



# Spatial Data Infrastructures in Slovenia: State of play Spring 2005

Country report on SDI elaborated in  
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## Change matrix 2005 versus 2004

Paragraphs in which information is reported which deviates in a significant way from what was reported in the Spring 2004 version of this country report are listed in the below table. **They are indicated in red.**

<b>Paragraph</b>	<b>Type of change</b>
Executive Summary	Added information on Spatial Planning Act, updated to reflect state Spring 2005
1.1	Updated to reflect state Spring 2005
1.2	New information
2.1	New information
2.2.1	New information
2.2.3	New information, updated to reflect state Spring 2005
2.2.4	Updated to reflect state Spring 2005
2.2.5	Updated to reflect state Spring 2005
2.5.9	New information
2.7.2	New information
2.7.3	New information
3.1	Added key stakeholders and coordinates
3.2	Added references

## Executive summary

In Slovenia, a far reaching NSDI is being built in a centralized top-down approach. There is no clear legislation in place concerning the NSDI but the NMA (Survey and Mapping Authority of the Republic of Slovenia – SMA), operating under the **Ministry of Environment and Spatial Planning (MESP)**, has a de facto mandate to coordinate the elaboration of the NSDI. This mandate results from legal acts on geodesy and cadastre mainly. A Centre for Geo-Information has been set up within SMA to deal with the executive work for the NSDI.

The **Spatial Planning Act** defines that state and municipalities shall maintain a spatial data system to monitor the spatial planning and management situation. The Minister of the Environment laid down in 2004 detailed instructions for the contents and the manner of maintaining the spatial data system, the connectivity of the data, and the conditions for computer access to databases and the availability of data.

Several NSDI-components are in place or under development:

- Reference datasets at various scale levels;
- A comprehensive, standardised metadata catalogue and access service covering geodatasets from a large number of data producers, including SMA;
- A pricing policy catering for non-commercial and commercial re-use of the data;
- An agreement for sharing data within the public sector;
- An ambitious programme to provide more and more advanced spatial data services in line with the GSDI and INSPIRE guidelines.

Apart from the SMA-lead NSDI, metadata about thematic environmental datasets are being offered on the internet.

A national GI-association does not exist in Slovenia.

The result is that Slovenia has progressed a lot in producing GI and in making it available and accessible for a wide user audience. User participation in and user satisfaction regarding the NSDI-initiative could not be assessed.

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## Abbreviations and acronyms

CBZK	Cadastral Central Database (only in Slovenian language)
CDS	Catalogue of Data Sources)
CEPP	Central Records of Spatial Data
CT	Core Thematic Data
EARS	Environmental Agency of the Republic of Slovenia
EEA	European Environmental Agency
FIR	Further Investigation Required
GEABIOS	Geo Enabled and Better Internet Oriented Services
GI	Geographical Information
GIC	GeoInformation Centre
GIS	Geographical Information System
GSDI	Global Spatial Data Infrastructure
IBRD	International Bank for Reconstruction and Development
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
MESP	Ministry of Environment, Spatial Planning and Energy
NMA	National Mapping Agency
NSDI	National Spatial Data Infrastructures
NTM	National Topographic Maps
PSI	Policy and legislation on access to public sector information
PPP	Public-private partnerships
REF	Reference data
SDI	Spatial Data Infrastructures
SEA	Slovene Environmental Agency
SGII	Slovenian Geoinformation Infrastructure
SMA	Surveying and Mapping Authority of Slovenia
SNSDC	Slovenian National Spatial Data Catalogue
UN/ECE	United Nations Economic Commission for Europe
UTM	Universal Transverse Mercator
WPLA	Working Party on Land Administration

# 1 GENERAL INFORMATION

## 1.1 Method

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

The report is based mainly on the analysis of web sites readily accessible and on documents presented on several workshops and conferences.

The report has been completed based on written comments provided by Ms. Azman from the Geo-Information Centre and from Mr. Simon Vrecar from IGEA, a major Geo-ICT consultancy company in Slovenia (March 2004). **The 2005 update was based on the input received from Mr. Tomaž Petek and Mrs. Irena Rejec-Brancelj (Environmental Agency).**

## 1.2 Overview of specific SDI-initiatives

A large awareness and political commitment exists in Slovenia with respect to the strategic role of GI. Slovenia has already developed a clear legal and technical framework for a NSDI as part of a broader national information infrastructure. It has also made large progress in implementing key components which include coordination, core data and metadata.

The situation seems to be rather 'simple'. There is one major actor for developing the Slovenian SDI, i.e. the Geo-Information Centre, part of the Surveying and Mapping Authority of Slovenia (SMA) which belongs to the **Ministry of Environment and Spatial Planning (MESP)**<sup>2</sup>. **In addition, the Environmental Agency of the Republic of Slovenia (EARS) which also belongs to the MESP, is an other key player in the development of the Slovenian SDI, with focus on environmental data and applications.** There are no autonomous regional initiatives yet. All GI activities at the local level are carried out by the municipalities and the 12 regional geodetic administrations and 46 branch offices under supervision of central government.

Private companies play a specific role in data acquisition, application development and consultancy. The first aspect is covered and regulated by the Geodetic Activities Act. Some technical and development tasks in the field of topography and cartography are carried out by the Ministry of Defense in co-operation with the SMA of Slovenia.

There seems to be no official name for the SDI of Slovenia. The only one used in some articles is the Slovenian GeoInformation Infrastructure, SGII.

Besides the activities of the SMA which can be seen as leading towards an operational SDI, there are some separate projects and/or networks being built. **One example is the setting up of the Slovenian seismic, water and meteorological network of the Geophysical Survey of Slovenia (also part of the EARS).**

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<sup>1</sup> INSPIRE position papers, final versions: RDM, ETC, DPLI, ASF, IST, IAS (latest version).

<sup>2</sup> **Former Ministry of Environment, Spatial Planning and Energy (MESP)**



## 2 Details of the Slovenian Geoinformation Infrastructure

### 2.1 General Information

#### Official address:

- Surveying and Mapping Authority of the Republic of Slovenia (SMA)  
Zemljemerska ulica 12, 1000 Ljubljana, Slovenija  
Telephone: +386-1-4784800  
Fax: +386-1-4784909 or +386-1-4784834
- Ministry of environment and spatial planning (MESP)  
Spatial Planning Directorate  
Dunajska 48, 1000 Ljubljana, Slovenija  
Telephone: +386 1 478 7431  
Fax: +386 1 478 7426

The SMA deals with geodesy and is as such responsible for the construction and update of the geodetic reference systems, definition of the state boundary and the internal country division, accreditation of geodetic service providers and for related international co-operation. It is also responsible for the land cadastre and the register of buildings, the register of spatial units (addresses), topographical databases and maps. Hence, its main 'traditional task is to ensure the existence and quality of spatial data for all official needs for the territory of Slovenia. . In addition it has the legal task to disseminate data, produce and manage data catalogues and supervise copyright issues.

The SMA is a member of EuroGraphics. Since 1996, it has been a member of the European association for real estate management (UN/ECE WPLA - Working Party on Land Administration) within the United Nations Economic Commission for Europe. SMA's representative is the chairman of this association. In the current four-year period, SMA is chairing the UN regional European group for the standardization of geographical names (East-Central and South-East Europe Linguistic Geographical Division of the United Nations Standardization of Geographical Names).

The MESP deals with reform of the standards and organizational aspects of spatial planning embraces and establishes new rules, especially in relation to the system of spatial planning documents and their contents, recognition and introduction of market instruments in the area of spatial planning, new roles in spatial planning for local communities and respecting private property as one of the basic constitutional categories. The new normative arrangement will enable greater flexibility of spatial documents and greater public participation in adopting decisions on the use of space, establish the foundations of a spatial planning information system and newly regulate the activities of spatial planning.

## **2.2 Component 1: Legal framework and funding**

### **2.2.1 Legal framework and organizational issues**

The first steps in the development of the Slovenian SDI were taken within the Ministry of Environment, Spatial Planning and Energy (MESP) and its bodies, but a lot of parallel activities were running in other institutions and organizations. This Ministry has a particularly important role as most of the key providers of GI depend from it. This includes the “Surveying and Mapping Authority (SMA)” (<http://www.gov.si/gu>). The Ministry also includes the “Office for Physical Planning” which is responsible for the development and control of spatial plans, and the “Environmental Agency”. Among the other government ministries and agencies the most important with respect to GI is the “Statistical Office of the Republic of Slovenia” and Ministry for Interior which is responsible for population data.

The “GeoInformation Centre” (GIC) of the MESP has been established at SMA in 1991 with the following mission:

- to regulate and co-ordinate GI policy at a national level, and co-operate with other national and international organizations with respect to GI-related standardization, legislation, policy, and legal and organizational aspects of data exchange and distribution,
- to develop user services including users requirements analysis, translation of requirements in terms of information processing, technical advice, linking information users and providers and quality support (preparation of quality manual, quality assurance, quality audits);
- to develop metadata services, remote access to metadata catalogues, and data provision through a distributed data warehouse systems;
- to raise awareness of importance of an IT infrastructure, including human resources management, research and development, provision of tools, training, and data integration.

In 2001 the Geoinformation center became part of the Surveying and Mapping Authority with the same tasks and responsibilities.

The organization of performing the geodetic tasks is regulated by the Geodetic Activities Act (Official Journal of the Republic of Slovenia, 2000, No.8), This Act defines the surveying and mapping activity and determine conditions to implement this activity. It also defines the geodetic service as a part of the surveying and mapping activity being implemented in public interest, determine geodetic service duties, manage the organization and implementation of geodetic service duties, geodetic data issuing and application, and inspection control.

The predominant part of geodetic activities is regulated by:

- the Recording of Real Estate, State Border and Spatial Units Act (Official Journal of the Republic of Slovenia, 2000, No. 52),
- the Basic Geodetic Measurements Act (Official Journal of the SRS, 1974, No. 16, and Official Journal of the SRS, 1986, No. 42),

- the Naming and Recording of Settlements, Streets and Buildings Act (Official Journal of the SRS, 1980, No. 5, and Official Journal of the SRS, 1986, No. 42).

The present legal framework and legal background for geodetic data, access to geodetic data and pricing policy for geodetic data in Slovenia is based on following acts and regulations:

- Strategy of e-business in public administration in Slovenia 2001 – 2004 (Official Gazette 2001);
- Act of electronic commerce and electronic signature (Official Gazette 2000);
- Geodetic activities Act (Official Gazette 2000);
- Ordinance of prices for geodetic data (Official Gazette 2002);
- Act of administrative taxes (ZUT) (Official Gazette 2000);
- Recording of Real Estate, State Boundary and Spatial Units Act (ZENDMPE) (Official Gazette 2000);
- Regulations for electronically access to the Land cadastral database and spatial units database (Official Gazette 2002).

In May 2000, the National Assembly of the Republic of Slovenia passed the new Recording of Real Estate, State Border and Spatial Units Act, which began to be applied on 28 December 2000, and it substituted the Land Cadastre Act (Official Journal of the SRS, 1974, No. 16, and Official Journal of the SRS, 1986, No. 42). This Act provides uniform registration of real estate and quality data on real estate, which are the basis for the space economy, land policy administration, real estate taxation, keeping records of substantial rights on real estate, for the spatial definition of data, and other purposes. Regulated real estate registration is conditioned by already adopted international liabilities (in the fields of the environment, statistics, foreigners title to real estate...), and primarily by the process of joining the European Union.

The Surveying and Mapping Authority intends to bring data of the Land Cadastre, Buildings Cadastre and Register of Spatial Units closer to various users by the support of new information technologies, which is in line with the activities related to the establishment of conditions for so-called E-Business carried out by the Government of the Republic of Slovenia. For this reason, the Rules on Conditions and Computer Access Mode to Land Cadastre and Buildings Cadastre Data and Register of Spatial Units (hereinafter referred to as the Rules) were adopted.

In 2003, several new legal acts concerning spatial planning and building were accepted. The *Spatial Planning Act* regulates the spatial planning and the enforcement of implementation measures for the planned spatial arrangements, and ensures the building land development and the maintenance of a spatial data system. One of the main goals is to achieve a spatially harmonized and mutually complementary location of various activities and to provide spatial opportunities for a balanced development of the community. The state and local communities shall cooperate in the matters of spatial planning and management, particularly in planning the development and location of activities with spatial impact, which refer to the common use of natural resources,

common transport, energy and municipal facilities, and to other spatial arrangements in connection with the environmental protection, nature conservation, and protection of cultural heritage.

A spatial data system is defined in chapter 5 of the Spatial Planning Act: “the system of preparing, collecting, and maintaining data banks in the field of spatial planning and other matters of spatial planning and management”. The Act states that the state and the municipalities shall maintain a spatial data system to monitor the spatial planning and management situation. The spatial data system shall contain databases referred to in this Act, and other databases related to spatial planning and management provided by law or by a local community ordinance. The spatial data system shall be based on mutually comparable and interrelated geodetic data, records, and other data bases, harmonized with the statistical data banks.

In 2004, the Minister of the Environment laid down detailed instructions for the contents and the manner of maintaining the spatial data system, on the connectivity of data, and on the conditions for computer access to databases and on the availability of data from them. Spatial planning stakeholders are obliged to exchange data among themselves, and to supply the Ministry of the Environment and bodies within its composition with their documents and other regulations containing the requisite data in the prescribed format and relating to spatial planning and management.

The following new datasets were defined as a part of the spatial data system:

- Legal Regimes Database: It shall be presented in the land cadastre and be linkable to the cadastre of buildings. The Minister of the Environment is responsible for setting up the database and maintaining it, in collaboration with the communities. The following data are included: spatial act type, spatial act identification number, spatial act title, data on the publication of the spatial act, regions to which the spatial act applies, body that adopted the spatial act, date on which the spatial act enters into force, date on which the spatial act ceases to be in force, data on any revisions to the spatial act, spatial acts archives.
- Administrative Acts database: *the administrative acts database* shall comprise data on administrative acts that are issued on the basis of the regulations for the field of spatial planning and the construction of facilities and that have the character of individual administrative acts (hereinafter: administrative acts). The Ministry of the Environment shall maintain the database, while data shall be entered in this database by the administrative authorities responsible for issuing them. The database shall be maintained in the land cadastre, and in the cadastre of buildings as imported data. The acts are maintained in groups: acts on the arrangements, measures and limitations in the physical space; building permits; operating permits; administrative acts issued in the inspection procedure. The following data shall be included: unified identification of the administrative act; type of the administrative act; data on the real estate to which the administrative act applies; title of the body that issued the administrative act; the code of the document or the case code given by the issuing body of the administrative act, and the administrative act date

of issue; a finality mark or a mark that the administrative act has acquired the authority of the final decision, any mark of cancellation, revocation or nullity of the act, in case of inspection measures also a mark of the termination of the procedure.

- **Actual Land Use Database:** it shall comprise data on the actual land use and data on public infrastructure networks and facilities. Data on actual land use shall be maintained according to the regulations on real estate records. These are maintained in the land cadastre according to the type of actual use for agricultural land, forested land, water areas, barren land and built-up land. For each individual region of actual land use shall be gathered data about: border of a region, type of actual use, surface area of the region, precision level of determining the region border, manner of determining the type of actual use, link with the detailed data database.
- **Data on public infrastructure Networks and Facilities:** *Data on public infrastructure networks and facilities* shall be maintained in the cadastre of public infrastructure based on data on the already built public infrastructure networks and facilities and data supplied by investors after the completed construction. Summary data on the types and positions of the public infrastructure networks and facilities shall be maintained by the body responsible for land surveying affairs in the topographic database – connectible to the land cadastre – on the basis of data recorded in the cadastre of public infrastructure. Any change to the data in the cadastre of public infrastructure, which also denotes the change of data in the topographic base, shall be recorded and supplied to the body responsible for land surveying affairs within three months of its emergence. The municipalities and the ministries responsible for individual public infrastructure networks and facilities shall provide for the maintenance of the cadastre.

The presence of a national GI association is often considered crucial to raise awareness, exchange ideas and best practice, act as a forum for debate and develop the necessary support. Slovenia has however made excellent progress without such an association, but the SMA has acted as a strong focal point for action. The SMA manages and promotes several projects that intend to raise awareness for GI and to promote the communication among GI-actors.

### **2.2.2 Public-private partnerships (PPP's)**

The Slovenian GI-initiative counts upon the active involvement of all main GI-actors. Private companies play a specific role in data acquisition, application development and consultancy. The private sector is cooperating with the public sector mostly as a performer of budget (state or local) funded projects or as reseller of data.

### **2.2.3 Policy and legislation on access to public sector information (PSI)**

The right of each person to acquire information held by a public body is laid down by article 39 of the Constitution of the Republic of Slovenia. The main content of the

constitutional provision could be described as the right of individuals to get informed about the work of public sector bodies and by this means exercising control over the transparency of their work, thus assuring public control on their decision making processes. Yet such a general provision established the freedom of information more on a principal than factual level, leaving significant discretionary powers to each public body governing the particular information that indispensably resulted in a certain amount of arbitration in this respect. The Media Act, which was adopted in 2001, provided some relief particularly regarding the access to information for media, but still left some room for interpretation of some key terms (such as for instance »confidential data«), thus allowing arbitration. The main problem however, which is a general legal regulation of the exercising of the freedom of information by individuals and particularly the implementation of procedural provisions guaranteeing also a comprehensive judicial review, remained almost completely unsolved.

The Slovenian Parliament adopted the Access to public sector information Act which entered into force on the 22nd of March 2003. The law brings quite a few changes and also takes into account the possibilities of Internet. The Access to public sector information Act could be described as the first important step towards a regulatory framework governing this issue. The basic provisions of the Access to public sector information Act:

- defines public bodies responsible for providing the information; according to this provision public bodies are all legislative, executive and judicial authorities on national, regional or local level, public agencies, public foundations, bodies governed by public law and other bodies exercising a public authority;
- provides also a more comprehensive and a unified understanding of what are public sector information, basically by excluding certain types of information (this »negative interpretation« approach could certainly be criticized, yet it is perhaps the only compromise which guarantees the respect of other fundamental freedoms – such as for instance personal data);
- imposes the obligation on public bodies to provide all public sector information, held by a particular public body, on the internet;
- to implement the obligation from the previous paragraph each public body is obliged to establish a catalogue of public sector information administered by the public body which is the main framework for the provision of public sector information;
- defines the procedure of access of individuals to public sector information;
- guarantees a free of charge insight and a charge restriction for transcript limited only to material costs;
- establishes an independent body – the deputy for access to public sector information – which is appointed by the parliament on a proposal by the president for a mandate period of 5 years, with as main duty being the appellat institution against decisions of public bodies, still on an administrative level; his decisions are final, judicial review is allowed; the

main reason for such a structure is the fact that due to the wide extent of different public bodies, stretching through the whole public sector but also involving certain persons of private law with public authorities an unified appellant body is a nuance for a coherent approach on the provision of public sector information;

The function of the deputy has some principal similarities with the function of the Ombudsman. Yet his role in the decision making process as an appellant differs significantly from that of the Ombudsman, which has according to the Access of public sector information act, a general monitoring function, together with the Ministry of information society which also performs certain functions for promoting and fostering the exploitation of public sector information.

In Slovenia metadata services for GI are fairly well developed. There is free access to the data system via Internet.

Under the Spatial Planning Act of 2003, everyone has the right, in compliance with the law and upon payment of an official charge, to access and to obtain data from the databases falling under this legislation. The Governmental departments and local community bodies are not obliged to pay such access charge. Access to the databases is not recorded. In accordance with and under conditions provided by the regulations on keeping records of real estate, it is also possible to access or obtain data from the land register and the cadastral buildings register, records of the state border and the register of spatial units linked to the data in the databases.

For the purpose of preparing spatial planning documents, for administrative procedures, and maintaining databases, the spatial planning stakeholders shall have the right to access and obtain all data on real estate and their owners, including personal data, kept in the land cadastre, the cadastre of buildings, and the land register. These rights also include the right to obtain data from the records on the state border and the register of spatial units, including computer access to such data.

Directive 2003/4 on access to environmental information has not been transposed into Slovenian law yet. The law on access to Information of Public Character from 2003 is in the process of being amended to include provisions on re-use of public sector information: licensing, transparency on contracts, penal provisions, and consolidation of general and special principles on access.

## 2.2.4 Legal protection of GI by intellectual property rights

The Copyright and Related Rights Act dates from 30 March 1995 (O.G. RS, No. 21/95) and has been in force since 29 April 1995. Cartographic and photographic works are in particular considered as copyright works (article 5).

According to article 8 of the Copyright Act copyright protection shall not be afforded to official legislative, administrative and judicial texts.

Articles 141.a to 141.f provide for special legal protection of databases. Article 141.a stipulates that “the protection of a database or its contents shall apply irrespective of their protection by copyright or by other rights”.



Additional provisions on the authorship of geodetic data are included in the proposed Geodetic Activities Act.

The Copyright Act has ~~not yet~~ incorporated the regulations of the 2001 Directive on copyright in the information society.

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

A new Law on Personal Data Protection went into effect in August 1999. The law is based on the European Union Data Protection Directive and the COE Convention no. 108 and replaces the earlier law of 1990. It provides that private entities may process personal data if they have acquired the written consent of individuals or if the data processing is determined by law. Public entities may only process personal data for which they have been granted legal authorization. Special protections are set out for “sensitive data”. In July 2001 a new Act amending the 1999 law came into force (Act amending the Personal Data Protection Act – Official Journal RS, 57/01). The primary purpose of the amendment was to establish an independent oversight mechanism in accordance with the requirements of the EU Data Protection Directive. Previously, supervision of the Act was conducted by a single Inspector within the Ministry of Justice. The new Act created an independent agency, the Inspectorate for Personal Data Protection within the Ministry of Justice.

Directive 2002/58 on privacy and electronic communications has ~~not yet~~ been transposed into Slovenian law.

### **2.2.6 Licensing framework**

For ordering data with the SMA, the standardized order form must be filled out, while for digital data an additional statement must be filled out as well. The data may be handed over directly to the user or sent by post following remittance of payment. Data produced by the geodetic service of the SMA may not be reproduced, altered, published or used for commercial purposes without the prior consent of the SMA. Permission is granted by the SMA on the basis of the application of the user, which must include a description of the purpose of use of the data.

The conditions for the use of data of the SMA are clearly described on its website ([http://193.2.111.28/gu\\_eng/meta/ordering/conditions/conditions.asp](http://193.2.111.28/gu_eng/meta/ordering/conditions/conditions.asp)).

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

#### ***Funding***

The SMA is funded primarily from the state budget. Most activities about metadata and the Slovenian SDI were funded on MESP budgets. Some activities were supported by a loan of the International Bank for Reconstruction and Development (IBRD) (e.g. ONIX project 1997-2000). The management and implementation of the intersectorial five institutions’ project on modernizing real estate records is also co-financed by IBRD funds.

Co-financing from data users (cost recovery) is relatively small in extent (4.5%) and does not play a crucial role in the realisation of the national geodetic service annual program.



In compliance with the Republic of Slovenia Budget Implementation Act, it is possible to use the income derived from own activities for covering material costs, and the costs of administering and issuing data and products.

### ***Pricing***

All data and products produced by the geodetic service of the SMA are public and accessible by all users for their own use against the payment of material costs.

The recent “Decree on Tariffs charged for Issue of Geodetic Data” provides tariffs for data issued from data collections kept by the national geodetic service, when it is not supplied in the form of certificates. It provides the way of fixing the compensation for non-commercial use of geodetic data. The Decree provides data tariffs for the issue of abstracts and data views separately. For providing this compensation the Decree treats specifically the users of geodetic data that rank among direct national budgetary users and distinguishes them from other non-commercial users of geodetic data. For digital data use, direct budgetary users pay only material costs, while for analogue data and products they are charged the compensation like other users.

Geodetic data is provided to users for non-commercial or commercial use.

Non-commercial users of geodetic data are charged a compensation. A non-commercial use of geodetic data includes an application of geodetic data for personal (by an individual) or internal purposes (within a body or legal entity) and the data must not be forwarded to other users. Use of data for official purposes is also considered non-commercial when the user is an administrative-, national-, or local community body and uses data for decision-making in administrative matters or executing of tasks under its authority. As non-commercial use is considered also the application of geodetic data in the geodetic services implemented by geodetic enterprises holding a licence for the performance of geodetic services.

The commercial user for geodetic data pays compensation for their commercial use. When calculating the compensation for these users, profitability of use is also taken into account. The Decree also introduces the concept of reseller. The reseller does not use geodetic data but forwards it to other users. The intermediary pays to the Surveying and Mapping Authority a percentage of the amount of the non-commercial compensation. The price charged by the reseller to further users can not be higher than the compensation charged by the Surveying and Mapping Authority. In order to facilitate the application of geodetic data, certain data issues or views are for free. This is referred to the screen views into the raster data of topographic and transparency maps, orthophoto maps of smaller resolution, data on spatial borders and similar.

## ***2.3 Component 2: Reference data and core thematic data***

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

The SMA covers all scale levels for its analogue and digital data products.

### 2.3.2 Reference data and core thematic data by resolution or scale range

Reference and core thematic data produced by the SMA include:

- Basic topographic maps in digital format at scale 1:5.000 and 1:10.000 covering the Slovenian territory with 2.543 and 258 map sheets respectively. The SMA started the A/D-conversion by scanning of the maps in 1993. The work ended in 1995. Since then scanning has been carried out for every map sheet being updated. Raster data are captured from separate content layers. All digital maps are geo-referenced;
- Basic topographic maps in digital format at scale 1:25.000 (DTK25) and 1:50.000 (DTK50) as well. The scans are geo-referenced. In both cases raster scans exist per layer: infrastructure, settlements, relief, hydrography, etc;
- General maps at scale 1:250.000, 1:500.000, 1:750.000 and 1:1.000.000. The reproduction originals of the Surveyable Topographic Charts at scale 1:250.000 and 1:750.000 have been scanned (also scans per layer). The 1:500.000 data set is composed of vector layers, which can be divided in 6 themes: roads and airports, railways and cableways, hydrography, relief, settlements, border, names;
- A Digital Elevation Model (DMR25) in the form of a 2D grid of points. The resolution is not described on the website of the Agency. In addition the Scientific Research Centre of the Slovenian Academy of Sciences and Arts produced a digital elevation model applying radar interferometry. The product, called InSAR 25 has a spatial resolution of 25 m and a 5m vertical average. The InSAR 100 has a resolution of 100 m;
- Aerial photographs from surveys which started in 1975. The entire country was covered at scale 1:17.500 in that year. In more recent years, new surveys were carried out at several points in time and at photo-scales between 1:8.700 and 1:30.000 (1980, 1985, 1992, 1997);
- A Generalised Cartographic Base at scale 1:25.000. The database contains the hydrography, railway and road network, the relief.. It was digitized from the state topographic maps. Since it was prepared for cartographic use, it was called the Generalized Cartographic Base;
- A number of other datasets which are scale independent like the register of geographical names (they are extracted from the topographic maps RGN5, RGN25, RGN250 – 200.000 names) and the streets with their house numbers (500.000).

### 2.3.3 Geodetic reference systems and projections

The national coordinate system valid for maps and databases, has the following characteristics:

Name: D48

Spheroid (ellipsoid) : Bessel (1841),  $a = 6\,377\,397,155$  m,  $e = 1/299,15281285$

The spheroid touches the geoid in point Hermannskogel with astronomic coordinates (Ergebnisse 1900):

$$\begin{aligned}\varphi &= 48^{\circ} 16' 15,29'' \\ \lambda &= 33^{\circ} 57' 41,06'' \text{E Ferro or} \\ \lambda &= 16^{\circ} 17' 55,04'' \text{ E Greenwich} \\ H &= 558.66 \text{ m.}\end{aligned}$$

The geodetic network is oriented with side Hermannskogel - Hundesheimer Berg

$$\alpha = 107^{\circ} 31' 41,70\frac{1}{2}.$$

Projection: Slovene Gauss-Krueger conformal transversal cylindrical projection

Latitude of origin	0° 00' 00"	
Longitude of origin	15° 00' 00"	E of Greenwich
Central meridian	15° 00' 00"	E of Greenwich
False easting	+ 500 000 m	
False northing	- 5 000 000 m	
Modulation factor	0,9999	
Projection zone width	3° 15'	

1.3 Transformation parameters from D48 (Bessel) to ETRS89(WGS84):

$$X_0 = 438,7669 \text{ m}$$

$$Y_0 = 126,6093 \text{ m}$$

$$Z_0 = 457,9380 \text{ m}$$

$$a = -0^{\circ} 0' 4,323931''$$

$$b = -0^{\circ} 0' 4,107600''$$

$$g = 0^{\circ} 0' 12,245081''$$

$$\text{scale: } -16,5199 \text{ ppm}$$

The national topographic maps (scale 1:25.000 – 1:50.000) should apply with the NATO standards (STANAG) which requires the Universal Transverse Mercator projection using the WGS 84 reference ellipsoid.

In order to make it possible to prepare military as well as national topographic maps and digital data, UTM projection and WGS 84 ellipsoid is used for producing all the data at scale 1:25.000 and smaller.

### 2.3.4 Quality of the reference data & core thematic data

Reference and core thematic data produced by SMA are of high quality and accuracy. The Register of Spatial Units and attribute data of Land Cadastre are maintained on a daily basis. Some more details are provided below.

- **Geodetic reference system**, the parameters required to convert from national reference system to ETRS89 are defined
- **Land cadastre** - Descriptive data on parcels of land (parcel parts) which include the number of a parcel of land, the parcel area, the land use type, data on the owner have been unified and are kept and updated in a digital form for the entire country. They are kept in a central database and are updated daily. Slovenia will entirely be covered by digital cadastral plans by the end of the year 2002.
- **Register of buildings** - it refers to the basic records on buildings and on their parts. It represents the technical basis for recording legal relationships to buildings and to their parts.
- **Basic topographic maps** (1:5000, 1:10000) – for lack of funds, no updating of the entire store can be ensured – despite the great demand, certain sheets are 30 years old, a new concept of updating has been produced. The name of the project is **Digital Topographic Database** - the project of finding the methodological and technological solution for the establishment and maintenance of a digital topographic database.



- **National topographic maps** (1: 25000, 1:50000) are produced by applying the conventional method. The new project is intended for digital production on NTM, so we have produced 18 of 58 sheets of NTM by applying contemporary techniques. The military maps should comply with the NATO standards (STANAG), which require the UTM (Universal Transverse Mercator) projection on the WGS 84 (World Geodetic System) reference ellipsoid. In order to make simultaneous production of military and national map sheets possible, we have decided for the UTM projection and the WGS 84 ellipsoid also in producing the national maps at a scale of 1:25 000 and smaller
- **National general maps** - national general maps that are most frequently used are produced at the scales of 1:250 000, 1:500 000, 1:750 000 and 1:1 000 000. They are made in a classical way, except for the 1:500 000 scale map, which is digitally produced.
- **Scanned maps** - originals have been scanned from all reproduction originals of the basic topographic maps, scales 1 : 5 000, 1 : 10 000, topographic maps, scales 1 : 25 000 and 1 : 50 000 and small scale maps of Slovenia, scales 1 : 250 000, 1 : 400 000 and 1 : 750 000, for the entire territory of Slovenia. On all scanned map originals only the content within the frame of the page was scanned, making further use easier, especially in combining pages for system maps. The data is scanned with a resolution of 300 dpi, the contents of individual layers depending on existing reproduction originals of the maps.

Each scanned original is spatially referenced and recorded in its database with a name, date of conversion, scanning operator and the owner of data.

- **Generalized cartographic database** - four groups of objects have been digitised (roads, hydrography, railways, contour lines from scanned map originals of the systemic topographic maps for the entire territory of the country. Because of its structure and content it can be included among elements of a topographic base of medium accuracy.
- **Geographical names**, The Register of Geographical Names includes names that have a certain temporally, historically, ethnologically or socially established identity; Slovenia has approximately 200 000 geographical names
- **Orthophoto maps**; Slovenia is entirely covered by orthophoto maps since 2001, they are produced with the 0,5 m graphic element.
- **Digital elevation model** - it was made by the radar interferometrics technique



in 2000. It was worked out by using the European Space Agency's radar surveys taken by the ERS-1 and ERS-2 satellites.

- **Register of spatial units** contains data on house numbers (500.000), streets, settlements, municipalities, administrative units, cadastral municipalities, voting units, school localities, local communities, village communities and city district communities, as well as other types of units. Attributes and geometry are stored in relational database (Oracle) since 1995.

### 2.3.5 Interoperability

- Oracle and Oracle Spatial are mentioned as the software tools to store and manage the geometry and attributes at SMA.
- No information is available about dominating GIS-software used by users
- XML is used for transfer of data.

### 2.3.6 Language and culture

Metadata is provided in the Slovenian and English language (for the latter only the discovery metadata). Accompanying documents (web, etc.) are provided in the same languages.

### **2.3.7 Data Content**

There is text explanation for the Data Dictionary and attribute values.

### **2.3.8 Geographical names**

SMA has modernized the Register of Geographical Names. An application for managing the register and an Intranet application designed for reviewing the register data have been made. The phase of data acquisition from the maps at the 1 : 5,000, 1 : 25,000, 1 : 250,000 scales was completed in 2000. Then data maintenance has started. The register includes graphic data on single inscriptions on maps.

### **2.3.9 Character sets**

Windows CP1250

## **2.4 Component 3: Metadata for reference data and core thematic data**

The Slovenian Metadata system is called the Central Records of Spatial Data (CEPP) and is developed and maintained within the GeoInformation Centre of the SMA.

### **2.4.1 Availability**

Metadata are available for all the geodatasets managed by the SMA and for datasets provided by other partners of the SDI (private and other). The metadata contains all necessary information about content, purpose, usage, quality, distribution and all other information to select and use the datasets. The metadata allow users to discover and explore datasets. However, we had not the opportunity to explore the metadata themselves, therefore we do not know whether all datasets are described completely. Discovery metadata are translated in English.

### **2.4.2 Metadata catalogues availability + standard**

The SNSDC (Slovenian National Spatial Data Catalogue) complies with the CEN/TC 287 prEN287009 metadata standard and is extended with some additional fields and a thesaurus. The EEA (European Environmental Agency) CDS (Catalogue of Data Sources) with some restrictions is integrated into SNSDC. In the future ISO 19115 metadata standard will be supported and the transformation to this has already begun.

Three views on metadata are available at this moment:

- short
- basic
- detailed

The first one covers the Dublin Core elements, the second one ISO mandatory elements, and the last one CEN elements.

### 2.4.3 Dublin core metadata standards for GI-discovery

The 'short' view on the metadata covers the Dublin Core elements.

### 2.4.4 Metadata implementation

The 'de facto' coordinating body is the Surveying and Mapping Authority. The SMA is not only describing its own datasets, but coordinates the metadata efforts of other Institutes and even private organizations. It is not clear whether there exists a feature code-list and thesaurus, nor whether there are formal update requirements for metadata.

Providers of metadata have two options to update the changes in the central metadata catalogue (SNSDC). Both are supported by the so-called MPedit metadata maintenance tool:

- Update the metadata description and send the file in exchange format (pmp – internal MPedit; XML – external) to the catalogue administrator;
- Connect to catalogue (access with username & password and restricted to granted metadata records) and import changes.

## 2.5 Component 4: Access and other services for reference data, core thematic data and their metadata

The Survey and mapping Authority developed a model of user services that will include at the end: the metadata catalogue, the information layers, a series of services and meta-information on the services, a data ordering mechanism and related pricing policy.

### 2.5.1 On-line access service for metadata of reference data & core thematic data

The homepage (portal) is at <http://www.gu.gov.si>. The metadata service is accessible through a link on CEPP (Centralna Evidence Prostorskih Podatkov – Eng).

The subpages are at the moment directly accessible only with IP number: [http://193.2.111.28/gu/aplik/opis/cepp/intro\\_cepp.asp](http://193.2.111.28/gu/aplik/opis/cepp/intro_cepp.asp) and ([http://193.2.111.28/gu\\_eng/meta/meta.asp](http://193.2.111.28/gu_eng/meta/meta.asp)).

There is an English and Slovenian version of the application. The application gives access to metadata about 407 geodatasets classified in 43 thematic groups of 110 data providers. The metadata can be browsed by organization, by provider, by classification, by 'last update or by dataset. There is one entrance of the system – recommended by the system – that is called 'best metadata' which could indicate that not all datasets are described in detail.

The number of described geodatasets, thematic groups and data providers has not changed compared to spring 2003.

### **2.5.2 On-line access service for reference data & core thematic data**

There is not yet one overall access service for all the reference data and core thematic data. Nevertheless, several sub-portals of the website are under development and will host in the future specific services for different user groups.

One sub-portal aims for electronic access of the land cadastral central database (only in Slovenian language) by users of administrative bodies. It is called CBZK. The user are able to query the cadastral information regarding any parcel in the database: 5 million land parcels, 1 million land owners, 10.000 spatial administrative units, 500.000 house numbers. The information in this database is updated daily. All the administrative units use this access for official purposes for decision-making in administrative matters or executing of tasks under their authority. The system includes a security system to protect personal data. The established possibility of a direct view in the data most recently registered in the Land Cadastre written part has significantly shortened some phases of the administrative procedures

A second sub-portal currently under development is called PREGIZ. The application aims at giving the necessary information to geodetic enterprises which have authorization for implementing geodetic services. They need access to the databases of the SMA for performing their tasks. Therefore the application includes access to the geographical and attribute data related to the Land Cadastre, the Building Cadastre, the Geodetic Points, the Topographical Database(s), the Digital Orthophoto's, the Registers of Geographical Names and Register of Space Units which contains also addresses. The system will enable data search and viewing, selection and exporting datasets. User access will necessitate a digital certificate. The system will be in operational use by the middle of 2003. –

New on-line services for access to data, called PREG modules, are in a testing phase and will be launched in the course of 2004. Access to attribute and geographical geodetic data (Land Cadastre, Building Cadastre, Geodetic Point, Register of Spatial Units and House Numbers, Digital Orthophotos and several Topographic and General Maps,..) to specific user groups within and also outside public administration will be offered. They will substitute current services described above.

### **2.5.3 Inter-linkages of on-line access services for metadata and reference data resp. core thematic data**

The web mapping service described in 2.5.5. enables to connect the metadata system (SNSDC) with all the data included in the web mapping service.

### **2.5.4 OpenSource software for access services**

For most of the described services, OpenSource software is not used.

Input of metadata by any administrator is done with a tool called MPedit (HTML form), while exchange of metadata is done using XML. The MPedit tool is free for data providers.



### **2.5.5 Availability of web mapping service(s) and of a WebMap server interface**

An application for viewing some of the core datasets was established already in 2002. Currently, the user can access digital orthophotos, Digital Elevation Model, Topographic and a number of general maps. The service is available at [http://www.gu.gov.si/gu/aplik/pgp/intro\\_pgp.asp](http://www.gu.gov.si/gu/aplik/pgp/intro_pgp.asp) and enables searching and viewing.

An Application for viewing some of the core datasets was established in 2002. The user can access digital Ortophotos, addresses and geographic names. The service enables searching and viewing ([http://193.2.111.28/gu/aplik/pgp/intro\\_pgp.asp](http://193.2.111.28/gu/aplik/pgp/intro_pgp.asp)).

The Web mapping service. enables the connection to the metadata system (SNSDC) to all the data included in the service.

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

No information has been found nor provided.

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

Such service is not available. Ordering of data can be done by filling in an order form that can be downloaded through the SMA website. In addition, for digital data a statement must be filled out for making arrangements on the way the data can and cannot be used. After that the user can take the data from the (central) office of the SMA or it can be sent by post after remittance of payment.

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

This type of service is not yet available (unless PREGIZ will provide this functionality).<sup>3</sup>

### **2.5.9 SDI user applications**

Besides the already mentioned access services to (part of) the databases of the SMA, some applications are developed or under development.<sup>4</sup> On-line services are mentioned for following themes:

- Ecological sensitive areas and nature protected areas of ecosystems;
- Land Cover, landslides and earthquake areas;
- Hydrography and coastal erosion;
- Spatial Planning using data from so-called ANAS stations for soil and air monitoring.

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<sup>3</sup> The strategic planning for the year 2004 foresees the development of a system for electronic ordering and delivering of geodetic data. This will fit, together with the other components of the system, in the e-Government system of Slovenia.

<sup>4</sup> This was not clear in the presentation during the 8th EC-GIS workshop, Dublin, 3-5 July, 2002.

*Some examples are:*

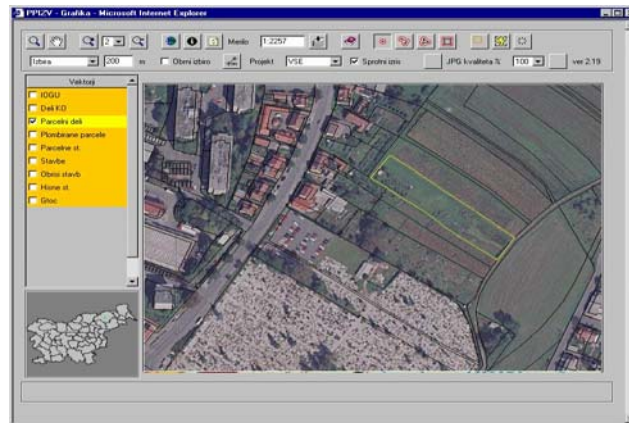


The *Interactive Environmental Atlas* is a free public accessible application on the Internet. It is based on the principle of a flexible, safe and powerful information environment. Users can in an easy and structured way access the spatial information. The Atlas gives answers to questions as “what is located where?” and “where is located what?”. With the Atlas users can make a graphical search and perform spatial analysis, ask for a location and make communication with the server.



**GEABIOS** stands for **Geo Enabled and Better Internet Oriented Services**. People backing up GEABIOS come from variety of business and institutions. They acknowledge that Internet is a problem not a solution. GEABIOS depicts their way how to solve the problems in certain application areas. They also acknowledge that GEABIOS is not the only possible solution. With proper mixture of ideas, philosophy, courage, technical knowledge and understanding of end-user process navigating through the Internet, GEABIOS tends to be a user friendly and efficient solution. GEABIOS integrates technology, data, maps and scenarios through clearness and easiness of a user interface. GEABIOS is a process not a fix solution. At GEABIOS web page we can find following data and services: Maps of Slovenia, Slovenia in brief, Fast Addresses, Cash

dispensers, doctors, restaurants, ..., Virtual walk around, Astronomy, Atomic Clock, Meta Search Engine, 400 European radio stat., GPS Navigation, Tide tables, Postcards, World Maps, Nautical maps Adriatic Sea and Weather.



In the previous year, the Surveying and Mapping Authority was renewing their own web portal and home page. One of them is a Web based map viewer of SMA data for public use. In order to facilitate the application of geodetic data, certain data or views are free. This refers to the screen views of the raster data of topographic and transparency maps, orthophoto's of smaller resolution, data on spatial borders and the like. Some policy directives for governmental data recommend, that they are free of charge, only material costs could be charged to users.

### 2.5.10 Availability of geo-processing services

Such services are not yet available. The applications listed in section 2.5.9 should be investigated to know more about the precise character of the spatial analysis and processing that is performed there.

## 2.6 Component 5: Standards

Standardization is addressed in the other sections.

## 2.7 Component 6: Thematic environmental data

### 2.7.1 Application of the legal framework and funding principles (for reference & core thematic data) to thematic environmental data

The legal framework is focused on the general geodetic activities (Geodetic Activities Act) and on activities related to real estate as there are: real estate taxation, real estate property, etc. On the web site of the SMA it is stated however that: "Regulated real estate

registration is conditioned by already adopted international liabilities in the field of environment, statistics, etc., and primarily by the process of joining the European Union.” In another text, the Environment Protection Act is mentioned. This was however not worked out yet at the time of the start of the ONIX project (1997-1998).

## 2.7.2 Application of reference data & core thematic data characteristics to thematic environmental data

No information has been found nor provided.

EARS is the major actor for environmental data. In the table below, one can find the list of data for which EARS is responsible (ref. INSPIRE proposal for a Directive Annexes):

### ANNEX I:

LAYER NAME	LAYER DESCRIPTION	Data administrator EARS
Protected sites	Area designated or regulated and managed to achieve specific conservation objectives.	YES

### ANNEX II:

LAYER NAME	LAYER DESCRIPTION	Data administrator EARS
Elevation <sup>1</sup>	Digital elevation models for land, ice and ocean surface. Includes terrestrial elevation, bathymetry and shoreline..	YES, PARTIALLY
Land cover	Physical and biological cover of the earth's surface including artificial surfaces, agricultural areas, forests, (semi-)natural areas, wetlands, water bodies.	YES

### ANNEX III:

LAYER NAME	LAYER DESCRIPTION	Data administrator EARS
Human health and safety <sup>2</sup>	Geographical distribution of occurrence of diseases linked directly (epidemics, spread of diseases, health effects due to environmental stress, air pollution, chemicals, depletion of the ozone layer, noise, etc.) or indirectly (food, genetically modified organisms, stress, etc.) to the quality of the environment.	YES, PARTIALLY
Government service and environmental monitoring facilities <sup>3</sup>	Sites for governmental services, location of hospitals and medical treatment locations, schools, kindergartens, etc. Includes sewage, waste and energy facilities, production sites and environmental monitoring facilities operated by or for public authorities.	YES, PARTIALLY
Production and industrial facilities <sup>4</sup>	Industrial production sites. Includes water abstraction facilities, mining and storage sites.	YES, PARTIALLY
Agricultural and aquaculture facilities <sup>5</sup>	Farming equipment and production facilities (including irrigation systems, greenhouses and stables).	YES, PARTIALLY
Area management/restriction/regulation zones & reporting units <sup>6</sup>	Areas managed, regulated or used for reporting at European, national, regional and local levels. Includes dumping sites, restricted areas around drinking water sources, nitrate vulnerable zones, regulated fairways at sea or large inland waters, OSPAR areas for the dumping of waste, noise restriction zones, prospecting and mining permit areas, river basin districts, OSPAR reporting units and coastal zone management areas.	YES, PARTIALLY

Natural risk zones	Vulnerable areas characterised according to natural hazards (all atmospheric, hydrologic, seismic, volcanic and wildfire phenomena that, because of their location, severity, and frequency, have the potential to seriously affect society), e.g. floods, landslides, avalanches, forest fires, earthquakes, volcanic eruptions.	YES
Atmospheric conditions	Physical conditions in the atmosphere. Includes spatial data based on measurements, on models or on a combination thereof and includes measurement locations.	YES
Meteorological geographical features	Weather conditions and their measurements; precipitation, temperature, evapotranspiration, wind speed and direction.	YES
Oceanographic geographical features <sup>7</sup>	Physical conditions of oceans (currents, salinity, wave heights, etc.).	YES, PARTIALLY
Bio-geographical regions	Areas of relatively homogeneous ecological conditions with common characteristics.	YES
Habitats and biotopes	Geographical areas characterised by specific ecological conditions and physically supporting the organisms that live there. Includes terrestrial or aquatic areas distinguished by geographical, abiotic and biotic features, whether entirely natural or semi-natural. Includes small features of the rural landscape – hedgerows, brooks, etc.	YES

Spatial data for which is Environmental agency of the republic of Slovenia partially responsible.

<sup>1</sup>**Elevation** – shoreline.

<sup>2</sup>**Human health and safety** - air pollution, chemicals, depletion of the ozone layer, noise, etc.

<sup>3</sup>**Government service and environmental monitoring facilities** - sewage, waste and energy facilities, production sites and environmental monitoring facilities operated by or for public authorities.

<sup>4</sup>**Production and industrial facilities** - Includes water abstraction facilities.

<sup>5</sup>**Agricultural and aquaculture facilities** – concession for fish farm.

<sup>6</sup>**Area management/restriction/regulation zones & reporting units** - Areas managed, regulated or used for reporting at European, national, regional and local levels. Includes dumping sites, restricted areas around drinking water sources, nitrate vulnerable zones, river basin districts.

<sup>7</sup>**Oceanographic geographical features** – measurement of sea level.

### 2.7.3 Application of metadata issues identified for reference data and core thematic data to thematic environmental data

Metadata for environmental data is provided by SEA (Slovene Environmental Agency). It is based on EEA's Catalogue of Data Sources guidelines.

EARS environmental metadata is provided to CEPP and they are based on SNSDC. They are also used in EEA CDS.

#### **2.7.4 Application of access services issues identified for reference data and core thematic data to thematic environmental data**

A web-based metadata system for environmental data is provided by SEA (Slovene Environmental Agency). It is not integrated with SMA's SNSDC (Slovenian National Spatial Data Catalogue) for reference and core thematic data. It is based on EEA's Catalogue of Data Sources guidelines and is available at <http://nfp-si.eionet.eu.int/cds>. Currently it contains descriptions of 173 datasets

#### **2.7.5 Application of standards issues identified for reference data and core thematic data to thematic environmental data**

These standards issues are generally applicable to thematic environmental data.

#### **2.7.6 Application of update procedures issues identified for reference data and core thematic data to thematic environmental data**

No information has been found nor provided.

### **2.8 Use and efficiency of SDI**

The degree of up-to-dateness is variable between the different datasets. It is clear that Slovenia has focused the last years on data related to real estate (see also the Real Estate Registration Modernisation Project). Parcel, building, address data are indeed more up-to-date than some of the typical topographic layers. A clearinghouse for environmental information is available.

Slovenia has well developed applications on the web for discovery and exploration of reference and core thematic data on the one hand and thematic environmental data on the other hand. However, the metadata content of the major metadata service SNSDC (Slovenian National Spatial Data Catalogue) has not changed since Spring 2003.

The further development of access and other user services in the course of 2003-2004 has been announced. A web mapping service has become operational.

It seems that 'internal' use of the NSDI-services is most important. MESP, SMA, local authorities, geodetic companies, are such users. The intensity of use by external users is not known.

The Slovenian SDI is being developed according to a well thought over step-by-step plan that already delivers concrete results which can be expected to be extended in the near future, especially since everything is centralised and well coordinated.

### 3 Annexes

#### 3.1 List of SDI addresses / contacts for Slovenia

Table: SDI contact list			
	Web address	Organisational mailing address	Over-all contact person: tel./fax/e-mail
<b>National</b>			
SGII (SMA)	<a href="http://www.gov.si/gu/">http://www.gov.si/gu/</a>	Zemljemerska ulica 12, 1000 Ljubljana, Slovenija	Tel: +386-1-4784800 Fax: +386-1-4784909 or +386-1-4784834
MESP	<a href="http://www.gov.si/mop">http://www.gov.si/mop</a>	Dunajska 48, 1000 Ljubljana, Slovenija	Tel: +386-1-4787431 Fax: +386-1-4787426
EARS <sup>5</sup>	<a href="http://nfp-si.eionet.int">http://nfp-si.eionet.int</a> , <a href="http://www.arso.gov.si">http://www.arso.gov.si</a>	Vojkova 1b, SI-1000 Ljubljana	Tel: +386-1-4784534 Fax: +386-1-4784052

#### 3.2 List of references for Slovenia

Table: list of references used to compile the Country Report	
Web sites:	
	<a href="http://www.gov.si/gu/">http://www.gov.si/gu/</a> official website of the Surveying and Mapping Authority of the Republic of Slovenia
	<a href="http://www.gov.si/ugf/ang/gf.html">http://www.gov.si/ugf/ang/gf.html</a> official website of the Geophysical Survey of the Republic of Slovenia
	<a href="http://www.anzlic.org.au/anz_site.htm">http://www.anzlic.org.au/anz_site.htm</a> ANZLIC, The Spatial Information Council (Australia)
	<a href="http://www.igea.si/eng/stran1_1.html">http://www.igea.si/eng/stran1_1.html</a> IGEO d.o.o., one of the private partners of the SDI of Slovenia
	<a href="http://www.ec-gis.org">http://www.ec-gis.org</a> the GIS portal of the European Commission managed by the Joint Research Centre, Ispra, Italy
	<a href="http://www.eurogeographics.org">http://www.eurogeographics.org</a> the official website of EuroGeographics, the association of the national mapping agencies of Europe
	<a href="http://www.privacyinternational.org/survey/phr2002/phr2002-part3.pdf">http://www.privacyinternational.org/survey/phr2002/phr2002-part3.pdf</a>
	<a href="http://195.228.254.144/program.html">http://195.228.254.144/program.html</a>
	<a href="http://egeols222.egeo.sai.jrc.it/Workshops/7ec-gis/papers/pdf/dallemand.pdf">http://egeols222.egeo.sai.jrc.it/Workshops/7ec-gis/papers/pdf/dallemand.pdf</a>
	<a href="http://www.publicsectorinfo.com/summary_results/11d.html">http://www.publicsectorinfo.com/summary_results/11d.html</a>
	<a href="http://www.hfhrpol.waw.pl/Secserv/foia_sln.html">http://www.hfhrpol.waw.pl/Secserv/foia_sln.html</a>

<sup>5</sup> Environmental Agency of the Republic of Slovenia / Agencija Republike Slovenije za okolje



	<a href="http://www.sipo.mzt.si/GLAVAGB.htm">http://www.sipo.mzt.si/GLAVAGB.htm</a>
	<a href="http://195.228.254.144/abstracts.html">http://195.228.254.144/abstracts.html</a>
	<a href="http://193.2.111.28/gu_eng/public/Files/lp_ang.pdf">http://193.2.111.28/gu_eng/public/Files/lp_ang.pdf</a>
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