours of Ministry of Health describing the human health and safety.
- Database of Topographic Objects of Surveyor General of Poland describing the utility and governmental services (sewage, waste management, energy, etc.), production and industrial facilities (water abstraction, mining, storage sites).
- Natural Forest Fire Information System of Ministry of Environment.
- Central Database of Climate of Ministry of Environment describing the atmospheric conditions, meteorological features (weather conditions, measurements).
- Database Nature Inventory of Chief Nature Conservator describing biogeographical regions (areas with homogeneous ecological conditions), Habitats and biotopes (geographical areas for specific ecological conditions).

- “MIDAS” – Deposits database of Chief Geologist of Poland describing energy resources (hydrocarbons, hydro-power, bio-energy, solar, wind, etc.), and Mineral resources (metal ores, industrial minerals depth/height).
- Geoenvironmental database of Chief Geologist of Poland describing energy resources (hydrocarbons, hydro-power, bio-energy, solar, wind, etc.) and Mineral resources (metal ores, industrial minerals depth/height).
- Mineral resource of Poland of Chief Geologist of Poland describing energy resources (hydrocarbons, hydro-power, bio-energy, solar, wind, etc.) and Mineral resources (metal ores, industrial minerals depth/height).
- Central Geological Database of Chief Geologist of Poland describing energy resources (hydrocarbons, hydro-power, bio-energy, solar, wind, etc.) and Mineral resources (metal ores, industrial minerals depth/height).

2.7.1 Conclusions of Component 6

There are important environmental data sets for the environmental themes, but there are gaps as well.

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 (Partially)

2.8 Component 7: Standards

It is clear that Poland pays more and more attention to standards. Also in the acts, they refer to interoperability and standards, and specific work has been done in the geoportals to comply with OGC standards. Moreover, the Polish profile of metadata for spatial data is in line with both ISO standards concerning metadata (ISO 19115, ISO 19119) as well as the third draft of INSPIRE metadata implementing rules.

2.8.1 Conclusions of Component 7

Based on the information provided on 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 NSDI

No information has been found

3 Annexes

3.1 List of SDI addresses / contacts for Poland

Table: SDI contact list			
SDI Name (full)	Web address	Organisation l mailing address	Over-all contact person: tel./fax/e-mail
National			
Surveyor General of Poland (GUGiK) National Contact Point (GUGiK)		2, Wspólna Street, 00-926 Warsaw, Poland	Mrs Ewa Surma, Tel.: +4822-6618275; Fax.: +4822-6293872, ewa.surma@gugik.gov.pl
Main Geodetic & Cartographic Documentation Centre of Head Office of Geodesy and Cartography (Geoportal Division)		94, UL. Olbrachta, 01- 102 Warsaw, Poland	Mr. Marcin Grudzień, Tel.: +4822-5322530; Fax.: +4822-5322596, marcin.grudzien@co.dgik.gov.pl

3.2 List of references for Poland

Table: list of references used to compile the Country Report	
Web sites:	
	National Geoportal (www.geoportal.gov.pl) http://www.ec-gis.org/Workshops/inspire_2008/presentations/06_05_gazdzicki.pdf

Publications:	
	Act of 4 March 2010 on Spatial Information Infrastructure. English version. Annals of Geomatics 2010, Vol. VIII, 2(38): 36-64.
	M., Andrzejewska, 2009. INSPIRE Academy – A way to Introduce Geoinformation Into Practice. GSDI11, Rotterdam, 2009.
	K., Borys and E., Mecha, 2009. New opening of the National Infrastructure of Spatial Information within the framework of the project GEOPORTAL.GOV.PL. GSDI11, Rotterdam, 2009.
	M., Brylski, 2009. INSPIRE drafting teams work versus practical INSPIRE implementations, theory and practice. Enviro-i-Fórum – Zvolen – Slovakia – June 2009

J., Bydłosz and P., Parzych, 2009. The Cadastral Data and Standards based on XML in Poland. FIG Working week, Eilat, Israel 3-8 May 2009.
J., Dygaszewicz, 2009. Implementation of INSPIRE within Statistics in Poland. GSDI11, Rotterdam, 2009.
J. Gaździcki, 2010. Viewpoints on INSPIRE Architecture. Annals of Geomatics 2010, Vol. VIII, 2(38): 23-36.
Glówny Geodeta Kraju, 2009. Ramowy Program Tworzenia Infrastruktury Informacji Przestrzennej W Latach 2009 (in Polish).
L. Grus, J. Crompvoets and A.K. Bregt, 2010. Spatial Data Infrastructures as Complex Adaptive Systems. . International Journal of Geographical Information Science, 24(3): 439-463.
T., Kubik, W., Paluszynski and P. Netzel, 2008. Implementation of the Elements of the Polish National Spatial Data Infrastructure Based on Open Source Software. FOSS4G 2008, Cape Town.
T. Kubik, W. Paluszynski, A. Iwaniak, I. Kaczmarek and P. Netzel, 2010. The role and areas of application of free and open source software in Poland. GSDI12, Singapore
J. Orlińska, 2010. Beneficial impact of INSPIRE Directive on National Legislation: The Case of Poland. Annals of Geomatics 2010, Vol. VIII, 2(38): 11-22.