Spatial Data Infrastructures in 
*Lithuania:*
State of play Spring 2005

Country report on SDI elaborated in the context of a study commissioned by the EC (EUROSTAT & DGENV) in the framework of the INSPIRE initiative

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### Change matrix 2005 versus 2004

Paraphs 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.

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Executive summary

The Lithuanian GI policy is part of a strategy to promote the information-based society. In 2004, a detailed feasibility study was carried out within the Phare programme by ASTEC, a Irish consultancy company: Development of the Lithuanian Geographic Information Infrastructure (LGII) – Project Preparation Facility. Based on interviews, questionnaires and presentations amongst Lithuanian GI stakeholders, a vision was developed on the current status of the LGII and the way to go to develop a complete and operational NSDI for Lithuanian.

One of the goals of LGII is an open, shared infrastructure for accessing and distributing information products and services online. To achieve this goal, data residing at regional and national organizations are to be implemented to common standards. LGII is not just about technology, but about developing a clear framework of agreements among government agencies, and between the government, the private sector and citizens on the terms through which the use of PSI, including geographic information, can be maximized for the benefits of all. These agreements often require attention and political support at the highest level.

The National Land Service (NLS) under the Ministry of Agriculture develops the national strategy for spatial data acquisition and maintenance in the field, coordinates activities in relation to standards and oversees the protection of copyright. NLS is a NMA-type organization. Besides NLS, main actors are the Cadastral Agency and the Rural Business Development and Information Centre of the Ministry of Agriculture. Although these institutions are in the process of developing significant SDI-like building blocks, there is no evidence of structured co-ordination among them.

The National Land Service NLS and the National Service of Geodesy and Cartography (NSCG) are in charge of the GCCIS: the Geodetic and Cartographic Control Information system. The GCCIS initiative is no SDI, but a Spatial Information System with a series of applications (in development). Due to its mandate and GCCIS-database, the NLS/NSGC can be considered as the core body of the emerging Lithuanian SDI.

There is no national GI association. The Lithuanian Surveyors Association (public) and Lithuanian Cartographers Association (public) gives proposals to the Government but have no major impact on decision making.

Usage of data on Internet is free of charge for products produced by the Governmental institutions, by Ministries, by Seimas and non-profit organizations.

The Law on Copyright and Related Rights entered into force on 9 June 1999. The Copyright Act was a major step forward for the legal regime in Lithuania. It was drafted taking into consideration the EU directives and provisions of the Bern and Geneva Conventions. In the last eight years Lithuania has transformed its copyright law from the old Soviet-style one to a system that complies to a large extent with modern bilateral and multilateral standards.
Not sufficient information could be found about the Integrated GI-System-initiative to make a fair assessment. However, besides the NLS/GCCIS-initiative, this may be a major SDI-related initiative by the Department of Information and Informatics. We found (but have not had it confirmed) that this Department has developed the specifications for the geographic data to be included in the integrated GI system (InGIS) and has set the standards for the collection, coding, attribute structure, metadata and data exchange of geographic data among agencies at both national and local level. Herewith emphasis is on open technologies.
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## Abbreviations and acronyms

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CT</td>
<td>Core Thematic Data</td>
</tr>
<tr>
<td>DTD</td>
<td>Document Type Definition</td>
</tr>
<tr>
<td>FIR</td>
<td>Further Investigation Required</td>
</tr>
<tr>
<td>GCIS</td>
<td>Geodetic Control Information system</td>
</tr>
<tr>
<td>GCCIS</td>
<td>Geodetic and Cartographic Control Information system</td>
</tr>
<tr>
<td>GEOLIS</td>
<td>Geological Information System</td>
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<tr>
<td>GI</td>
<td>Geographical Information</td>
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<td>GIS</td>
<td>Geographical Information System</td>
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<tr>
<td>GISFORM</td>
<td>GIS Forum</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>InGIS</td>
<td>Integrated GI System</td>
</tr>
<tr>
<td>INSPIRE</td>
<td>INfrastructure for SPatial InfoRmation in Europe</td>
</tr>
<tr>
<td>LGII</td>
<td>Lithuanian Geographic Information Infrastructure</td>
</tr>
<tr>
<td>MapBSR</td>
<td>Digital map of the Baltic Sea region</td>
</tr>
<tr>
<td>NGS</td>
<td>National Geological Survey</td>
</tr>
<tr>
<td>NLS</td>
<td>National Land Service</td>
</tr>
<tr>
<td>NSCG</td>
<td>National Service of Geodesy and Cartography</td>
</tr>
<tr>
<td>NSDI</td>
<td>National Spatial Data Infrastructures</td>
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<tr>
<td>PPP</td>
<td>Public-Private Partnerships</td>
</tr>
<tr>
<td>PSI</td>
<td>Policy and legislation on access to public sector information</td>
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<tr>
<td>REF</td>
<td>Reference data</td>
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<tr>
<td>RPC</td>
<td>Remote Procedure Call</td>
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<tr>
<td>SDI</td>
<td>Spatial Data Infrastructures</td>
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<tr>
<td>SOAP</td>
<td>Simple Object Access Protocol</td>
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<td>SSC</td>
<td>Swedish Space Corporation</td>
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1 GENERAL INFORMATION

1.1 Method

This report is summarizing the review of SDI in Lithuania, and reflects the degree to which the SDI situation in Lithuania is similar to the ideas set out in the INSPIRE position papers\(^1\) and the more recent INSPIRE scoping documents.

The report is based on the analysis of various documents, project references and web sites readily accessible in English and Lithuanian. The national mapping bodies have installed bilingual websites (LT en EN) (see section 3.2 for the full list of references for Lithuania). However, most technical specifications were only available in LT version. Most resources were gathered from the Internet.

The report has been completed by integration and consolidation of written comments received in Spring 2003, from Dr. Aldona Sjovall from the National Land Service.

Beginning of August 2005, SADL received the feasibility study carried out in 2004. There was not enough time to integrate the detailed findings of this study. Instead the most pertinent elements for the 2005 update of the state of play were integrated in the last version of this report.

1.2 The Lithuanian GI-, GIS- and SDI-scene

GI is extensively produced and used by various public institutions in Lithuania. In August 2004, a detailed feasibility study was carried out within the Phare programme by ASTEC, an Irish consultancy company: Development of the Lithuanian Geographic Information Infrastructure (LGII) – Project Preparation Facility. This is the first complete and detailed Lithuanian study in which the lines are set out to implement the NSDI. GI is also the subject of various policy documents and initiatives.

To some extent, the private sector participates as a contractor to public initiatives.

The Lithuanian GI policy is part of a broader strategy to create an information-based society for which two bodies are responsible:

- The Information Society Development Committee under the Government of the Republic of Lithuania and

\(^1\) INSPIRE position papers, final versions: RDM, ETC, DPLI, ASF, IST, IAS (latest version).
A governmental programme on Information Society is developed in which Coordination of GI by the Department for Information and Informatics is stated. This Department has developed the specifications for the geographic data to be included in the so-called integrated GI system (InGIS) approved on 25/04/2000. The InGIS specifications set the standards for the collection, coding, attribute structure, metadata and data exchange of geographic data among agencies at both national and local level. They are updated regularly with proposals by public and private bodies. In order to prevent discrepancies in the classification and double coding of the geo-data, the specifications are planned to become accessible on Internet.

Also municipalities seem to be driving GI Data Policy issues.

There is no national GI-association. The Lithuanian Surveyors Association and the Lithuanian Cartographers Association organises education of specialists and provide advice to the Government. They have however no major impact on decision making.

Some fundamental changes have recently occurred in the structure of the Lithuanian institutions involved in GI. Resolution no. 709 of 12 June 2001 on “the establishment of the National Land Service under the Ministry of Agriculture” reorganized and integrated into the NLS:

- The State Department of Geodesy and Cartography under the Ministry of Agriculture, as from 1 July 2001;
- The Land Management and Law Department under the Ministry of Agriculture.

Several cartographic databases and maps at small and medium scales of Lithuania have already been prepared by the National Service of Geodesy and Cartography and by the NLS, often in partnership with Sweden and Switzerland. Large scale geodatasets are in development The NLS is the owner of the Geodetic and Cartographic Control Information system (GCCIS, still under development) ([www.zum.lt/nzt/gkpis/default.htm](http://www.zum.lt/nzt/gkpis/default.htm)). The GCCIS initiative is neither SDI nor LGII, but a Spatial Information System with a series of applications.

Other main providers of GI are:

- State Enterprise Centre of Registers;
- The National Geological Survey ([http://www.lgt.lt](http://www.lgt.lt));
- The National Forestry Institute;
- The Department of Statistics and
- The Rural Business Development and Information Centre.
The State Enterprise Centre of Registers has been established by the Government of the Republic of Lithuania (Decision No. 742, 08 07 1997). The Ministry of Justice is the founder. It is financed by budgetary funds and self-financing contracts (see also chapter 2.2.7). The State Enterprise Centre of Registers provides the main existing GIS database in Lithuania. It is building databases relating to land cadastre, administrative units, settlements, streets and addresses, including digital orthophotos in 1:10.000 scale and 1:5.000 in urban areas.

[2]
[1]

The National Geological Survey (NGS) is responsible for creating and maintaining geological databases on the national level. Under responsibility of NGS, the geological information system GEOLIS collects, uses and systemizes geological information/data and includes Internet browsing facilities.

The National Forestry Institute (Ministry of Environment) keeps the forestry cadastre and is developing a GI database of forest parcels.

The Department of Statistics is the official provider of socio-economic and statistical information.

The Rural Business Development and Information Center was set up by the Ministry of Agriculture in 2001.

[2]

In 1993 there was signed an agreement between the State Department of Surveying and Mapping under the Ministry of Urbanistics and Construction and SSC Satellitbild (Swedish Space Corporation). According to this agreement there is foreseen to create the new National Basic Map and its database system in digital and paper format with the help of existing maps information, digital databases together with the most recent panchromatic ortho-image material (PAN) from the SPOT satellite and with geometrically rectified multispectral (XS) images. This is a part of an international project "Development of Data Base for the Lithuanian National Map".

On the 30th of November 1994 the State department of Surveying and Mapping under the Ministry of Urbanistics and Construction charged the National Centre of Remote Sensing and Geoinformatics "GIS-Centras" to do the compiling work of digital database for the Lithuanian Republic space imagery map at scale 1:50.000. This data base was used for production of the printing originals. Compiling works for the digital data base for printing original production of the Lithuanian space imagery map at scale 1:50.000 (named LTDBK50000) were started on the 30th of December 1994 and were finished on the 30th of December 1996. There is a published LTDBK50000 version 1.0.0.

[7]

An international initiative in which Lithuania participates is the MapBSR (Digital map of the Baltic Sea region), covering the territory of Lithuania. A detailed description is given in the country report for FI (the MapBSR dataset can be obtained at the National Land...
Service, but information about the project, purchasing and prices can be obtained at the MapBSR home page [http://www.mapbsr.nls.fi](http://www.mapbsr.nls.fi). The National Centre of Remote Sensing and Geoinformatics "GIS-Centras" is the direct Lithuanian partner in the MapBSR-project.

[5]

Lithuania spends up to about 4.5 m Euros annually for GIS related supply and services in the past years. Job expenses of State Employees using these services are excluded from this estimation. The volumes of GIS software sales in Lithuania are growing year by year. The total GIS software market in Lithuania in 2000 was about 3.8 m Euros.

[30]

The feasibility study mentioned before also highlights problems and opportunities as they are seen by the SDI stakeholders’ community. We only list them here and refer for more information to the report ([30])

Problems:
- Lack of national coordination and leadership
- Existing barriers to share and re-use data
- Existence of a variety of standards
- Infrastructures function in isolation only
- Duplication of effort in data collection and maintenance
- Waste of government and overall efforts
- Incomplete datasets of Reference Data
- Lacking data documentation
- Datasets are not compatible/interoperable

Opportunities:
- Tremendous EU market
- GI and SDI is extensively produced
- Efficiency and productivity are possible
- Potential gain in government and overall efforts

The LGII

*The main aim of LGII is to develop an official Geographic Information source system or Infrastructure and Information Environment allowing the free incorporation of GI into almost any Public Sector Information (PSI) Services. It is central to developing a sustainable national SDI to foster and to maintain relations of trust among all stakeholders (citizens, public sector, private sector and research). To achieve this goal, we need to encourage the collection, processing, archiving, integrating, and sharing of*
geospatial data and information using common standards and interoperable systems and techniques through the Internet.

The objectives of the project are to:

- Provide GI (as part of PSI), prime digital material for almost any public sector information services, research, business and citizens at large – GI availability via the Internet;
- combine/interconnect the GI prime material data into different sources of added value electronic public sector products and services, hence leads to unprecedented possibilities to interconnect various register, databases, etc. – Interoperability;
- Foster substantial investment in creativity and innovation, and lead in turn to growth and increased competitiveness in both content provision and Information Technology and more generally across a wide range of industrial and cultural sectors. This will safeguard employment and encourage new job creation - Economic gain;
- provide transparent and applicable environment for the re-use of GI, without which is a major barrier to bring out the full economic potential of this key information resource (There are considerable differences in the rules and practices relating to the exploitation of the current insufficient and fragmented available GI resources) – favourable conditions for business and industry.

The purposes of LGII can be summarised as follows:

- Identify both users and providers of spatial data in order to create an infrastructure that meets everybody’s needs;
- Encourage the development of partnerships for creating geographic data for the various programmes in government, academic institutions and the private sector;
- Increase usability of existing GI: Provide an environment for users to share their information, knowledge and interests by easy access to good quality spatial data. That way, through consensus, an appropriate infrastructure can be established.
- Encourage connections and coordination among government institutions, the private and educational sectors through sharing of spatial data. The cooperation of organisations shall be intensified by the pulling together representatives from sectors of data production, research and education as well as the business sectors using spatial data.

Geographic information is rather a perspective to the Information Society and the general information infrastructure than just a separate sector of information technology.

[30]

The project activities foreseen are the following:

1. Promote the vision of LGII
2. Set up a Coordinating Body
3. Datasets are made available without complying to a common standard (near-term)
4. Metadata collection (describe the data)
5. Develop LGII Portal (or clearinghouse, catalog server)
6. Capacity building for all potential users (GIS tools) in the government
7. Project implementation
8. Pilot Project on Physical planning in Municipalities
9. Harmonisation (long term)
10. New data collection efforts, standards for data content (medium to long-term)

There is a complete and detailed implementation plan (starting in 2005 till 2008) and a cost estimate and financing plan. The table below gives an overview of the cost estimate:

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<td><strong>GRAND TOTAL LGII</strong></td>
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It is expected that the benefits by introducing the LGII will value around 15,65 m€ / annum. [30]

By 2005, the LGII activity is separated into three dependant projects:
1. Development of the LGII organisational framework, technical standards and harmonisation of available reference data;
2. Development of training materials for using of geographical information;
3. Development of necessary reference data for LGII.

The first project is in progress - an application was submitted to use EC structural funds and positively passed the evaluation, project agreement was signed in June 2005. The timeframe for this project is three years. Budget is 17 mln Lithuanian Litas. Other two parts are under submission for funding and to be followed by outcomes from the first one.

NLS inserted a task for preparing and approving a regulation for the LGIII in the strategic programme of government of Republic of Lithuania. The regulation is foreseen to be in compatibility with INSPIRE proposal for a Directive and is planned to be approved by the government in the end of 2006.

Summarising it can be stated that in the absence of a formally mandated NSDI-coordinator or network, the NLS, developing the GCCIS and responsible for the Land Cadastre, is the most pertinent nucleus of a possible future NSDI. The feasibility study is the best guideline available for developing the NSDI and the work for developing the LGII has started in 2005.

2 Details of NLS

2.1 General Information

The main responsibilities of the Geodesy and Cartography Department within the NLS as GCCIS owner are in line with traditional NMA-mandates and are SDI-oriented, albeit in a top-down manner:

- To prepare long-term national mapping programs taking into account the needs of cartographic material for the land reform, national defence services, state cadastres, preparation of territory planning documents, sea and air transport navigation.
- To guide the activities of national cartography, management of the national geodetic background and developing geo-referential databases.
- To co-ordinate the activities related to the aerial photography and satellite image of the territory of the Republic of Lithuania.
- To prepare rules and standards for topographic, geodetic, cartographic and geo-referential databases.
- To prepare draft resolutions of the Government of the Republic of Lithuania related to its activity, the rules and standards, to ensure their harmonisation with the standards of the European Union and NATO.
- To co-ordinate and control the activities of enterprises, institutions and organisations in preparing geodetic, cartographic and geo-referential databases for the territory of the Republic of Lithuania, its continental shelf and the economic zone in the Baltic Sea, the international agreements, the state and ministerial funds (excluding those of the Ministry of National Defence and the State Security Department).

- To collect and systemise the digital database of the state geodetic network, cartographic material and geo-referential data (except collected in counties and municipalities), to provide users with geodetic control networks (planimetric, levelling, gravimetric) and cartographic material, to prepare special geodetic and cartographic material ordered by state institutions and provide it to them.

- To prepare cartographic and designing research material that is necessary for the land reform, state land surveying and state land cadastre activities and for registration of land and other real property.

- To prepare the material to issue the licences to carry geodetic and topographic works, to be engaged in the preparation, publishing and printing of topographic and thematic plans and maps, cartographic schemas. To supervise the performance of licensed activity.

- To protect copyrights to the geodetic and cartographic production (including digital one).

- To co-ordinate the activity of the county manager's administrations, municipal services and specialists organising and carrying out geodetic and cartographic activity in counties.

- Within the competence and in the defined manner to keep relations with relevant institutions of foreign countries and international organisations and represent the National Land Service therein, to prepare drafts of international agreements in the manner prescribed by laws and organise their implementation.

[12]

The main responsibilities of the GIS and Cadastres department (as second main involved institution for SDI building within the NLS) are:

- To create a strategy for development, maintenance and update of geographic information systems (GIS), cadastres and other information systems as well as for the real property cadastre activities.

- To organise the development and maintenance of the land information system for the Lithuanian territory, the graphical database of land parcels registration and identification system, the development and maintenance of the real property cadastre database as well as the compilation and updating of geo-
referential databases M 1:500 - M 1:5000. To prepare mapping programs 1:500 -1:5000 for urban areas.

- To co-ordinate the formation of real property cadastre objects, the statistics of state-owned land according to land use categories and cadastral indices, land valuation activities and supervise them. To co-ordinate the standardisation and harmonisation of the cadastres and information systems with the geo-referential databases.

- To draft the rules and standards for GIS, cadastres and information systems and geo-referential databases M 1:500 - M 1:5000 and the methods and technical regulation drafts for digitising of analogue topographic map sheets and define data use conditions.

- To provide methodical guidance to county manager's administrations and municipalities in developing GIS, cadastres and other information systems and geo-referenced databases, to take care of improving the qualification skills of GIS and cadastre specialists.

- To prepare the plans for developing information systems of GIS, cadastres and other geographically oriented information systems funded from the national budget of the Republic of Lithuania as well as for accounting of the real property cadastre and land and supervise their implementation.

- To take part in organising and co-ordinating foreign technical and humanitarian support programs by preparing prospective projects. To prepare drafts of legal acts and international agreements.

- To provide users with the information on GIS, cadastres and other information systems that are necessary for national statistics of land, for cadastres, monitoring, registers and other needs of the state.

[12]

The GCIS (The National Geodetic Control Information System) was designed and developed according to the “Program for developing a Geodetic Control Information System” which was confirmed by State Geodetic Service in 1995. At present time GCIS is going to be extended to the Geodetic and Cartographic Control Information System (GCCIS).

- The initiative is hosted and supervised by NLS. [1]

- The initiator of GCCIS is the Institute of Geodesy at the Vilnius Gediminas Technical University.

- The main contractor of the project and designer of the Web pages is company AB "ALNA" (http://www.alna.lt).
A role is also played by the State Enterprise GIS-Centras. GIS-Centras (National Centre of Remote Sensing and Geoinformatics). Its main tasks are (1) digital cartography and geoinformatics; (2) creating and filling up of the GIS data bases; (3) projection and installation of the GIS and surveying software, (4) creation of maps for different regions and towns of Lithuania, special maps, plans and drafts, (5) teaching and consultations. However, its effective relationship with GCCIS remains to be clarified.

[10], [4], [17]
2.2 Component 1: Legal framework and funding

[4], [11], [24], [25] – [27]

2.2.1 Legal framework and organizational issues

There have been significant developments in the last years to develop a legal framework related to GI:

- Legislation establishing the registers on land and property (1996) and the responsibilities of NSGC (1997);
- The State registers (1996);
- The population census (1997) and
- Ancillary legislation such as that on statistics (1993).

[1]

A milestone for the development of GIS in Lithuania was the “Law on Geodesy and Cartography” which was adopted in 2001. Article 1 states that the purpose of this law is to

- Regulate the management of geodetic, topographic, and cartographic activities;
- The principles of creating databases of the GI systems and their integrity;
- The ownership of the geodetic control and cartographic material;
- The main rights and duties of state and municipal institutions and enterprises involved in map production, geodetic survey, gathering of data, its record keeping, and use, in the field of geodesy and cartography.

2.2.2 Public-private partnerships (PPP’s)

There are no real PPP’s but private and public clients of GIS-Centras. Private companies play a role in the GCCIS.

[10]

Private companies are providers of value added services.

[2]
2.2.3 Policy and legislation on access to and re-use of public sector information (PSI)

[2]

Lithuanian Constitutional Law only indirectly seems to allow for access to information. See Articles 28 and 29 of the Provisional Basic Law: "Citizens of Lithuania shall be guaranteed the right to collect and disseminate information on all issues, with the exception of issues related to state secrets, as well as issues impairing the dignity and honour of the individual."

On 2 July 1996 the Law was passed on the Provision of Information to the Public (no. I-1418). The latest amendment to this law was made on 21 December 2000 (http://www.lrtv.lt/en_lrtvm.htm ). Article 6 of this law states that “Every individual shall have the right to obtain from State and local authority institutions and agencies and other budgetary institutions, public information regarding their activities, their official documents (copies), as well as private information about himself” and “State and local government institutions must, in accordance with the procedure established by the Law On the Right to Obtain Information from State and Local Government Institutions and other laws, furnish public information as well as private information held by them, except in instances specified by laws, when private information is not to be divulged.”

A new version on the Law on State Registers has been in force since August 2004. The state registers are an important part of official public information. Currently the Law covers more than 90 databases. In the near future this number of registers could increase to around 160. The law on State Registers defines the order of establishing, creation, managing, liquidation and distribution of the state registers. All data of the state registers are public and available for any citizen or legal person if it is not restricted by other specific laws. The data are available via Internet or could be downloaded by data flow channels. There is no standard licence. The details of the distribution of the data of every register are described in the regulations of the register adopted by a Government Decree. The list of registers is available at www.registrai.lt. [29]

Lithuania has transposed Directive 2003/4 on access to environmental information. The procedure for the transposition of Directive 2003/98 on the re-use of PSI is still ongoing. Approval of a draft text by the Government is expected by summer 2005, after which it will be presented to Seimas (Parliament) for ratification.

Usage of data on Internet is free of charge for products produced by the Governmental institutions, by Ministries, by Seimas and not-for-profit organizations under them, by Municipal institutions, according to State programs confirmed by the Governmental resolutions, for territory planning, for land reform, for State cadastre and register, for science and education.
2.2.4 Legal protection of GI by intellectual property rights

The Law on Copyright and Related Rights (Act no. VIII-1185) was enacted on 18 May 1999, entering into force on 9 June 1999 (amendments were introduced by the Act of 20 July 2000 - no. VIII-1886). The Copyright Act was a major step forward for the legal regime in Lithuania. It was drafted taking into consideration the EU directives and provisions of the Bern and Geneva Conventions. In the last eight years Lithuania has transformed its copyright law from the old Soviet-style one to a system that complies to a large extent with modern bilateral and multilateral standards. Chapter 4 of the Copyright Law contains special provisions on the legal protection of databases (sui generis right). The 2001 directive on copyright in the information society has been incorporated in Lithuanian legislation.

Article 34 of the recent Law on Geodesy and Cartography of June 2001 contains special provisions regarding the copyright protection of GI. This article stipulates the following:

“The Republic of Lithuania shall be the copyright holder of the exclusive economic rights to official maps and digital databases financed from the state budget and foreign assistance for the Republic of Lithuania. The authorised institution shall, within the limits of its competence, administer the exclusive economic rights of the authors to official maps and georeferenced databases.

The municipalities shall be the copyright holders of the exclusive economic rights of the authors to topographic maps, plans and georeferenced databases financed from the municipal budgets and shall, within the limits of their competence, administer the exclusive economic rights of the authors.

For the use of official maps and georeferenced databases, publishing of thematic maps or development of institutional digital databases, with the exception of their use for defence needs, an author's fee shall be charged and a copyright licensing agreement shall be made with the user. The remuneration received as the author's fee shall be used for adjustment of official maps and georeferenced databases. The rights to cartographic works, thematic and other maps and databases shall be protected following the procedure under law.

Original works of thematic cartography shall be regarded as research work and their publication shall be recognised as scientific publications.”

Closely linked to article 34 are the stipulations made in article 7 on the ownership of geodetic, topographic and cartographic materials.

Article 35 stipulates with regard to the procedure on the use of geodetic, topographic and cartographic materials:

“Geodetic, topographic and cartographic materials and georeferenced data shall be public and available to any natural and legal persons and enterprises without the status of a legal person. The authorised institution and executive institutions of the municipalities shall provide to the consumers geodetic, topographic and cartographic materials.”
materials and georeferenced data following the procedure established by the authorised institution and executive institutions of the municipalities. Fees for the materials and data shall be charged in the manner stipulated by laws.”

One of the functions of the Geodesy and Cartography Department of the NLS is to protect the copyright of the geodetic and cartographic production (including digital ones).

The copyright of digital data base for the Lithuanian Republic space imagery map at scale 1:50 000, that is used for printing originals production and for digital topographic maps 1:200 000 belongs to the National Land Service.

[7] [6]

The copyright of digital ortophotos belongs to SSC Satellitbild (private agency SE).

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

Lithuania enacted its Law on Legal Protection of Personal Data in 1996. This law has been amended several times throughout the years. The latest amendment dates from 22 January 2002, as to ensure the compliance of the act with the EU Directives on data protection. The full text of this law can be consulted on the following website: http://www.ada.lt/en/docs/lawlegalprot.htm. Lithuania is currently in the process of preparing for membership of the EU and has a National Programme for the Adoption of EU Regulations. Directive 2002/58 on privacy and electronic communications still has been transferred into national law.

[2]

The Law on the Public Registers of 13 August 1996 (no. I-1490) determines the rights and duties of the institutions responsible for the management of public registers, the institutions directing their activities and exercising supervision over them, the rights and duties of the legal and natural persons providing data to the public registers as well as using the data of public registers, and the protection of these rights. It also determines the rights and duties of legal and natural persons whose data constitutes the object of the public registers and the protection of said rights.

2.2.6 Licensing framework

The Law on Geodesy and Cartography of June 2001 lists a number of geodetic, topographic and cartographic activities that should be carried out. These activities are subject to licensing, and the licences for these activities shall be issued by the NLS. Article 22 of the Law on Geodesy and Cartography stipulates with regard to the financing of activities:
“State geodetic, topographic and cartographic activities shall be financed from the state budget and funds from the financial assistance provided by foreign states. Cartographic products shall include production of printing originals of maps and publishing of the minimum number of maps intended for state institutions.

State thematic and special purpose geodetic, topographic and cartographic work shall be financed from the state budget.

Geodetic and topographic work as well as geo-informatics work which, under the Law on the County Governance and the Law on Territorial Planning, is within the jurisdiction of county governors, and which, under this Law, fall within the competence of the executive municipal institutions, shall be financed from the state budget, municipal budgets and other financial sources.”

The NLS arranges the concession of licences for cadastral survey products, topography, geodesy and cartography activities. It administers the funds provided for these purposes.

2.2.7 Funding model for SDI and pricing policy

Funding

The sources of public funding are the authorities at national (= SDI) level.

An extensive “Cost Establishment Statement for selling, copying and services concerning geodetic, cartographic and topographic material” can be consulted on the NLS website. The NLS in 2002 launched the “Methodology for determination of author’s fee for the use of official maps and geo-referential databases, for the publishing of thematic maps and publishing on the internet”. The main aspect thereof is that the permit to use the NLS’s digital data on the internet should be based on a licence fee. Whoever uses the data from NLS on the internet, can get a limited permit to use the data within certain limits and under certain obligations (e.g. the data is used only for a specific service, for a limited period of time and the service should show that the copyright of the data used belongs to the NLS).

The licence fee size depends on the purpose of use (non-profit, business), use restriction (restricted, or not) and the character of the service (free of charge, or chargeable).

The usage of the data is free of charge for products produced by the governmental institutions, by ministries, by Seimas and non-profit organisations under them, by municipal institutions, according to state programs confirmed by the governmental resolutions, for territory planning, for land reform, for state cadastre and register, as well as for science and education.

Costs for geodetic, cartographic and topographic information are generally lower for Lithuanian citizens and organizations than for foreign countries and their citizens.
Within the last years, prices were significantly decreased. The NLS already signed some agreements for the use of national digital databases on the internet.

[2]  
[13]  

**Pricing**

The pricing framework is determined by the mentioned Cost Establishment Statement and confirmed by the National Land Service.

[2]  
[13]  

The statutes of the Centre of Registers - as important provider of GI in Lithuania - specify that it is a profit seeking organisation. It operates on a full cost recovery basis. The government is not financing the activities of the Centre of Registers directly from its budget, but it does order several jobs through different institutions and ministries and it pays for these just like a common end user.

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

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

The GCCIS-initiative of NLS will support topographical data national (1:200.000), regional (1:100.000 and 1:50.000) and local scale (1:20.000) levels:

[15]  

GI at the European scale is produced for the territory of Lithuania as part of Baltic Sea Region Map-project

[1]  

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

(see table next page)

REF = Reference data, CT = Core Thematic Data
<table>
<thead>
<tr>
<th>Geographical location</th>
<th>Type</th>
<th>Inspire priority</th>
<th>European</th>
<th>National</th>
<th>Regional</th>
<th>Local</th>
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<td>Location of facilities</td>
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<td>Under production</td>
<td>Under production</td>
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</tr>
</tbody>
</table>

¹ = no geographic reference information stated ([(21)])
² = the database of administrative units, settlements, streets and addresses was 30% complete in 11/2000 ([(1)])
³ = developed in close partnership with National Land Survey of Sweden ([(22)])

[15]
[2]
[20]
2.3.3 Geodetic reference systems and projections

The Lithuanian Coordinate System 1994 based is on the geodetic datum ETRS89 [16][7]

The projection system is Transverse Mercator (conformal transverse cylindrical projection), central meridian 24°E, scale factor 0.9998 at 24°).

[14] [16] [7]

For satellite data the ellipsoid GRS80 is used

[7]

For mapping on national and regional level, the Lithuanian Coordinate System 1994 is used (same for EE, LT). Major scales are 1:200.000; 1:100.000; 1:50.000; 1:20.000

For mapping on local level, the Lithuanian Coordinate System 1994 (Orthophotos from TM 1:10 000 in TIFF format) or Gauss-Krüger 1942 (1:10 000 in DXF format) projection system is used.

[18]

Algorithms for conversion of coordinates to ETRS89 are available for coordinate systems which are available in Lithuania and for calculation of geoid heights in the Lithuanian area.

2.3.4 Quality of the reference data & core thematic data

The spatial referencing is done based on

- Planimetric control database (GPS points, triangulation points, poligonometry points);
- Heights control database (benchmarks);
- Gravimetric control database (gravimetric points);
- Mapping areas database;
- Maps database (catalogue of printed maps of different scales and datum)
- Photogrammetry areas database;
- Photo images database (catalogue of aerial and satellite images)
- Archive database (catalogue of documents, kept in the Archive of the State Service of Surveying and Mapping)

[16]
For quality checking, a module in MDL creates a special report file according to the queries made by Lithuanian users.

[17]

2.3.5 Interoperability

As GIS software, mainly ARC/INFO is used.

[7]

Data is delivered in ARC/INFO or ARC/INFO.E00 or ArcView.SHP format, but can be converted or transferred in other formats.

[7]

[6]

Orthophotos 1:10 000 are available in TIFF format.

[8]

The LGII feasibility study is underlining the importance of interoperability:

In order to have a successful implementation of common universal interoperable data exchange standard, the guidelines and tools of Web Services Interoperability Organisation (WS-I)\(^2\) should be respected and used. These guidelines define HTTP protocol for transport over Internet, SOAP (Simple Object Access Protocol) for data enveloping and the XML/GML protocol for data body. This architecture allows full interoperability between different implementations of Information Systems at the organisations.

For the interoperability of geographic data, the GML protocol should be considered. The data stream in GML format can be transferred using web services, particularly SOAP – Simple Object Access Protocol. It is a natural RPC – Remote Procedure Call protocol that is used to execute a piece of code (program, procedure) on a remote machine (server) and to receive its response (data). SOAP is the most suitable for this project because it works over (above, using) HTTP and/or HTTPS (HTTP Secure) protocols. This means that SOAP service is reachable and available everywhere.

[30]

2.3.6 Language and culture

Metadata is provided in Lithuanian. Accompanying documents are available in Lithuanian and partly in English.

[17]

\(^2\) Web Services Interoperability Organization: see [http://www.ws-i.org](http://www.ws-i.org)
2.3.7 Data Content

No information has been found.

2.3.8 Geographical names

Geographical names are managed in Lithuanian with original information on the names of the places. No secondary name sets are used.

[17]  
[7]  
[23]

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

2.4.1 Availability

Discovery metadata seem to be available for a significant part of the reference and core thematic geodatasets.

[16]  

2.4.2 Metadata catalogues availability + standard

The elaboration of one or more metadata catalogues is planned.

[16]  

As for metadata encoding, XML is generally the preferred option. For structuring XML metadata, an FGDC Metadata DTD (Document Type Definition) is. In fact, metadata collections with other data structures can still support interoperable catalogue searching. By mapping their internal data fields to those of Z39.50’s GEO profile, a variety of metadata collections can support LGII Portal queries.

OGC’s Catalog Interface Implementation Specification defines an SQL-like Common Query Language for search and retrieval of metadata, along with profiles of it for the OLEDB, CORBA, and Web computing environments. The Web profile uses the ANSI/NISO Z39.50 (ISO 23950) protocol, either on its own Internet port, or via HTTP using XML-encoded requests.

[30]

2.4.3 Dublin core metadata standards for GI-discovery

Not applicable
2.4.4 Metadata implementation
No information has been found.

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

2.5.1 On-line access service for metadata of reference data & core thematic data
There are on-line access services planned for the metadata on reference data and core thematic data but not yet operational.

[17]

2.5.2 On-line access service for reference data & core thematic data
There are on-line access services planned for reference data and core thematic data but not yet operational.

2.5.3 Inter-linkages of on-line access services for metadata and reference data resp. core thematic data
Not applicable.

2.5.4 OpenSource software and access services
No information has been found.

2.5.5 Availability of web mapping service(s)
Viewing of GCCIS-data on (1) planimetric control points, (2) height control points, (3) gravimetric control points, (4) mapping areas, (5) topographic maps, (6) photogrammetry areas and (7) photo images is possible through the web with ActiveCGM at [http://www.zum.lt/nzt/gkpis/index_en.htm](http://www.zum.lt/nzt/gkpis/index_en.htm).

[17]

2.5.6 Availability of catalogue services to regulate access
No information has been found.

2.5.7 Availability of catalogue services that perform payment operations
No information has been found.
2.5.8 Availability of catalogue services to extract and send data to a user application

No information has been found.

2.5.9 SDI user applications

No information has been found.

2.5.10 Availability of geo-processing services

Map, feature and coordinate transformation services are planned. For a web pricing and ordering service, a contract is prepared to agree with National Land Service.

[17]
[7]

2.6 Component 5: Standards

The LGII will be built on standards. See other relevant paragraphs.

2.7 Component 6: Thematic environmental data

No information has been found on the environmental data collection, management and dissemination in Lithuania. Thematic environmental information clearly does not belong to the mandate of NLS, which is rather a typical NMA. It is not clear whether the InGIS-initiative of the Department of Information and Informatics is considering environmental information issues.
## Annexes

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

<table>
<thead>
<tr>
<th>National Land Service under the Ministry of Agriculture of the Republic of Lithuania</th>
<th>Web address</th>
<th>Organisational mailing address</th>
<th>Over-all contact person: tel./fax/e-mail</th>
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<tr>
<td>National Land Service under the Ministry of Agriculture of the Republic of Lithuania</td>
<td><a href="http://www.zum.lt/nzt/nzt_en.htm">http://www.zum.lt/nzt/nzt_en.htm</a></td>
<td>Gedimino pr. 19, LT-2025, Vilnius</td>
<td>Director General: Kazys Maksytytis Phone:+370 5 239 13 06 Contact person: Dr. Aldona Sjovall (<a href="mailto:aldonas@zum.lt">aldonas@zum.lt</a>)</td>
</tr>
<tr>
<td>Institute of Geodesy at the Vilnius Gediminas Technical University</td>
<td></td>
<td>Sauletekio al. 11, 2054 Vilnius</td>
<td>Phone/fax: +(370-2) 76-38-64 E-mail: <a href="mailto:eimis@ap.vtu.lt">eimis@ap.vtu.lt</a></td>
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<tr>
<td>Institute of Geodesy at Vilnius Gediminas Technical University</td>
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<tr>
<td>AB &quot;ALNA&quot;</td>
<td><a href="http://www.alna.lt">http://www.alna.lt</a></td>
<td>A.Domaševiciaus g. 13, 2001 Vilnius</td>
<td>Phones: (8-22) 31-22-44, 61-05-06 Faxes: (8-22) 31-22-77, 22-69-28 E-mails: <a href="mailto:info@alna.lt">info@alna.lt</a>, <a href="mailto:gis@alna.lt">gis@alna.lt</a></td>
</tr>
<tr>
<td>State Enterprise &quot;GIS-Centras&quot;</td>
<td><a href="http://www.gis-centras.lt">http://www.gis-centras.lt</a></td>
<td>Seliu g. 66, 2054 Vilnius</td>
<td>Phone: (8-22) 72-47-41 Fax: (8-22) 72-77-23 E-mail: <a href="mailto:gis@gisc.tipas.lt">gis@gisc.tipas.lt</a></td>
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<tr>
<td>State Enterprise Centre of Registers</td>
<td><a href="http://www.kada.lt/imone_en.html">http://www.kada.lt/imone_en.html</a></td>
<td>V.Kudirkos 18 2600 Vilnius Lithuania</td>
<td><a href="mailto:info@kada.lt">info@kada.lt</a> Director: Kestutis Sabaliauskas</td>
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3.2 List of references for Lithuania

Table: list of references used to compile the Country Report

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<tr>
<th>Web sites:</th>
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http://www.urisa.org/Journal/Vol14No2/craglia/geographic_information_policies_in_central_and_eastern.htm [22]  
http://unstats.un.org/unsd/geoinfo/N0244282.pdf [23]  
http://www.lgt.lt [25]  
http://www.lrtv.lt/en_lrtvm.htm [26]  
http://www.ada.lt/en/docs/lawlegalprot.htm [27]  
http://www.is.lt/vgkt [28]  
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http://europa.eu.int/information_society/policy/psi/implementation/status/index_en.htm |