Spatial Data Infrastructures in **Belgium**: State of play 2007

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

(Under Framework Contract REGIO/G4-2002-02-Lot 2)

January 2008
## Report meta-information

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<tr>
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<td>Jos Van Orshoven (SADL) &amp; Peter Beusen (ICRI)</td>
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<tr>
<td><strong>Contributor</strong></td>
<td>Jos Van Orshoven, Danny Vandenbroucke (SADL); Peter Beusen, Katleen Janssen (ICRI); Jean-Pierre Kinnaert, François Leruth, Paul Ferier (Région wallonne); Hans Dufourmont, Dirk Vanderstighelen (GIS-Vlaanderen); Ingrid Vandenberghe, Jean Théatre, Luc Bayers (IGN/NGI)</td>
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### Change matrix 2007 versus 2006

Paragraphs in which information is reported which deviates in a significant way from what was reported in the Autumn 2006 version of this country report are listed in the below table. They are indicated in red.

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Executive summary

In the federal state of Belgium, the major part of the territory-related competences has shifted over the recent years to the governments of each of the three regions (Brussels Capital Region, Flemish region, Walloon region). Hence the major public sector users of GI are situated at the regional (government, public institutions) and the lower administrative (provincial, municipal) levels. As a result, three distinct public regional SDI (RSDI) are being developed, focusing on the particular needs of the user communities they each serve. On the other hand, there is a Federal Platform for Geo-information (FPGI) created in 2004 by the National Geographic Institute and the General Administration of Patrimonial Documentation (former Cadastral Agency) who are both active at the Federal level, mainly as data producer of basic reference data.

Despite the fact that there are clearly one federal and 3 regional SDI initiatives/activities, and despite the fact that there is collaboration between the federal and regional levels and vice versa, one can not speak about an integrated national approach to build the Belgian SDI.

What the RSDI in the Flemish region and the SDI in the Walloon region have in common is that they essentially consist of a coordinated network of public institutions and bodies aiming at sharing and re-using GI to fulfill their public mandates. Whereas the Flemish RSDI had already started in 1995 on an informal basis and has been consolidated by a regional decree in 2000, the Walloon SDI is currently being developed and operating on a project basis. It is nevertheless obtaining a similar status as GIS-Vlaanderen and is even more in line with modern technology and ISO-standards. The UrbIS-initiative in the Brussels Capital region has a more limited scope: a single institution has the mandate to serve the Brussels public sector with high quality base data.

The origin of the three RSDI is -at least partly- with the urgent need for large scale base data, which were not produced by the National Geographic Institute (NGI), the traditional topographic data provider for the whole of Belgium. The utility sector is involved in the creation and maintenance of these large scale data. Given the fact that the regions are clearly competent for dealing with environmental issues, the RSDIs aim at covering this theme as well. In practice progress is variable.

Notwithstanding the decentralization process, the Belgian federal government still has significant territory-related competences, such as defense, guaranteeing public order, statistics and the cadastre. In this respect, the National Geographic Institute and its ‘natural’ partners, the National Institute of Statistics and the General Administration of Patrimonial Documentation, have formulated their ambition to build a nation-wide federal SDI, dealing specifically with the production, maintenance and dissemination of GI falling within the scope of federal competences. Legislation on the NGI stipulates that the regions have the possibility to co-steer these federal initiatives. In a similar manner, the NGI and the General Administration of Patrimonial Documentation already hold advisory positions in the regional SDI bodies. The activities and components being build by the NGI are described in this updated report of 2005.
The FPGI is focusing on following objectives: (1) to gather the various federal services that produce, use or manage geographical data; (2) to harmonize the different federal geographical datasets and (3) to support the access to the federal geographical datasets. The Platform wants to extend its activities to all relevant federal institutions capable to cover all the themes as defined in the annexes of the INSPIRE Directive.

Regarding the involvement of the private sector, the research sector, NGO’s etc., the situation is remarkably different between the four SDI (i.e. three regional and one federal SDI). At the level of the federal state, the Brussels Capital Region and the Walloon region no explicit provision is currently made for non-public sector users. GIS-Vlaanderen on the other hand does so by opening up its advisory structures to these types of GI-users and -producers and by developing a clear pricing policy. In general, private actors mostly operate in a client-supplier relationship with the RSDI rather than as partners.
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<td>AAPD / AGDP</td>
<td>General Administration of Patrimonial Documentation</td>
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<td>AGIV</td>
<td>Agency for Geographic Information Flanders (Agentschap voor Geografische Informatie Vlaanderen)</td>
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<td>AKRED</td>
<td>Administration of the cadastre, registration and domains</td>
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<td>BRIGIT</td>
<td>Base de Référence des Items Géographiques, Informatisée et Tridimensionnelle</td>
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<td>Brussels UrbIS</td>
<td>Brussels Urban Information System</td>
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<td>CAMET</td>
<td>Ministère wallon de l'Equipement et des Transports</td>
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<td>CIBG</td>
<td>Centrum voor informatica voor het Brusselse Gewest - Informatics Centre for the Brussels Region</td>
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<td>CORINE</td>
<td>COR = Coordination, IN = Information, E = Environment</td>
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<td>CTC</td>
<td>Comité Technique de Cartographie</td>
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<td>DGATLP</td>
<td>Direction Générale de l’Aménagement du Territoire, du Logement et du Patrimoine</td>
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<td>Direction du Contrôle et des Etudes</td>
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<td>DGPL</td>
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<td>DGRNE</td>
<td>Direction Générale des Ressources Naturelles et de l’Energie</td>
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<td>General Administration of Patrimonial Documentation</td>
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<td>GI</td>
<td>Geographical Information</td>
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<td>GIS</td>
<td>Geographical Information System</td>
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<td>GRB</td>
<td>Grootschalig Referentie Bestand</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>Intercommunale d’Equipment de la Province de Luxembourg</td>
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<td>INfrastructure for SPatial InfoRmation in Europe</td>
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<td>MRW</td>
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<td>MUGIRE</td>
<td>Multilingual GI Retrieval Engine</td>
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<td>NIS / INS</td>
<td>National Institute for Statistics</td>
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<td>UrbIS Metadata Manager</td>
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<td>Search for Public Way</td>
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<tr>
<td>UrbTk</td>
<td>URBIS Toolkit</td>
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<td>UrbVwr</td>
<td>UrbIS Viewer</td>
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<td>VLM</td>
<td>Vlaamse Landmaatschappij - Flemish Land Society</td>
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1 GENERAL INFORMATION

1.1 Method

This report is summarizing the review of SDI in Belgium, and reflects the degree to which the SDI situation in Belgium is similar to the ideas set out in the INSPIRE position papers\(^1\), in the INSPIRE scoping papers and in recently adopted INSPIRE Directive.

The report is based mainly on the analysis of web sites readily accessible:

- www.gisvlaanderen.be (GeoPortal of the RSDI of the Flemish Region, in Dutch)
- http://cartographie.wallonie.be/PortailCarto/Maquette/index.php (GeoPortal of the RSDI of the Walloon region, in French)
- http://www.ngi.be (Portal of the National Geographic Institute)

The 2003 version of the report has been completed by integration and consolidation of comments received from representatives of the 3 regional and the federal SDI initiatives. Those comments were provided either in written form, either through interviews organized in the framework of the Activity 2 of the State-of-Play project. The 2003 version has been updated in the 2004 version after a revisit of the web sites and by integration of information from recent publications (e.g. Kinnaert and Leruth, 2003). The 2005 version was updated based on input from the experts from the RSDI of the Walloon region and the experts from the National Geographic Institute (Kinnaert, Vandeberghe, 2005). Information was also added for the RSDI of the Flemish Region based on other sources. The update of 2006 was based on new information received from IGN and General Administration of Patrimonial Documentation through Eric Bayers from IGN. For the updates of the Flemish SDI, AGIV, a key document “GIS-Vlaanderen, Uitvoeringsplan 2006” was used. All this information was complemented with information obtained through visits to the websites of the different SDI initiatives and discussion with some of the stakeholders met on several occasions (IGN, AGIV). For the 2007 update, the NGI/IGN, the Cadastre (General Administration of Patrimonial Documentation), AGIV and the Walloon Region sent information regarding the data sets, services and data sharing practices. This information has been integrated in the different chapters of the country report.

1.2 The SDI-scene in Belgium

Belgium is a federal country in which most of the territorial matters are dealt with by the three regions: the capital region Brussels (BE1), the region of Flanders (BE2) and the region of Wallonie (BE3). The federal level through its National Geographic Institute - working in close collaboration with the General Administration of Patrimonial

\(^1\) INSPIRE position papers, final versions: RDM, ETC, DPLI, ASF, IST, IAS (latest version).
Documentation (Cadastre, Land Registration, State Properties, Mortgages Services) – is since long active in the domain of GI and started recently to be active on the (N)SDI scene. Despite the fact that there are clearly one federal and 3 regional SDI initiatives/activities, and despite the fact that there is collaboration between the federal and regional levels and vice versa, one can not yet speak about an integrated national approach to build the Belgian SDI.

In 2004, the Federal Platform for Geo-information (FPGI) has been established by NGI / IGN (National Mapping Agency) and AAPD/AGDP (General Administration of Patrimonial Documentation). The FPGI is focusing on following objectives: (1) to gather the various federal services that produce, use or manage geographical data; (2) to harmonize the different federal geographical datasets and (3) to support the access to the federal geographical datasets. The Platform wants to extend its activities to all relevant federal institutions capable to cover all the themes as defined in the annexes of the INSPIRE Directive.

The 5 provinces in Flanders have an explicit mandate to coordinate GIS-related matters of the provincial administration and of the municipalities. However, since provinces and municipalities are partners in the regional SDI, termed GIS-Vlaanderen, their lower level SDI are well integrated with the regional SDI and do not necessitate separate description. A few larger cities (e.g. Antwerpen, Gent) build upon the regional SDI to develop city-specific SDI-services for which a number of extra initiatives are taken, e.g. for data acquisition and delivery to citizens.

The (relatively) small Brussels Capital Region is developing an SDI (Brussels-URBIS) covering all municipalities and major utility services and companies. Brussels-URBIS can be regarded as a representative of the city-type of SDI.

The CTC (Comité Technique Cartographique – Technical Cartographic Committee) of the Région wallonne, an intergovernmental and interadepartmental working group co-ordinates the INFRA SIG project. This project began on February 2002. Its aims is to develop and operate a Regional Spatial Data Infrastructure (RSDI) compatible with the INSPIRE principles. The project must define and implement the most appropriate RSDI – organization, elaboration, management, distribution and maintenance of spatial data – to meet the requirements of the regional and local authorities, non-governmental companies, private sector and citizen. At the provincial and city level, a few initiatives or prototypes have been achieved.

The National Geographic Institute (www.ngi.be) is an important data producer for Belgium as a whole. The NGI has the mandate to maintain the national spatial reference systems and represents Belgium at several international fora. It is semi-public under the supervision of the Minister of Defense of the Federal Government. The NGI has started to provide SDI-related services with respect to the territorial mandates of the federal government.

Another key producer of GI is the General Administration of Patrimonial Documentation, which depends on the Ministry of Finance of the Federal Government. This Registry is responsible for the updating and distribution of cadastral information. It embarked on an
ambitious modernization program in the course of 2003. This program includes the full
digitization of the cadastral data and the cadastral services, in collaboration with the NGI
and the regions.

The “co-ordination committee for digital geographical information” is the Belgian
member of EUROGI. It is a de facto organisation that was founded in 1986 and aims at
coordinating, stimulating, encouraging and supporting the use of digital geographical
information in Belgium. In reality, this committee has little influence on the SDI-scene.

In this report we describe the three regional SDI-initiatives, which together cover
Belgium completely. The federal initiative FPGI is described in further detail as a
separate SDI in this update: it is clear that it presents scope for development into a major
‘umbrella’ SDI in the future.

1.3 Common ground for the selected SDI-initiatives

The four selected and described SDI-initiatives in Belgium are built on partially common
ground. The common elements are described in this section to which the SDI-specific
sections make reference.

1.3.1 Policy and legislation on access to public sector information (PSI)

Belgium embraced the concept of open and free access to PSI. In this respect it
introduced a whole myriad of primary and secondary legislation on the subject of access
to public documents and open government, such as -but not limited to-

- The federal Law of 11 April 1994 relating to access to government
  information;
- The federal law of 5 August 2006 on public access to environmental
  information;
- The Ordnance of the Council of the Brussels Region of 30 March 1995 on
  access to public administration;
- The Ordnance of the Council of the Brussels Region of 18 March 2004 on
  access to environmental information;
- The Ordnance of the Council of the Brussels Region of 18 March 2004 on
  access to environmental information;
- The Flemish Decree of 26 March 2004 relating to access to government
  information;
- The Decree of the Walloon Region of 30 March 1995 relating to access to
government information.

Directive 2003/98 on the re-use of public sector information has been transposed by the
following legal instruments:

- The federal Law of 7 March 2007;
- The Decree of the Walloon Region of 14 December 2006;
The Decree of the French Community of 25 January 2007;
The Decree of the German Community of 18 December 2006;
The Flemish Decree of 27 April 2007;

The Brussels Region has not transposed the directive yet. In December 2007, Belgium was sentenced to pay a fine by the European Court of Justice for not transposing the directive.

### 1.3.2 Legal protection of GI by intellectual property rights

The Belgian law of 30 June 1994 concerning Copyright and Neighboring Rights does not expressly mention maps, plans and other works related to geography or topography as being capable of attracting copyright (contrary to the Berne Convention and many other national copyright laws). They do however fall within the category 'works of literature'.

According to article 8, §2 of the above Copyright Law, there is no copyright on official documents (e.g. decrees, laws) of the government. Other data produced by the public sector (e.g. geospatial information) can however qualify for copyright protection and can thus be managed and exploited by the public authorities if this data meets the legal conditions for copyright protection.

The Belgian law of 31 August 1998 concerning the legal protection of databases (implementation of Directive 96/9/EC of 11 March 1996) and the Belgian law of 30 June 1994 concerning the legal protection of computer programs (implementation of Directive 91/250/EC of 14 May 1991) could also offer legal protection to GI and GIS.

The 2001 Directive on copyright in the information society was transposed by the law of 22 May 2005, which includes amendments to the Copyright law and the law on the protection of databases.

### 1.3.3 Restricted access to GI further to the legal protection of privacy

The general Belgian legislation on the protection of personal data applies, i.e. the consolidated text of the Belgian Law of 8 December 1992 on Privacy Protection in relation to the Processing of Personal Data (as modified by the Law of 11 December 1998 implementing Directive 95/46/EC), and the Royal Decree of 13 February 2001 which is secondary legislation providing for the enforcement of the law and outlining the practical measures for the application of the law.

Directive 2002/58 on privacy and electronic communications was transposed by the Law on electronic communication of 13 June 2005.

### 1.3.4 Geodetic reference systems and projections

Spatial referencing is done by coordinates, but not according to ISO 19111.
Till recently, IGN used Lambert-72. It was decided in 2005 to introduce a new geodetic reference system, called Lambert 2005. The technical specifications are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Lb72-projectie</th>
<th>Lb05-projectie</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ellipsoid</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Hayford 1924</td>
<td>GRS80</td>
</tr>
<tr>
<td>½ major axis (a)</td>
<td>6.378.388,0 m</td>
<td>6.378.137,0 m</td>
</tr>
<tr>
<td>Afplatting (f)</td>
<td>1/297,0</td>
<td>1/298,257222101</td>
</tr>
<tr>
<td><strong>Datum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>BD72</td>
<td>ETRS89</td>
</tr>
<tr>
<td>φ₁</td>
<td>49°50'00&quot;00204 N</td>
<td>49°50' N</td>
</tr>
<tr>
<td>φ₂</td>
<td>51°10'00&quot;00204 N</td>
<td>51°10' N</td>
</tr>
<tr>
<td>Origin of parallel</td>
<td>90°N</td>
<td>50°47'52&quot;134 N</td>
</tr>
<tr>
<td>Central meridian</td>
<td>4°22'02&quot;952 E</td>
<td>4°21'33&quot;177 E</td>
</tr>
<tr>
<td>Coordinate origin</td>
<td>x₀ = 150.000,013 m</td>
<td>150.328,0 m</td>
</tr>
<tr>
<td></td>
<td>y₀ = 5.400.088,438 m</td>
<td>166.262.0 m</td>
</tr>
</tbody>
</table>

Map projection: Lambert conformal conical projection of 1972, respectively 2005.

The system is gradually introduced in the products of IGN. The regional SDI will implement the new reference system too. In order to do so, GIS-Vlaanderen is currently carrying out an impact study.

Tools are available for conversion: cConvert Versie 3.0.1. (coordinate transformation), DLL “Lb7205” (for all GIS software under windows); “createtfw05” (voor raster & ortho's tfw's)

Algorithms are available for conversion of coordinates from the old Belgian system – which will still be used for a certain time – users have the choice - to ETRS89 and others: [http://www.ngi.be/NL/NL4-2.shtm](http://www.ngi.be/NL/NL4-2.shtm).
2 Details of SDI #1: Brussels Urbis

2.1 General Information

**Name:** UrbIS

**Official address:** Centrum voor Informatica voor het Brussels Gewest, Departement Geomatica. Kunstlaan 20, Bus 10, 1000 Brussels; Tel: +32-2-282.47.70; Fax: +32-2-230.31.07

“Brussels UrbIS” (Brussels Urban Information System) is an integrated collection of very large scale reference and core thematic geographical and alphanumerical databases (UrbIS Fot, UrbIS Top, UrbIS Base containing UrbIS Adm and UrbIS Map, Urbis Parc) relating to the territory of the Brussels Region. These databases contain general information. The “Brussels UrbIS” products should therefore be considered as core data which users can consult and/or complete. All products are put at the disposal of public administrations and the private sector. The CIBG is the exclusive distributor of the “Brussels UrbIS” data. It also offers assistance to users who want to develop applications for the digital maps. Those applications may be served through geo-portal [http://www.cibg.irisnet.be/ci/NL/Departementen/Geomat](http://www.cibg.irisnet.be/ci/NL/Departementen/Geomat). Currently this is the case for the e.g. Spatial Destination Plan and the real-time Brussels Info Traffic Centre.

The RSDI of the Brussels capital region is further named according to this main product it offers to its users ‘Brussels UrbIS’.

2.2 Component 1: coordination and organizational issues

In the Brussels Region the CIBG is the main actor in the regional SDI UrbIS ([http://www.cirb.irisnet.be](http://www.cirb.irisnet.be)). The CIBG (Centrum voor informatica voor het Brusselse Gewest - Informatics Centre for the Brussels Region) is a government institution whose main task is to help the other institutions of the Brussels Region in using ICT. As from its foundation in 1987 it has been involved in the promotion of E-government, which became a reality through a number of its products.

The department of Geomatics of CIBG ([http://www.cibg.irisnet.be/ci/NL/Departementen/Geomat](http://www.cibg.irisnet.be/ci/NL/Departementen/Geomat)) is responsible for the maintenance, the elaboration, the promotion and the distribution of the “Brussels UrbIS”.

The political responsibility of Brussels UrbIS lies with the Minister of the Brussels capital region, responsible for Informatics. A Regional cartographic committee (RCC), the so-called decision pool, has decisive power. It is composed of 3 delegates from the regional authorities and 2 delegates from 7 utility companies who participate in the SDI. The presidency of the Committee is with a representative of the responsible minister.

The host institute for Brussels UrbIS is the Centre for Informatics of the Brussels Capital Region. It is mandated by the Brussels regional government to execute the RCC-
decisions. Users of Brussels- UrbIS are organised in a users-pool, composed of an advisory committee, user-oriented work groups and a user’s club. The latter is meant to share experiences of using the Brussels UrbIS product and services.

A technical pool is responsible for technical advice with respect to further development of Brussels UrbIS.

### 2.3 Component 2: Legal framework and funding

#### 2.3.1 Legal framework

The legal framework consists inter alia of the following two Decisions. The Decision of the government of the Brussels Region of 19 May 1994 charges the CIBG with all assignments regarding the promotion, distribution and service provision to the users of the product “Brussel UrbIS”. The Decision of the government of the Brussels Region of 4 July 1996 determines the pricing of the services that are offered in the framework of the assignment to promote, disseminate and provide assistance to the users of the product “Brussels UrbIS”. In the same decision, the CIBG is charged with a number of assignments and services, such as the dissemination under licence constraints of “Brussels UrbIS” and the realisation of cartography activities.

#### 2.3.2 Public-private partnerships (PPP’s)

7 Utility companies participate and co-finance the Brussels- UrbIS. UrbIS also has a limited number of non-exclusive strategic partnerships, e.g. for e-government purposes.

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

See 1.3.1

An on-line metadata catalogue is not available for Brussels UrbIS. However, UrbVwr (UrbIS Viewer) is a program developed by the department of Geomatics which is intended to browse through and consult the UrbIS data. The program is free for all those who hold a UrbAdm licence. UrbVwr represents the data by means of a metadata file. The application UrbMtaMa (UrbIS Metadata Manager) offers all kinds of functions for manipulating the UrbIS metadata, i.e. the creation, modification, adding and deleting of UrbIS metadata objects.

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

See 1.3.2

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

See 1.3.3
2.3.6 Licensing framework

“Brussels UrbIS” is distributed to public authorities and the private sector under license by the CIBG. The partners of the network and the educational institutions can obtain the data for free. The other applicants have to sign a licence, using their electronic ID, and pay a lump sum of 1.000 €. The licence is valid for one year and can be prolonged each year, subject to payment of the same charge. The data can be downloaded via the Irisbox application offered on the website (https://irisbox.irisnet.be/urbis). The licence can be found here: http://www.bruxelles.irisnet.be/nl/servicesl/services/region/urbis.shtml. If needed, the CIBG can still offer the data on CD/DVD, subject to an additional charge of 185€.

2.3.7 Funding model for SDI and pricing policy

The funding model of Brussels UrbIS is a combined model which encompasses both grants and cost recovery mechanisms.

Pricing policy

See 2.3.6.

2.4 Component 3: Data for themes of the INSPIRE annexes

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

Only 1 scale level is recognized and supported by Brussels- UrbIS:

- Very large scale: equivalent to resolution of printed topographic maps at scale 1:1.000 or larger (Local (cadastral) scale);

2.4.2 Data by resolution or scale range for the INSPIRE themes

The Brussels- UrbIS -product is composed of 5 subproducts:

- UrbisFOT
- UrbisTOP
- UrbisADM
- UrbisMAP
- UrbisPARC

Brussels UrbIS Fot (UrbFot) is a collection of aerial non-corrected photographs which served the creation and update of the large scale mapping. Only part of these photographs are available in digital format. A first set of photo’s has been acquired on 13 april 1995. A second set dates from 1 and 2 may 1999. The latter set has been acquired in suboptimal weather conditions. The vegetative development prevented already the accurate determination of land use.
Brussels UrbIS Top (UrbTop) is the vectorial database constructed from photogrammetry and surveying, scale 1:500. It contains:

- Buildings;
- Separations;
- Relief;
- Streets and street infrastructure;
- Municipal boundaries;
- Railways;
- Water courses and water surfaces.

Additional data layers are available but use by third parties is more restricted:

- Iso-elevation lines;
- Buildings, secondary constructions, towers;
- Trees along principal roads;
- Detailed road and street infrastructure: light poles, phone cells, electrical nodes, waste bins, shelters, …;
- Parking lots, …;
- Public transport lines, tramway lines, stops.

Brussels UrbIS Adm (UrbAdm) is the database with the administrative subdivision of Brussels Capital Region. It contains spatial and alphanumeric information for objects. Most objects are of an administrative nature. Some are of a physical nature, e.g. buildings and blocks of houses. Among the alphanumeric information, are the official cadastral codes, codes from the national statistical institute, the national register and from municipalities.

As such, UrbAdm is an interesting basis for further extension with commonly available alphanumeric data and with user-collected data:

- Statistical Entities;
- Zip Entities: postal zones;
- Cadastral Entities;
- Private Domain Entities;
- Public Domain Entities.

UrbIS Map (UrbMap) is a layer derived from UrbAdm and UrbTop. It is meant as base map for the 1:1.000 scale. It does not contain alphanumeric information and is limited to following objects:

- Boundaries of region;
- Boundaries of municipality;
- Walking paths;
- Housing blocks;
- Public street: street name;
- Building;
- Address and house number.

UrbAdm and UrbMap together constitute the UrbBase product.

**UrbIS Parc (UrbParc)** is a vectorial database of cadastral parcels at scale 1:500 as derived from photogrammetry and interpretation of cadastral plans and alphanumerical cadastral data.

Large scale topographic datasets from the National Geographic Institute (equivalent to resolution of printed topographic maps at scales between 1:10,000 and 1:25,000-1:50,000 (Local and Regional Scale) are indirectly available through Brussels-UrbIS.

In 2005 a new version of the UrbIS database was released in which information from the Cadastre will be integrated and after a thorough quality control procedure.

### 2.4.3 Geodetic reference systems and projections

See 1.3.4

The Belgian Lambert Conformal Conical reference system of 1972 is used for all purposes which are relevant for Brussels-UrbIS, including the large (local) scale display and mapping and the storage and processing of raster data.

### 2.4.4 Quality of the data

Quality is related to resolution and scales of publication. It is not explicitly based on user’s perspectives:

- There is no standardized, systematic quality control process for attributes of objects;
- Quality is not tested according to a standardized, systematic procedure;
- Quality advice is limited to non standardized documentation;
- The update schedule depends upon the geodatasets and is not systematic;
- Changes are managed by time series of snapshot datasets; previous versions of geodatasets and their metadata remain available;
- Accessing change-only information is generally not provided for;
- An in-house developed portrayal standard for symbolizing geographic information is in use.

### 2.4.5 Interoperability

- The dominating GIS-software in the user-organisations of Brussels-URBIS is MicroStation (50%), AutoCAD (10%), STAR (16%), ESRI (8%)
- Software-related data-converters are available.
- Conceptual schema language and rules for application schema are not in use.
2.4.6 Language and culture

- Metadata, documents are systematically provided in French and Dutch.
- No standardized glossary of terms is in use.

2.4.7 Data Content

No information has been found about the availability of explanation of attributes and of a data dictionary.

2.4.8 Geographical names

Geographical names are managed in the languages French and Dutch.

2.4.9 Character sets

No information has been found.

2.5 Component 4: Metadata

2.5.1 Availability

The Brussels UrbIS product is accompanied by metadata focusing on the structure of the geodatabase and geodatasets, rather than describing the characteristics of the data in terms of the ‘Discovery – Exploration – Exploitation’ philosophy. Fitness for use cannot be assessed from these metadata.

2.5.2 Metadata catalogues availability + standard

No true metadata catalogue is available. See sections 2.4.1 and 2.4.4.

2.5.3 Metadata implementation

The URBIS-type of metadata are implemented by the coordinating agency CIBG. No standard feature code-list or thesaurus is in use. The existence and use of formalised update procedures need to be investigated. The cost for metadata collection and management is not clear.

The UrbMtaMa-application (UrbIS MetaDataManager) contains several functions to edit the UrbIS metadata, i.e. create, modify, add and delete UrbIS metadata objects.

The Urbis-Metadata are meant to:

- Describe the content of the databases;
- Clarify the complex structure of the databases using the "object"-concept;
- Allow for simultaneous use (data interoperability) of data coming from more than 1 database (format, localisation);
• Facilitate the use and processing of the data;
• Define the symbology for presentation of the data.

The UrbIS metadata are stored in a structured database (ACCESS).

2.6 **Component 5: Network services**

2.6.1 **Availability of web mapping service(s): View Services**


2.6.2 **SDI user applications**

Applications 1 to 4 are described on the SDI-website

1. **UrbSpw-application**

UrbSpw is a software programme (Search for Public Way) that searches for, completes and standardises addresses or address lists. The selected address can then be localized and visualized (geo)graphically.

2. **UrbVwr-application**

UrbVwr (UrbIS Viewer) is a software programme developed by the SDI to view and query the UrbIS-database. The programme is free for all licencees of the UrbisAdm-product. It is designed to present vectorial data in Sud-format (the format of the UrbAdm and UrbTop-products) and raster datasets in MrSid-format (used for the UrbFot-product).

UrbVwr operates under Windows as a stand-alone application or as an application steered by another application (e.g. MSAccess) via OLE Automation. UrbVwr makes use of a metadatafile.

3. **UrbMtaMa : UrbIS Metadata Manager**

UrbMtaMa (UrbIS MetaDataManager) contains several functions to edit the UrbIS metadata, i.e. create, modify, add and delete UrbIS metadata objects. See section 2.4.4.

4. **UrbTlk**

UrbTlk (URBIS Toolkit) is used in the previous applications: UrbSpw, UrbVwr en UrbMtaMa. The kit is also made available to users and applications developers. A demo of UrbisTlk is available on-line and is meant to illustrate the use of the toolkit and to provide insight in the operation of the UrbVwr-applications via OLE Automation.

5. **Other applications**
Other applications have been or are being developed by the SDI and or the client municipalities or utility companies. Examples are:

- At [http://195.244.170.21/PRASAFFECTATIONNL/viewer.htm](http://195.244.170.21/PRASAFFECTATIONNL/viewer.htm) an information service regarding the spatial destination plan can be consulted;
- An information system on public transport.

### 2.7 Component 6: Thematic environmental data

Brussels URBIS is not dealing with environmental data. It provides general purpose spatial data to the environmental institute of the Brussels Capital Region but there is no two-way communication and exchange of data.
3 Details of SDI #2: GIS-Vlaanderen

3.1 General Information

Name: GIS-Vlaanderen (http://www.gisvlaanderen.be)

Official address: Ondersteunend Centrum GIS-Vlaanderen; Afdeling van de Vlaamse Landmaatschappij, Gebroeders van Eyckstraat 16, B-9000 Gent; Tel: +32-9-261.52.00; Fax: +32-9-261.52.99

3.2 Component 1: Coordination and organizational issues

GIS-Vlaanderen was created in 1995 as a department of the Vlaamse Landmaatschappij (VLM, Flemish Land Society). Until recently, the political responsibility of GIS-Vlaanderen was assumed by the Minister of Internal Affairs, Civil Servant Affairs and External Relations of the Government of the Flemish Region. GIS-Vlaanderen is organised by means of several bodies.

Its operation is defined and steered by a Steering Committee, composed of delegates of the different partners. The Geographical Information Council is a higher neutral advisory body on issues of production, use and exchange of geographic information in Flanders. A Scientific Committee composed of representatives of the 4 major Flemish universities has an advisory role on issues of a scientific nature.

The Support Centre of GIS-Vlaanderen is the secretariat and executive body responsible for the coordination, organisation and the provision of services of and to the GIS-Vlaanderen partnership. It operates as the central point of address for anyone wishing to access GI in Flanders.

In the Steering Committee and the advisory boards, stakeholders (partners, advisors from the socio-economic and scientific communities, private GI-community) are well represented.

In March the Support Centre GIS-Vlaanderen became an external autonomous agency, called AGIV. AGIV is now part of the horizontal Services of the General Government Policy, but the Minister of Public Works, Energy and Environment remains responsible for the Agency.

3.3 Component 2: Legal framework and funding

3.3.1 Legal framework

GIS-Vlaanderen received legal status by regional Decree of 17 July 2000 as a collaborative undertaking of the Flemish Community, the Flemish Region, the Flemish public institutions, provinces and municipalities (hereafter referred to as ‘partners’). Its objective is to optimise the elaboration, the use, the exchange and the maintenance of GI within the Flemish public administrations and institutions.
GIS-Vlaanderen is mainly coordinating the development and functioning of the SDI but also plays a role in data production, e.g. through the production of large scale reference data (GRB), and through various A/D-conversion and other projects (e.g. KADSCAN, KADVEC, Land Use map from LANDSAT-images, ...). Based on the decree of 14 April 2004, it is now also officially responsible for the mentioned GRB-project. In addition the Flemish permanent network of GPS-stations is operated by GIS-Vlaanderen.

On April 1st 2006, the Decree of the Flemish Government of 7 May 2004 entered into force, transforming the Support Centre into the Agency for Geographic Information Flanders (AGIV – Agentschap voor Geografische Informatie Vlaanderen).

### 3.3.2 Public-private partnerships (PPP’s)

Although GIS-Vlaanderen is in essence a Flemish public sector initiative aiming to promote the sharing of information between Flemish public actors, it is possible for third parties (regional, federal and European institutions and private sector companies) to enter into a cooperation agreement with GIS-Vlaanderen. Federal institutions like the administration of the cadastre, registration and domains, the Federal Services for Scientific, Technical and Cultural Affairs, the National Geographic Institute (i.e. the national mapping agency), the National Institute for Statistics and the Walloon Ministry of Transport have already entered in such an agreement with GIS-Vlaanderen. Such agreements could however also be concluded with private sector companies, which could thus lead to public-private partnerships (PPPs).

Up until now GIS-Vlaanderen has however not entered into a PPP with a private sector company. The possibility of such a PPP has been under consideration within the framework of the establishment of the GRB-project. GIS-Vlaanderen nevertheless chose to opt for some form of co-financing -rather than for a PPP in the true meaning of the word-, which means that the private sector -in casu the utility companies- would contribute 50% of the total costs of the GRB-project. The steering of the project will however integrally remain in the hands of the Flemish government, given the strategic importance of GRB for policy purposes. From negotiations with the utilities sector appeared their readiness to contribute this 50% over the next 12 years of development of the GRB. An internal cost-sharing ratio per utility activity has been developed.

This option for co-financing however does not exclude that -in future important projects of GIS-Vlaanderen- the formula of PPP can be reconsidered.

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

See 1.3.1

3.3.4 Legal protection of GI by intellectual property rights

See 1.3.2

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

See 1.3.3

3.3.6 Licensing framework

Each partner of GIS-Vlaanderen retains the intellectual property rights of the GI it puts at the disposal of the central database, the Gronddatabank. This GI is usually provided with a right of use and distribution in the context of GIS-Vlaanderen.

With regard to the distribution of GI to third parties, the Decree of 17 July 2000 explicitly specifies that each partner can individually -but in consultation with the Steering Committee- determine the conditions under which its GI can be put at the disposal of third parties. All partners can use most of the datasets according to standardized conditions for access and use. Other clients have other terms and conditions and are divided into the following categories:

- Companies;
- Authorized authorities, which are not partners of GIS Vlaanderen
- GRB net-manager, private sector
- GRB net-manager, public sector
- Public authority, non-partner of GIS Vlaanderen.

Currently, there is no harmonised licensing framework. A proposal for a generic model for conditions and pricing is currently being developed.

Access to the GRB for the partners of GIS-Vlaanderen and the utility companies is organized by the Decision of the Flemish Government of 20 May 2005. Regulation on access of third parties is currently being prepared in expectation of the transposition of the directive on re-use of public sector information.

3.3.7 Funding model for SDI and pricing policy

The funding model in Flanders is a combined model which encompasses both grants and cost recovery mechanisms.

In first instance AGIV receives its funds by means of a yearly contribution from the Flemish regional budget. This contribution, derived from the regional decree, secures the financial security of the coordination tasks of GIS-Vlaanderen, at least at the mid-term. A number of projects are entirely financed by AGIV and then put at the disposal of the partners of GIS-Vlaanderen.
But AGIV also receives remunerations for the provision of specific services, and for the provision and the keeping of reference and thematic files. At the suggestion of the Steering Committee, AGIV can determine the cost for the provision of these services.

Contributions of the partners in the operational costs of AGIV are also a source of financing.

Moreover AGIV receives contributions from participants (partners and/or third parties) to projects which are foreseen in the GIS implementation plan, as to share the costs of the realisation of these projects. For example, the KADSCAN-project was performed in cooperation with the federal cadastre.

Another interesting example is the GRB-project for which AGIV receives special funds from the Flemish government, but which is also being co-financed by the private sector (utility companies). For the maintenance of this central database, direct contributions are also expected from all levels of government.

**Pricing policy**

The partners of GIS-Vlaanderen are required by the Decree of 17 July 2000 to put their GI at the disposal of the *Gronndatabank*. AGIV is responsible for the construction and the maintenance of this central database. All data in the *Gronndatabank* are accessible to all partners of GIS-Vlaanderen. Most data are -always in the form of standard geodata products- also accessible to external users.

A differentiated pricing mechanism is used, depending on the source of the dataset (e.g. originating from the government, purchased from a private sector company), the type of customer (e.g. GIS-Vlaanderen partner, public institution not participating in GIS-Vlaanderen, private sector company, educational institution), the intrinsic value of the dataset and the intended use of the datasets (e.g. commercialisation, governmental policy making). This pricing policy has been applied since 1995 and is currently being adapted by the Steering Committee taking into account the latest evolutions (e.g. internet distribution) and the new policy context.

Access by third parties to GI is regulated in the Decree of 17 July 2000. The Decree stipulates explicitly that each participant of GIS-Vlaanderen can determine -in consultation with the Steering Committee- its own conditions under which its GI can be put at the disposal of third parties. Hence the contractual conditions and the cost under which the different participants of GIS-Vlaanderen will put their respective GI at the disposal of third parties, can differ. Prices are determined at a lower level than the SDI-level. Without prejudice to this right of the partners, the SC acts as the central distribution centre for the GI of the *Gronndatabank*.

When AGIV buys GI from private sector companies and receives a right of distribution for this data among the partners of GIS-Vlaanderen, the Steering Committee determines a ratio to share these costs, so that AGIV can recuperate at least part of the costs. Tele Atlas, for example, is one of the major private sector producers of GI in Belgium and...
Europe. Its datasets focus on the road networks of several European countries. AGIV of GIS-Vlaanderen uses the data provided by Tele Atlas (http://www.teleatlas.be).

A lot of GI which has been gathered by GIS-Vlaanderen can already be freely consulted on-line by everyone via http://www.gisvlaanderen.be/geo-vlaanderen/nl/loketten.asp (‘free access’). Certain files are being dispersed free of charge among the partners, such as the CD-ROM of the Regional Plans and the Kadscan files.

Currently, a proposal for generic conditions of use and pricing is being developed.

3.4 Component 3: Data for themes of the INSPIRE annexes

3.4.1 Scale and resolution: European, National, Regional, Local, Other

Three scale levels are recognized and supported by GIS-Vlaanderen:

- small scale: equivalent to resolution of printed topographic maps at scale 1:50,000 or smaller (National scale)
- large scale: equivalent to resolution of printed topographic maps at scale 1:10,000 or larger (Local (Cadastral) scale);
- middle scale: equivalent to resolution of printed topographic maps at scales between 1:50,000 and 1:1:10,000 (Regional Scale).

3.4.2 Data by resolution or scale range for the INSPIRE themes

In the following table, an overview is given of the data sets available or accessible through AGIV as regional SDI. Some of the data sets are originating from other data custodians. Additional information can be found on-line in the meta-database: http://metadata.agiv.be/

AGIV gave following remark: “As D2.3 from the DT-DSS is still a very preliminary document, we limited ourselves to the most obvious datasets. But when looking into the meta-database, you will see that quite a few additional datasets can be identified that either deal with a very specific subtopic of this data-theme, or only provide partial coverage of the Flemish Region.”
### Data sets ANNEX I

<table>
<thead>
<tr>
<th>Theme2</th>
<th>Data set3</th>
<th>Organisation responsible</th>
<th>Scale/resolution</th>
<th>Metadata (N/Y/ISO)4</th>
<th>Can be discovered, viewed, downloaded5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-1 Coordinate Reference Systems6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-2 Geographical grid systems (harmonised multi-resolution grid)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-3 Geographical names</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-4 Administrative units (local, regional and national boundaries)</td>
<td>Preliminary Reference File of Administrative Borders of Regions, Provinces, Districts, and Communities</td>
<td>AGIV</td>
<td>s.d.</td>
<td>ISO</td>
<td>discovered viewed downloaded</td>
</tr>
<tr>
<td>I-5 Addresses</td>
<td>Address Positions (CRAB)</td>
<td>AGIV</td>
<td>s.d.</td>
<td>ISO</td>
<td>discovered</td>
</tr>
<tr>
<td>I-6 Cadastral parcels</td>
<td>KADVEC</td>
<td>FOD Finances, AAPD</td>
<td>s.d.</td>
<td>ISO</td>
<td>discovered viewed</td>
</tr>
<tr>
<td></td>
<td>KADSCAN</td>
<td>FOD Finances, AAPD</td>
<td>s.d.</td>
<td>ISO</td>
<td></td>
</tr>
<tr>
<td>I-7 Transport networks (road,</td>
<td>Roads and Railways GRB</td>
<td>AGIV</td>
<td>1 : 2 500</td>
<td>ISO</td>
<td>discovered</td>
</tr>
</tbody>
</table>

---

2 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)
3 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)
4 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).
5 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)
6 This is of course not necessarily a real data set.

(*) coverage of the whole Flemish region will be completed in 2013
| I-8 | Hydrography (including marine areas, all water bodies, river basins, etc.) | Flemish Hydrographical Atlas | VMM | s.d. | ISO | viewed downloaded |
| I-9 | Protected sites (designated by national, EU or international legislation) | Bird Directive Areas | ANB | s.d. | ISO | discovered viewed downloaded |
|     | Habitat Directive Areas | ANB | s.d. | ISO | discovered viewed downloaded |
|     | VEN/IVON | ANB | s.d. | ISO | discovered viewed downloaded |
### Data sets ANNEX II

<table>
<thead>
<tr>
<th>Theme</th>
<th>Data set</th>
<th>Scale/resolution</th>
<th>Organisation responsible</th>
<th>Metadata (N/Y/ISO)</th>
<th>Can be discovered, viewed, downloaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>II-1</td>
<td>Elevation (land, ice and ocean surfaces; terrestrial elevation, bathymetry, shoreline)</td>
<td>DEM-Flanders</td>
<td>s.d.</td>
<td>VMM + Dept MOW</td>
<td>ISO</td>
</tr>
<tr>
<td>II-2</td>
<td>Land cover (physical and biological)</td>
<td>Land Cover Map</td>
<td>s.d.</td>
<td>AGIV + FOD Science Policy + KUL</td>
<td>ISO</td>
</tr>
<tr>
<td>II-3</td>
<td>Orthoimagery (geo-referenced image data)</td>
<td>Coloured Ortho Photos</td>
<td>1:1000</td>
<td>AGIV</td>
<td>ISO</td>
</tr>
<tr>
<td>II-4</td>
<td>Geology (including bedrock, aquifers and geomorphology)</td>
<td>Tertiary Geological Map</td>
<td>s.d.</td>
<td>Dept LNE</td>
<td>ISO</td>
</tr>
</tbody>
</table>

---

7 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)

8 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)

9 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).

10 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)
### Data sets ANNEX III

<table>
<thead>
<tr>
<th></th>
<th>Theme</th>
<th>Data set</th>
<th>Scale/resolution</th>
<th>Organisation responsible</th>
<th>Metadata (N/Y/ISO)</th>
<th>Can be discovered, viewed, downloaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>III-1</td>
<td>Statistical units (for dissemination or use of statistical data)</td>
<td>Statistical Sectors</td>
<td>s.d.</td>
<td>Dept RWO</td>
<td>ISO</td>
<td>discovered</td>
</tr>
<tr>
<td>III-2</td>
<td>Buildings (geographical location of buildings)</td>
<td>Buildings GRB (*)</td>
<td>1 : 2 500</td>
<td>AGIV</td>
<td>ISO</td>
<td>discovered viewed downloaded</td>
</tr>
<tr>
<td>III-3</td>
<td>Soil (and sub-soil characteristics)</td>
<td>Soil Map</td>
<td>s.d.</td>
<td>VMM + AGIV</td>
<td>ISO</td>
<td>discovered viewed</td>
</tr>
<tr>
<td>III-4</td>
<td>Land use (e.g. residential, industrial, commercial,)</td>
<td>Region Plan</td>
<td>s.d.</td>
<td>Dept RWO</td>
<td>ISO</td>
<td>discovered viewed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Land Use Map</td>
<td>s.d.</td>
<td>AGIV + FOD Science Policy + KUL</td>
<td>ISO</td>
<td>discovered viewed</td>
</tr>
<tr>
<td>III-5</td>
<td>Human health and safety (see full description in Annex)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-6</td>
<td>Utility and governmental services (sewage, waste management, energy, etc.)</td>
<td>Sewage Network</td>
<td>s.d.</td>
<td>Aquafin NV</td>
<td>ISO</td>
<td>discovered</td>
</tr>
</tbody>
</table>

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11 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)

12 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)

13 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).

14 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)

(*) coverage of the whole Flemish region will be completed in 2013
<table>
<thead>
<tr>
<th>III-7</th>
<th>Environmental monitoring facilities (emissions, ecosystem parameters)</th>
<th>Monitoring Network of Surface Water Quality</th>
<th>s.d.</th>
<th>VMM</th>
<th>ISO</th>
<th>discovered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monitoring Network Air Quality</td>
<td>s.d.</td>
<td>VMM</td>
<td>ISO</td>
<td>discovered</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monitoring Network of Surface Water Quantity</td>
<td>s.d.</td>
<td>VMM + Dept MOW</td>
<td>ISO</td>
<td>viewed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monitoring Network of Ground Water</td>
<td>s.d.</td>
<td>VMM + Dept LNE</td>
<td>ISO</td>
<td>viewed</td>
<td></td>
</tr>
<tr>
<td>III-8</td>
<td>Production and industrial facilities (water abstraction, mining, storage sites)</td>
<td>Area Zoned for Economic Activities - Parcels</td>
<td>1 : 10 000</td>
<td>VLAO</td>
<td>ISO</td>
<td>discovered viewed downloaded</td>
</tr>
<tr>
<td>III-9</td>
<td>Agricultural and aquacultural facilities</td>
<td>Agricultural Practice Parcels</td>
<td>s.d.</td>
<td>ALV</td>
<td>ISO</td>
<td>discovered</td>
</tr>
<tr>
<td>III-10</td>
<td>Population distribution - demography</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>III-11</td>
<td>Area management / restrictions / regulation zones / reporting units</td>
<td>MAP-areas</td>
<td>s.d.</td>
<td>VLM</td>
<td>ISO</td>
<td>discovered viewed</td>
</tr>
<tr>
<td></td>
<td>Protection Areas of Ground Water Extraction</td>
<td>s.d.</td>
<td>VMM</td>
<td>ISO</td>
<td>discovered downloaded</td>
<td></td>
</tr>
<tr>
<td>III-12</td>
<td>Natural risk zones (e.g. atmospheric, hydrologic, seismic, volcanic, wildfire)</td>
<td>Surface Water Extraction Areas Drinking Water</td>
<td>s.d.</td>
<td>VMM</td>
<td>ISO</td>
<td>discovered downloaded</td>
</tr>
<tr>
<td>III-13</td>
<td>Atmospheric conditions</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>III-14</td>
<td>Meteorological geographical features (weather conditions, measurements)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-15</td>
<td>Oceanographic geographical features (currents, salinity, wave heights, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-16</td>
<td>Sea regions (physical conditions of seas and saline water bodies)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-17</td>
<td>Bio-geographical regions (areas with homogeneous ecological conditions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-18</td>
<td>Habitats and biotopes (geographical areas for specific ecological conditions)</td>
<td>Biological Valuation Map</td>
<td>s.d.</td>
<td>INBO</td>
<td>ISO</td>
<td>discovered viewed downloaded</td>
</tr>
<tr>
<td>III-19</td>
<td>Species distribution (geographical boundaries for animal and plant species)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-20</td>
<td>Energy resources (hydrocarbons, hydro-power, bio-energy, solar, wind, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-21</td>
<td>Mineral resources (metal ores, industrial minerals depth/height)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.4.3 Geodetic reference systems and projections

See 1.3.4

The spatial characteristics of object types are not systematically described in the metadata catalogue.

AGIV carried out a study to analyse the impact of transferring from Lambert 72 to the new Lambert 2005 system. This study is only available in Dutch. The study revealed that there are some concerns amongst data producers and users (e.g. utility companies) to implement the new system. In particular the cost for doing so has been estimated.

3.4.4 Quality of the data

Quality is based on resolution and scales of publication. It is not explicitly based on user’s perspectives:

- There is no standardized, systematic quality control process for attributes of objects;
- The metadata catalogue has provision to include the quality assessment and description:
  - Positional accuracy and precision;
  - Logical consistency;
  - Completeness (errors of (c)ommission) of spatial objects;
  - Temporal accuracy, but not according to ISO19108.
- Quality assessment is however not available for all reference and core thematic datasets;
- Quality is not tested according to a standardized, systematic procedure;
- Quality advice is limited to metadata and non standardized documentation;
- The update schedule depends upon the geodatasets and is not systematic;
- Changes are managed by time series of snap shot datasets; previous versions of geodatasets and their metadata remain available.
- Accessing change-only information is generally not provided for;
- No portrayal standard for symbolizing geographic information is in use.

3.4.5 Interoperability

- The dominating GIS-software in the partner-organisations of GIS-Vlaanderen is from the ESRI-family. GIS-Vlaanderen distributes geodatasets in ESRI-formats but also in other software-related formats.
- Software-related data converters are available.
- ESRI’s .SHP-format is considered the reference exchange-format.
- Raster imagery are distributed in geoTIFF-format mainly.
- Conceptual schema language and rules for application schema are not in use.
3.4.6 Language and culture

- Metadata is provided. The original language is Dutch and is not translated.
- SDI accompanying documents are available in Dutch only.
- A feature catalogue (data dictionary) is not available.
- A consolidated, standardized glossary of terms does exist.

3.4.7 Data Content

There is text explanation for attributes in the metadata, but availability is not systematic.

3.4.8 Geographical names

Geographical names are managed in the Dutch language. Geodatasets covering (parts of) the other Belgian regions (Brussels Capital Region and Région Wallonne) may contain names in French as well.

No primary, nor secondary name sets are used.

3.4.9 Character sets

No information has been found.

3.5 Component 4: Metadata

3.5.1 Availability of metadata

Exploration metadata are available for all of the reference and core thematic geodatasets. Completeness of the metadata is satisfactory for a significant part of the data. Completed metadata records allow the user to assess the fitness for use.

3.5.2 Metadata catalogues availability + standard

A metadata catalogue is progressively developed and maintained since 1997. It is organized according to the CEN/TC287 pre-standard. Conversion to the ISO-standard is planned for early 2005.

On-line in the meta-database: http://metadata.agiv.be/

3.5.3 Dublin core metadata standards for GI-discovery

No particular provision is made for implementing the DUBLIN-core set of metadata.
3.5.4 Metadata implementation

AGIV is the coordinating authority for metadata implementation. However responsibility for creation and supply of metadata lies with the data producers. AGIV provides the tools and support in using the tools and formal training possibilities.

There is no standardized feature code-list within the metadata, nor a standardized thesaurus.

Update of metadata is on a voluntary basis by the data producers. Discipline for update is generally low, except for data produced and distributed by AGIV.

Metadata management requires one full time person.

3.6 Component 5: Network Services

In the next table, an overview is given of the current services offered by AGIV.

3.6.1 On-line access service for metadata: discovery services

The SPIDI-application (Spatial Information Directory; Thin client) gives read and password protected write access to the database of metadata over the internet: [http://spidi.gisvlaanderen.be/SPIDI/V3_spidifZoek.htm](http://spidi.gisvlaanderen.be/SPIDI/V3_spidifZoek.htm). The SPIDI-application is in Dutch only.

Possibilities for query formulation are limited. It is not possible to search for metadata edited after a certain data. The up-to-datedness of the catalogue could not be verified.
## Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Organisation responsible</th>
<th>Type of service</th>
<th>Metadata (N/Y/ISO)</th>
<th>Open for Public (Y/N)</th>
<th>Free/Not free (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLEPOS</td>
<td>AGIV</td>
<td>positioning</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Metadatabank</td>
<td>AGIV</td>
<td>discover</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Geo-Vlaanderen</td>
<td>AGIV</td>
<td>view</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>GIRAF</td>
<td>AGIV</td>
<td>download</td>
<td>N</td>
<td>Y</td>
<td>Y/N</td>
</tr>
<tr>
<td>CRAB-service</td>
<td>AGIV</td>
<td>cfr. manual in annex</td>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

16. Indicate the type (discover, view, download, transformation and invoking services)

17. Indicate whether the service has no metadata (N), or metadata according to ISO 19119 (ISO).

18. Whether or not the service is free for use.
3.6.2 Access service to the data: download services

An access service is available: the GIRAF-application (Geographic Information Retrieval Application for Flanders). It provides information on price, transfer medium and restrictions for use and an order form for a significant part of the reference and core thematic data. Part of the geodatasets can be downloaded.

3.6.3 Inter-linkages of on-line access services for metadata data

The SPIDI- and GIRAF-applications are not interlinked. Part of the information offered by both applications is however common to both.

3.6.4 Availability of web mapping service(s): view services and Map server interface

A web mapping application (display and query of information presented on maps) is available: the GEO-Vlaanderen application. Currently information is available on 28 items organized in 8 themes.

3.6.5 Availability of catalogue services to regulate access

The GIRAF-application (see 3.3.2) differentiates access to geodatasets.

3.6.6 Availability of catalogue services to extract and send data to a user application

A user’s web site can link up to the address finding service of GIS-Vlaanderen.

3.6.7 SDI user applications

No user applications are directly dependent on the RSDI-databases. Multiple applications however make use of RSDI-data after integration in the corporate databases.

3.7 Component 6: Thematic environmental data

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

The Flemish environmental agencies are members of the partnership GIS-Vlaanderen which means that the provisions the SDI makes for general purpose spatial data also pertain to environmental data. In practice, availability and accessibility of environmental data through the GIS-Vlaanderen-services is still limited.
3.7.2 Application of reference data & core thematic data characteristics to thematic environmental data

No information has been found nor provided.

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

Apart from corporate metadata systems, the SDI-metadatabase and the SPIDI-access application is also in use for explicitly spatial thematic environmental data.

3.7.4 Application of access services issues identified for reference data and core thematic data to thematic environmental data

Some core thematic datasets can be accessed by the GIRAF-application. Some of them are merely described in the metadatabase. Many of them however remain undiscoverable and inaccessible for non-insiders.

3.7.5 Application of standards issues identified for reference data and core thematic data to thematic environmental data

No information has been found.

3.7.6 Application of update procedures issues identified for reference data and core thematic data to thematic environmental data

No systematic update procedures are documented for thematic environmental data.

3.8 Use and efficiency of SDI

Since its start in 1995, the presence and activities of GIS-Vlaanderen are increasingly influencing the GI- and GIS-scene in Flanders. The effects are clearly beneficial for the larger GI-society. Together with the recent legal framework, the reputation of GIS-Vlaanderen, makes it a most pertinent coordinating initiative with respect to GI.

Examples of the positive impact of the use of (parts of) the infrastructure and use of the infrastructure to support environmental practices:

- The integration of the various types of water related measurements along the hydrographic network (water flow rates, surface water quality, waterbed soil quality, spotted fish species) into a single application facilitated systematically the work of civil servants dealing with nature conservation planning.
• The integration of some major types of rights of pre-emption (nature conservation, re-allotments, social housing) into a single application, makes it way more easy for both notary practices and public authorities dealing with real estate selling to identify potential rights of pre-emption on specific cadastral parcels, including the ones aiming at extension of nature conservation areas or landscape protection areas.

• The KLIP application (Cables and Pipes Information Portal) enables all utility companies and constructors to identify those amongst them that have (underground) cables or pipes situated in an area where the requesting company intends to start some works. Automatic forms are generated which can be sent to the other companies active in the same area in order to check whether or not economy of scale can be reached by profiting from the fact that a certain road segment will be opened. The other purpose is to avoid damage to others’ cables and pipes by requesting detailed plans of each ones facilities based on the automated request forms.
4 Details of SDI #3: INFRASIG en Région Wallonne

4.1 General Information


The ‘Future Policy for Wallonia’ (‘Contrat d’Avenir pour la Wallonie’), a report on the Regional Policy Declaration of the Walloon Government, laid down that the Government intends to put the whole of the spatial data on line for all the actors in Wallonia. In the mean time, this ambitious goal has been pursued by joining many different spatial data projects in an open, consistent and co-ordinated system that allows information exchange and avoids duplication and incompatibility.

4.2 Component 1: Coordination and organizational issues

The ‘Comité Technique de Cartographie (CTC)’, a co-ordinating committee, which was set up by a decision of the regional government on 26 may 2000 played and plays an important role. It is composed of representatives of the government and of actors from administrations in the field of GI. Four main missions have been defined:

- Inventory of the existing spatial data and projects in each administrative department;
- Definition of the future needs in spatial data in each administrative department to coordinate the data production, to avoid duplication of data and to facilitate their exchange;
- Taking stock of the policy and legislation on access to public sector spatial data in relation with the ‘Future Policy for Wallonia’;
- Management of collaborations and cooperation agreements with other national and regional institutions (NGI, AKRED, GIS-Vlaanderen and CIBG) and participation in European projects.

The CTC discusses on the opportunity to create a Support Centre similar to OC GIS-Vlaanderen. Its main objective would be to support the CTC works and to elaborate and maintain the Walloon RSDI.

In February 2002, the Technical Cartography Committee initiated the INFRASIG project to implement a rational and effective policy on geomatics which integrates the numerical cartography, the GIS and the aerospace imagery. The implementation in a Walloon RSDI takes into account four aspects: organizational, technical, legal and pricing. It includes priority missions such as the design and installation of a unique geo-portal (http://cartographie.wallonie.be) allowing the access to the whole spatial data and metadata. This project is part of the Walloon e-government policy.
Each administrative department active in the field of GI also develops some initiatives that will be linked in the RSDI. For example, the ‘Projet Informatique de Cartographie Continue’ (PICC) is a major regional initiative to produce a very large scale (1:1.000) reference database. This three-dimensional feature database is the topographic component of the Walloon Reference Data. The history of PICC goes back to May 1991 when the Walloon government charged the Direction de la Topographie et de la Cartographie of the MET (Ministère de l’Equipement et des Transports) to produce the basic layer of the future geographic infrastructure in Wallonia. As a result, the PICC project was initiated which was to produce this three-dimensional reference layer for a future geographic infrastructure in the Walloon Region at a scale of 1:1.000. The PICC is now one of the core elements of the emerging geographic information infrastructure in Wallonia. The Walloon Region remains the owner of these framework plans. At the moment, the PICC covers 45% of the Walloon Region Territory. Recently, a cooperation with the NGI was established to complete the cartography of the remaining territory.

4.3 Component 2: Legal framework and funding

4.3.1 Legal framework

The INFRASIG-initiative is essentially project-oriented. Within the framework of the CTC-mission, an invitation to tender was launched in February 2002 for ‘Assistance au CTC pour l’organisation, la gestion, la diffusion et la mise à jour de données cartographiques’ (Assistance the CTC in the organization, the management, the distribution and the maintenance of spatial data). This project is called INFRASIG and is done in collaboration with a consortium composed of GFI-Benelux, Institut Wallon and FUNDP-CRID. The main objectives of the project are:

- Making easier the access to spatial data for everybody through consistent and transparent pricing and distribution policies in a definite legal framework;
- Assuring the quality of spatial data services;
- Guaranteeing the setting of standards for the data documentation and exchange;
- Enhancing user awareness and education.

The project has established four working groups: (1) general organisation, (2) legal aspects, (3) pricing policy and (4) technical aspects. This last one is divided into 4 themes: (A) reference data and modelling, (B) thematic data, (C) metadata, (D) services and infrastructure. Different objectives are being taken into consideration in these working groups:

- Organizational aspects: identification and raising awareness of the different actors (public authorities, private sector) facing their respective roles, awareness and education to the use of spatial data, co-ordination and daily management of the project, writing of ‘Guidelines of Best Practice’ summarising the conclusions and recommendations coming from the different working groups, implementation of a unique and central geoportal to distribute spatial data and the associated data.
Technical aspects: definition of the reference data, the thematic data, the metadata, the services and infrastructure, the methods of access and distribution of the data, the methods of maintenance, all based on standards (ISO TC211, OGC, W3C) and European recommendations (MADAME, ETeMII, INSPIRE).

Legal aspects: study of the legal constraints of data access and use (open access to public sector information, copyright, protection of privacy or intellectual property…) and preparation of measures to take regarding the responsibility (rights and obligations) on data as much from the producer’s point of view as from the user’s point of view.

Economic and social aspects: analysis of the practices and the needs of the different actors, evaluation of the financial and organizational costs to distribute the data on the basis of, on the one hand, the recommendations and conclusions of the European projects, and, on the other hand, the analysis of the geographical information market (concept of information life cycle, essential data, acceptable price, marginal cost, cost-recovery, added value…). The final goal is to establish a true pricing policy.

### 4.3.2 Public-private partnerships (PPP’s)

No information has been found nor provided.

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

See 1.3.1


### 4.3.4 Legal protection of GI by intellectual property rights

See 1.3.2

### 4.3.5 Restricted access to GI further to the legal protection of privacy

See 1.3.3

### 4.3.6 Licensing framework

A licensing framework was developed by the Working Group on Legal Aspects of the INFRASIG project for the geo-portal. The types of licenses are based on the type of applicant: a public service, applicants that are subsidized by the government. For any other applicants, no standard license has been developed yet, and availability of data will have to be agreed upon by the parties in each case.
4.3.7 Funding model for SDI and pricing policy

The Working Group on Pricing Policy of the INFRASIG project has proposed recommendations to the Walloon government, which have been included in the licenses that are available on the website. Public services can obtain the data for free or for a sum determined in agreement between the parties, while for the organizations that are subsidized by a government institution, the same conditions apply as for that particular institution. For any other applicant, pricing will be determined by mutual agreement.

4.4 Component 3: Data for themes of the INSPIRE annexes

4.4.1 Scale and resolution: European, National, Regional, Local, Other

The current spatial datasets support different scale levels, from the ‘national’, ‘Regional’ and ‘Local’ scales to the very larger scale (1:1.000 supported by PICC).

The next tables give an overview of the data sets available for the themes of the 3 annexes of the INSPIRE Directive in the Walloon Region.
## Data sets ANNEX I

<table>
<thead>
<tr>
<th>Theme</th>
<th>Data set</th>
<th>Organisation responsible</th>
<th>Scale/resolution</th>
<th>Metadata (N/Y/ISO)</th>
<th>Can be discovered, viewed, downloaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-1</td>
<td>Coordinate Reference Systems(^\text{23})</td>
<td>PICC EPSG:31370 <a href="http://cartographie.valonie.be">http://cartographie.valonie.be</a></td>
<td>MET - DG4-DGST - D432-DTC</td>
<td>1/1000</td>
<td>ISO 19115</td>
</tr>
<tr>
<td>I-2</td>
<td>Geographical grid systems (harmonised multi-resolution grid)</td>
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<tr>
<td>I-3</td>
<td>Geographical names</td>
<td></td>
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</tr>
<tr>
<td>I-4</td>
<td>Administrative units (local, regional and national boundaries)</td>
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<tr>
<td>I-5</td>
<td>Addresses</td>
<td></td>
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<tr>
<td>I-6</td>
<td>Cadastral parcels</td>
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<tr>
<td>I-7</td>
<td>Transport networks (road, rail, air, water and links between networks)</td>
<td>BDR_CARTO DISTREG</td>
<td>MET - DG1-DGAR - IG11 - D114</td>
<td>1/10.000</td>
<td>ISO 19115</td>
</tr>
<tr>
<td>I-8</td>
<td>Hydrography (including marine areas, all water bodies, river basins, etc.)</td>
<td>EAUX_SURF__RES_HYDRO, RES_LIMNI_SETHY, BASSINS</td>
<td>MRW - DGRNE - DE - DCENN, MET - DG2-DGVH - IG21 - D212, MRW - DGRNE - DE - DCENN</td>
<td>1/10.000 1/10.000 1/10.000</td>
<td>ISO 19115 ISO 19115 ISO 19115</td>
</tr>
</tbody>
</table>

\(^{19}\) See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)  
\(^{20}\) Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)  
\(^{21}\) Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).  
\(^{22}\) Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)  
\(^{23}\) This is of course not necessarily a real data set.
<p>| | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>I-9</td>
<td>Protected sites (designated by national, EU or international legislation)</td>
<td>ADMSDE.CONSNAT</td>
<td>MRW - DGRNE</td>
<td>ISO 19115</td>
</tr>
<tr>
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<td></td>
<td>ADMSDE.LIM_ADMIN_DNF, AHREM</td>
<td>MRW - DGRNE - DNF, MRW - DGRNE</td>
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<td>1/10.000</td>
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<td>Theme</td>
<td>Data set</td>
<td>Scale/resolution</td>
<td>Organisation responsible</td>
<td>Metadata (N/Y/ISO)</td>
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<td>----------------------------</td>
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</tr>
<tr>
<td>II-1 Elevation (land, ice and ocean surfaces; terrestrial elevation, bathymetry, shoreline)</td>
<td>MNT_Cours_d_eau</td>
<td>1 point / m²</td>
<td>MET - DG2-DGVH - IG21 - D212</td>
<td>ISO 19115</td>
</tr>
<tr>
<td>II-2 Land cover (physical and biological)</td>
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<tr>
<td>II-3 Orthoimagery (geo-referenced image data)</td>
<td>PPNC</td>
<td>40 cm au sol</td>
<td>MRW - DGPL - DIRS - DCE</td>
<td>ISO 19115</td>
</tr>
<tr>
<td>II-4 Geology (including bedrock, aquifers and geomorphology)</td>
<td>Carte géologique</td>
<td></td>
<td>MRW - DGRNE</td>
<td></td>
</tr>
</tbody>
</table>

24 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)
25 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)
26 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).
27 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)
<table>
<thead>
<tr>
<th>Theme</th>
<th>Data set</th>
<th>Scale/resolution</th>
<th>Organisation responsible</th>
<th>Metadata (N/Y/ISO)</th>
<th>Can be discovered, viewed, downloaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>III-1 Statistical units (for dissemination or use of statistical data)</td>
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</tr>
<tr>
<td>III-2 Buildings (geographical location of buildings)</td>
<td>PICC EPSG:31370</td>
<td>1/1.000</td>
<td>MET - DG4-DGST - D432-DTC</td>
<td>ISO 19115</td>
<td>1,2,3</td>
</tr>
<tr>
<td>III-3 Soil (and sub-soil characteristics)</td>
<td>PCNSW</td>
<td>1/10.000</td>
<td>MRW - DGA - IG4 - D42</td>
<td>ISO 19115</td>
<td>1,2</td>
</tr>
<tr>
<td>III-4 Land use (e.g. residential, industrial, commercial)</td>
<td>Carte d’occupation du sol</td>
<td>1/50.000</td>
<td>MRW - DGATLP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-5 Human health and safety (see full description in Annex)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>III-6 Utility and governmental services (sewage, waste management, energy, etc.)</td>
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</tr>
<tr>
<td>III-7 Environmental monitoring facilities (emissions, ecosystem parameters)</td>
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</tr>
<tr>
<td>III-8 Production and industrial facilities (water abstraction, mining, storage sites)</td>
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<tr>
<td>III-9 Agricultural and aquacultural</td>
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</tr>
</tbody>
</table>

28 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)
29 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)
30 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).
31 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)
<table>
<thead>
<tr>
<th>facilities</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>III-10 Population distribution - demography</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-11 Area management / restrictions / regulation zones / reporting units</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>III-12 Natural risk zones (e.g. atmospheric, hydrologic, seismic, volcanic, wildfire)</td>
<td>Alea_Inond</td>
<td>MET/MRW - GTI 1/10.000</td>
<td>1/10.000</td>
</tr>
<tr>
<td>III-13 Atmospheric conditions</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>III-14 Meteorological geographical features (weather conditions, measurements)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>III-15 Oceanographic geographical features (currents, salinity, wave heights, etc.)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>III-16 Sea regions (physical conditions of seas and saline water bodies)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>III-17 Bio-geographical regions (areas with homogeneous ecological conditions)</td>
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<td></td>
</tr>
<tr>
<td>III-18 Habitats and biotopes (geographical areas for specific ecological conditions)</td>
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</tr>
<tr>
<td>III-19 Species distribution (geographical boundaries for animal and plant species)</td>
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</tr>
<tr>
<td>III-20 Energy resources (hydrocarbons, hydro-power, bio-energy, solar, wind, etc.)</td>
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<td></td>
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</tr>
<tr>
<td>III-21 Mineral resources (metal ores, industrial minerals depth/height)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4.4.2 Geodetic reference systems and projections

See 1.3.4

### 4.4.3 Quality of the data

Quality is based on resolution and scales of publication or data sources. It is not explicitly based on user’s perspectives:

- There is no standardized, systematic quality control process for attributes of objects. But specific quality and certification tests and procedures (no complete conformance to ISO 19113 and 19114) have been detailed in the project specifications for the elaboration of some data (PICC, environmental data, land planning data...). Quality assessment is available for all reference datasets, but not for all core thematic datasets;
- The metadata catalogue has provision to include the quality assessment and description:
  - Completeness (errors of (c)ommisison) of spatial objects or attributes;
  - Logical consistency (conceptual, domain and topological consistency);
  - Positional accuracy and precision (absolute and relative).
- Quality advice is limited to metadata and non standardized documentation;
- The update schedule depends upon the geodatasets and is not systematic;
- Changes are managed by time series of snapshot datasets; previous versions of geodatasets and their metadata remain available;
- Accessing change-only information is not provided for;
- No portrayal standard for symbolizing geographic information is in use.

### 4.4.4 Interoperability

- The two GIS-software used in the Walloon regional administrative departments are from the ESRI-family and the STAR-family. Administrative departments distribute geodatasets in ESRI-formats and partially in STAR formats.
- Other software-related formats (Geomedical, Microstation (*.DGN), DXF, MapInfo (*.MAP) and Autocad (*.DWG) are also available for the PICC.
- Software-related data converters are available.
- Raster imagery are distributed in geoTIFF and JPG formats mainly.
- A modelling approach, based on the INTERLIS methodology, was implemented for the reference data. Three models have been established: a topographic reference data model, a PICC model and a surveyor data model. For thematic data, an UML modelling approach was implemented.
4.4.5 Language and culture

Metadata is provided. The original language is French. A tool called MUGIRE (Multilingual GI Retrieval Engine) allows the translation in English and German (shortly in Dutch).

- SDI accompanying documents are available in French only;
- A feature catalogue (data dictionary) is not available;
- A consolidated, standardized glossary of terms was made available.

4.4.6 Data Content

There is text explanation for attributes in the metadata.

4.4.7 Geographical names

Geographical names are managed in the French language.

No primary, nor secondary name sets are used.

4.4.8 Character sets

No information has been found nor provided.

4.5 Component 3: Metadata

4.5.1 Availability of metadata

Metadata are available for all the reference and core thematic geodatasets.

Completeness of the metadata is satisfactory for a significant part of the data.

Metadata allow the user to assess fitness for use.

4.5.2 Metadata catalogues availability + standard


The metadata can be generated in XML format in accordance with ISO 19139 (v6) standards, so they can interchanged with partners outside the Walloon Region.

4.5.3 Dublin core metadata standards for GI-discovery

The Dublin Core metadata standard was taken into account when designing the Walloon ISO 19115 metadata profile (Kinnaert and Leruth, 2003).
4.5.4 Metadata implementation

Responsibility for creation, supply and maintenance of metadata lies with the data producers.

There is no standardized feature code-list within the metadata, nor a standardized thesaurus.

Update of metadata is on a voluntary basis by the data producers. Discipline for update is generally low.

4.6 Component 5: Network Services

On the next page an overview of services is given. However, no characteristics are described (only indirectly, e.g. WMS service).

4.6.1 On-line access service for metadata: discovery services

An ISO 19115 compliant metadata catalogue is available at http://carto5.wallonie.be/MetaWal/Search/search.php?type=admin describing all the spatial data and associated data available in the Walloon administrative departments.
<table>
<thead>
<tr>
<th>Service1</th>
<th>Organisation responsible</th>
<th>Type of service</th>
<th>Metadata (N/Y/ISO)</th>
<th>Open for Public (Y/N)</th>
<th>Free/Not free (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ap_Donnees_ref_Citoyen_1</td>
<td>MRW - MET <a href="http://cartographie.wallonie.be">http://cartographie.wallonie.be</a></td>
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<td>ap_picverts</td>
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</tr>
</tbody>
</table>

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

33 Indicate the type (discover, view, download, transformation and invoking services)

34 Indicate whether the service has no metadata (N), or metadata according to ISO 19119 (ISO).

35 Whether or not the service is free for use.
<table>
<thead>
<tr>
<th>Service Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cartographie de l'aléa</td>
<td>d'inondation par débordement de cours d'eau</td>
</tr>
<tr>
<td>sv_grid_only_esri</td>
<td>Service Image ArcIMS des modèles numériques de terrain des lits majeurs des principaux cours d'eau</td>
</tr>
<tr>
<td>sv_grid_only_wms</td>
<td>Service de cartes web des modèles numériques de terrain des lits majeurs des principaux cours d'eau</td>
</tr>
<tr>
<td>sv_picc_esri</td>
<td>Service image ArcIMS du Projet Informatique de Cartographie Continue</td>
</tr>
<tr>
<td>sv_picc_wms_var1</td>
<td>Service de cartes web du Projet Informatique de Cartographie Continue</td>
</tr>
<tr>
<td>sv_picverts_esri</td>
<td>Service Image ArcIMS des données du Plan d'Itinéraires Communaux Verts</td>
</tr>
<tr>
<td>sv_picverts_wms</td>
<td>Service de cartes web des</td>
</tr>
<tr>
<td>Service Name</td>
<td>Description</td>
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<tr>
<td>données du Plan d’Itinéraires Communaux Verts</td>
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<tr>
<td><strong>sv_portail_esri</strong></td>
<td>Service image ArcIMS des données de référence de la Région wallonne - Variante 1</td>
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<tr>
<td><strong>sv_portail_grid_esri</strong></td>
<td>Service image ArcIMS des données de référence de la Région wallonne - Variante 2</td>
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<td>Service de cartes web des données de référence de la Région wallonne - Variante 1</td>
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<td><strong>sv_ppnc_esri</strong></td>
<td>Service image ArcIMS des Plans Photographiques Numériques Communaux</td>
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<tr>
<td><strong>sv_ppnc_wms</strong></td>
<td>Service de cartes web des Plans Photographiques Numériques Communaux</td>
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<td>------------------------</td>
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<tr>
<td>Service de cartes web (WMS) de l'image satellitaire orthorectifiée QuickBird de l'agglomération de Liège</td>
<td>sv_quickbird_liege_wms</td>
</tr>
</tbody>
</table>
4.6.2 On-line access service for data: download services

A reference data display and download service is available at http://cartographie.wallonie.be/PortailCarto/FTPPavePICC/pouvoir_public.php: large scale topographic data (PICC), orthophotographs, Digital Terrain model (DTM) of the principal water courses and Navtech street atlas) are available to selected users (Regional and Local authorities).

Environmental data display services are also available in Intranet to Regional authorities: all environmental data are available. Geological data service (http://environnement.wallonie.be/cartosig/cartegeologique/), protected natural sites data service (http://environnement.wallonie.be/cartodnf) and water data service (hydrographic network, river basins, water sources and restricted areas, sewage) (http://carto.spge.be/) are available to all users (public and private sector, citizens).

A regional motorways and roads network data service is also available to all users: http://routes.wallonie.be/struct.jsp?chap=3&page=2.

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

The future applications will be interlinked.

4.6.4 OpenSource software and access services

The reference data service is compliant to WMS standard (ISO 19128 et OGC WMS 1.1.1).

No OpenSource sofware is used for other access services (use of ESRI and STAR services-sofwares).

ISO 19119 has not been used for the identification and definition of the Service architecture. An ISO 19119 and OGC CAT 2.0 compliant metadata catalog services will be implemented in the course of this year.

4.6.5 Availability of web mapping service(s): view servies

An impressive list of spatial data themes can be viewed at http://cartographie.wallonie.be/PortailCarto/Maquette/admin_prof/menu_ressources.php.

An ISO 19119 and OGC CAT 2.0 compliant metadata catalog services will be implemented in the course of this year.

4.6.6 Availability of catalogue services that perform payment operations

Price information is available but no related catalogue services.
4.6.7 SDI user applications

No user applications currently directly depend on the SDI-databases.

4.6.8 Availability of geo-processing services

Not available

4.7 Component 6: Thematic environmental data

**Official address:**

Ministère de la Région wallonne – Direction Générale des Ressources Naturelles et de l’Environnement (DGRNE) – Direction de la Coordination Informatique ; Avenue Prince de Liège 15, 5100 Jambes ; TEL : 081/33.60.08 ; FAX : 081/33.60.22.


Thematic environmental data are covered by the INFRASIG-project. So the general provisions of the emerging RSDI apply to thematic environmental data.

Thematic environmental data covered by the RSDI include

- Soils and subsoil,
- Geology,
- Government service and environmental monitoring facilities (sewage, waste and energy facilities, production sites...),
- Production and industrial facilities (abstraction and mining sites),
- Area management/restriction/regulation zones & reporting units (restricted areas around drinking water sources, nitrate-vulnerable zones, prospecting and mining permit areas, river basin districts, water resources,
- Monitoring sites,
- Sector management & reporting units,
- Habitats and biotopes,
- Natural risk vulnerability zones,
- Technological risk vulnerability zones,
- Local contaminated areas,
- Green urban areas,
- Cultural heritage,
- Natural amenities.

A number of core thematic geodatasets are held separately by DGRNE-GIS.
4.8 Use and efficiency of SDI

The GeoPortal of Walloon RSDI has been developed according to the perspectives and timing put forward in 2003. It provides access in a standardized way to a multitude of spatial datasets. It would be interesting to monitor the intensity of use made of this modern resource.

The geo-portal of the Walloon Region (http://cartographie.wallonie.be) is targeting the citizen as well as private companies. Citizens can use the information to get administrative or other information: transport, school works, …, as well as static thematic maps and information. Private companies can be notaries, architects, companies who want to tender, researchers, etc. The infrastructure is used intensively to support environmental policies (see also http://cartographie.wallonie.be/MetaWalSearch/export.jsp?format=html&validation=yes&mdField=ADMSDE.CONSNAT&kindMeta=discover).
5 Details of SDI #4: FP GI

5.1 General Information

**Name:** Federal Platform for Geographic Information

<table>
<thead>
<tr>
<th>Official Address:</th>
<th>Official Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationaal Geografisch Instituut Abdij ter Kameren, 13 B-1000 Brussel Tel: +32 2 629.82.11 Fax: +32 2 629.82.12</td>
<td>Institut Géographique National Abbaye de la Cambre, 13 B-1000 Bruxelles</td>
</tr>
<tr>
<td><strong>Overall contact person:</strong></td>
<td><strong>Overall contact person:</strong></td>
</tr>
<tr>
<td>Ir. Ingrid Vanden Bergh Email: <a href="mailto:ivb@ngi.be">ivb@ngi.be</a></td>
<td>Mr. Daniel De Brone Email: <a href="mailto:daniel.debrone@minfin.fed.be">daniel.debrone@minfin.fed.be</a></td>
</tr>
</tbody>
</table>

In 2004, the Federal Platform for Geo-information (FP GI) has been established by NGI / IGN (National Mapping Agency) and AAPD / AGDP. The aim of the FP GI is to set-up of an optimal SDI and to put the Geographic Information at the disposal of the users in a convenient way.

The FP GI is focusing on following objectives: (1) to gather the various federal services that produce, use or manage geographical data; (2) to harmonize the different federal geographical datasets and (3) to support the access to the federal geographical datasets. The Platform wants to extend its activities to all relevant federal institutions capable to cover all the themes as defined in the annexes of the INSPIRE Directive.
The aim is to develop several activities including: the development of a federal portal for geo-info (metadata), see http://mercator.belgium.be; geo-info data exchange for the update process; development of a toponymic database; the development of a geocoded database of addresses; the validation of the administrative limits; the development of a common geo-info distribution policy; coordination of the use of geo-info in Belgium; training and international representation of Belgium in the field of geo-info.

The platform currently includes two members (NGI, GAPD). Its ambition, in the near future, is to gather the other Belgian federal institutions that are concerned by geographical, statistical and patrimonial information. In the medium term, the platform will be able and is willing to provide the information required by INSPIRE annexes 1 and 2.

The Nationaal Geografisch Instituut (NGI), a federal institute under the Ministry of Defence, is developing the NSDI for the Belgian Territory. The GI products, related to the whole Belgian territory are situated in the middle and small scale range. Besides the NSDI, NGI is a member of Eurogeographics and is as such a partner in the following pan-European SDI (ESDI) projects: SABE; EuroRegionalMap and EuroGlobalMap.

The General Administration of Patrimonial Documentation (GAPD) is the second pillar of the Federal Public Service Finance. Today, cadastral extracts are its main products. The objective of the project STIPAD (System of Integrated Treatment of Patrimonial Documentation) is to reorganize in a rational and efficient way the business of GAPD. This will be done by digitizing alphanumeric and graphic data (cadastral map), and by adapting the work process with a central database on patrimonial data (PATRIS) using the last technological progress. In collaboration with the Regions, the notaries, the bailiffs, the objective is to provide to the potential users, public as well as private, the movable and real estate data concerning composition and value of the patrimony for all natural or legal persons according to agreed authorizations in accordance with the law on privacy. Information on STIPAD is available on: http://fiscus.fgov.be/interfakredfr/stipad_fr/contextegeneral_fr.htm. GAPD is also a member of EuroGeographics and is as such a data provider in the pan-European project EuroBoundaries.

5.2 Component 1: Coordination and organisational issues

Recently the Federal Platform for Geo-information has been established, with – besides NGI - as most important partners AAPD / AGDP (Administration of Cadastre) and NIS / INS (National Institute for Statistics). The aim is that the Federal Government will be able to set up an optimal SDI and to put the GI at the disposal of the users in a convenient way.

NGI and AAPD/AGDP have already signed cooperation agreements with several other federal governments and the 3 Regions. Also for several projects agreements were made with the Regions. Nevertheless, a real coordinated and integrated approach of the federal and regional levels does not yet exist in Belgium.
5.3 **Component 2: Legal framework and funding**

5.3.1 **Legal framework**

The **National Geographic Institute** (official name: Institut Géographique National / Nationaal Geografisch Instituut) is Belgium's national institution for cartography and geographic information. It was set up by the Belgian Federal Government in 1976. It was created by national law of 8 June 1976 as a semi-public organization under the control of the Minister of Defence.

Tasks of NGI include:

- Development and maintenance of the national geodetic networks (planimetry and altimetry);
- Production and update of the aerial and satellite photo coverage of the country;
- Production and update of the topographic databases of the country;
- Publication of national map series and GIS information;
- Co-ordination of GIS applications;
- Special works on behalf of third persons;
- Compilation of documentation about its specific activities.

In Belgium there are three networks of permanent GPS receivers that provide RTK services, one for each region. The network in the northern part of the country (Flepos) is set up and managed by the Flemish government, the Walloon government is responsible for the southern network (Walcors) and the small one in the middle for Brussels (GPSBru) is managed by the NGI. To make sure that RTK users obtain homogeneous results all over the country, the NGI coordinates all RTK initiatives under the name AGN (Active Geodetic Network). The main responsibilities of the NGI in this project are:

- Integration of all RTK reference stations in the European (ETRS89) and national (Lambert72 + HTAW) geodetic reference systems.
- Integrity monitoring of all stations. Through batch processing we recompute the coordinates of the reference stations on a daily basis (less precise but quick check) and a very precise solution for a whole week.
- Provide procedures to all users for accurate transformations between ETRS89 coordinates and the national geodetic reference system.
- Provide on line GPS RTK data through mobile phone connections to the users in the Brussels region.

General Administration of Patrimonial Documentation.

The 1st December 2000, the Council of Ministers approved the new structure of the Finance Ministry called Federal Public Service Finance. It is composed of 3 General Administrations: “Taxes & Recovery”, “Patrimonial Documentation” and “Treasury”. The General Administration of Patrimonial Documentation is structured around five pillars (operational departments): Legal Security, Surveys & valuations, Patrimonial...
Departments, Non fiscal recovery, Collection and exchange of information. The General Administration of Patrimonial Documentation (GAPD) has consequently classical missions: cadastral mission, registration mission, mission of Patrimonial Departments, mission of non fiscal recovery, mission of legal security, etc. But GAPD has also general missions which are: building-up patrimonial documentation, diffuse patrimonial documentation and delivering services related to the patrimonial documentation.

5.3.2 Public-Private partnerships (PPP's)

The NGI has agreements with a number of private companies as resellers, Value Added Resellers and partners for the development and distribution of products for the general public.

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

See 1.3.1.

5.3.4 Legal protection of GI by intellectual property rights

See 1.3.2.

5.3.5 Restricted access to GI further to legal protection of privacy

See 1.3.3

IGN Belgium has a document in which the Belgian Commission for the protection of the privacy advises not to publish on the Internet photographs of house fronts in which geodetic marks have been placed.

5.3.6 Licensing framework

The distribution of the GI data to third parties is done by means of granting licenses. A license can be defined in function of the number of users (10), a department or a production chain and is only valid for internal use.

The definition of a license is done in dialogue with the user. If there is no definition of the license, the number of users will automatically be limited up to 10.

If a company needs several licenses (e.g. for several establishments), then a decreasing price is applied and every additional license costs 80% of the previous one with a minimum of 40% of the standard price.

GAPD is currently working on a licensing framework.
5.3.7 Funding model for SDI and pricing policy

The funding model for the NGI is a combined one, which is composed of subsidies and own incomes.

The major source of income is the contribution of the federal government (Ministry of Defense) in order to secure an important part of the standard GI production.

Moreover, NGI has to generate a substantial part of his financial resource itself by the distribution of the different NGI products and services.

The pricing policy and the used prices for these products and services have to be approved by the Steering Committee.

The price depends on the nature and the quantity of data; here too the price is decreasing according to the amount of data requested.

Special tariffs are applied for some specific users, such as public institutions, schools and universities.

The use of the GI products for specific scientific use in universities and high schools is also subject to exceptional fees.

Besides direct sale by the commercial services of the NGI the products are also distributed by means of resellers (partners) which receive a commission for their role as a sales agent.

Another interesting way to revalue the GI products is the cooperation with Value Added Resellers, which use the data to produce appropriate products for the users. In this case NGI receives a commission which depends among others of the nature of the data, the value of the data in the whole off the application and the possible less income for the NGI.

NGI carry out also special tasks for third parties. The costs for such work are entirely charged to the customer according to the prices stipulated by the analytical accountancy. These prices corresponds to the real cost of the employees (with overhead) and the depreciation of the used production resources.

Everyone can already consult on-line (free of charge) the information of all geodetic points of the Belgian Network.

The GAPD is part of the Federal Public Service Finance of the Belgian federal government and is financed by means of “le programme de subsistence” (doc 51 2044/04).

Income, generates from the issuing of cadastral extracts and information are recorded in the budget “des voies et moyens” under non fiscal income, paragraph 5, administration of the Cadastre, Article 16.01 - non-allocated income.

The issuing of cadastral extracts and information and remunerations relating to, are fixed in an “arrêté royal” approved by the minister competent for the budget and the inspector of finances.
End 2006, a new project of before-mentioned “arête royal” is in preparation. This project takes into account the evolution in the field of the issuing of digital information. In March 2008, this new Royal Decree, has not been issued yet.
5.4 Component 3: Data for themes of the INSPIRE annexes

5.4.1 Scale and resolution: European, National, Regional, Local, Other

European scale

NGI is a member of EurogeoGraphics and is participating in 3 major projects. GAPD is also member of EuroGeographics and is participating in 1 major project.

The 3 databases in which NGI data is incorporated are:

- SABE: EuroBoundaryMap; the Seamless Administrative Boundaries of Europe;
- EGM: EuroGlobalMap; the 1:1 000 000 GI dataset of Europe;
- ERM: EuroRegionalMap; the 1:250 000 GI dataset of Europe. NGI is the Project Coordinator for the development and maintenance of this product.

A part of GAPD data is incorporated in the EuroBoundaries database.

National scale

Different conceptual scale levels of datasets are supported by NGI Belgium:

- 1:10 000: 3D-line CAD files, Top10v-GIS database, DTM 1:10 000, Admin-v
- 1:50 000: Top50v-GIS database, DTED (DTM)
- 1:100 000: European dataset “CORINE Land Cover” for Belgium
- 1:250 000: Top250v-GIS database
- 1:300 000: Admin-v-gen

Different conceptual scale levels of datasets are supported by GAPD:

- 1:500 – 1:10 000: digital cadastral maps (CadMap);
- Border stones of Belgium (country).

In March 2008, the NGI and Cadastre (AGDP) provided the data sets template filled for their organization. Hence, data sets for the 3 Annexes of the Directive are reported for both organizations only. The overall collection of the information from the different data custodians, including the other Ministries, the NSI, is still to be done.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Data set</th>
<th>Organisation responsible</th>
<th>Scale/resolution</th>
<th>Metadata (N/Y/ISO)</th>
<th>Can be discovered, viewed, downloaded</th>
</tr>
</thead>
<tbody>
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<td>I-1 Coordinate Reference Systems</td>
<td>Belgian Lambert</td>
<td>NGI</td>
<td>NA</td>
<td>Y</td>
<td>1,2,3 <a href="http://www.ngi.be">www.ngi.be</a></td>
</tr>
<tr>
<td>I-2 Geographical grid systems (harmonised multi-resolution grid)</td>
<td>Belgian Lambert KM UTM Grid</td>
<td>NGI</td>
<td>1 km²</td>
<td>N</td>
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<tr>
<td>I-3 Geographical names</td>
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<td>1 mercator.belgium.be 1 mercator.belgium.be</td>
</tr>
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<td>I-4 Administrative units (local, regional and national boundaries)</td>
<td>ITGI-VRef Admin-v CADMAP, EuroBoundaries</td>
<td>NGI</td>
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<td>N ISO N</td>
<td>1 mercator.belgium.be 2</td>
</tr>
<tr>
<td>I-5 Addresses</td>
<td>CADNET, Best Adress</td>
<td>AGDP and partners</td>
<td>/</td>
<td>N</td>
<td>/</td>
</tr>
<tr>
<td>I-6 Cadastral parcels</td>
<td>CADNET, CADMAP,</td>
<td>AGDP</td>
<td>From 1/500 to</td>
<td>N</td>
<td>2</td>
</tr>
</tbody>
</table>

36 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)
37 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)
38 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).
39 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)
40 This is of course not necessarily a real data set.
<table>
<thead>
<tr>
<th>I-7</th>
<th>Transport networks (road, rail, air, water and links between networks)</th>
<th>CADGIS (under construction)</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>NGI</td>
<td>1:10 000</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Top10v-GIS</td>
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<td>1:10 000</td>
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<tr>
<td></td>
<td>Top250v-GIS</td>
<td>NGI</td>
<td>1:250 000</td>
<td>ISO</td>
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</table>

<table>
<thead>
<tr>
<th>I-8</th>
<th>Hydrography (including marine areas, all water bodies, river basins, etc.)</th>
<th>CADGIS (under construction)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ITGI-VRef</td>
<td>NGI</td>
<td>1:10 000</td>
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<tr>
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<td>Top10v-GIS</td>
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<td>1:10 000</td>
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<tr>
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<td>Top250v-GIS</td>
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</table>

<table>
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<tr>
<th>I-9</th>
<th>Protected sites (designated by national, EU or international legislation)</th>
<th>CADGIS (under construction)</th>
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## Data sets ANNEX II

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<tr>
<th>Theme</th>
<th>Data set</th>
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<th>Scale/resolution</th>
<th>Metadata (N/Y/ISO)</th>
<th>Can be discovered, viewed, downloaded</th>
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</thead>
<tbody>
<tr>
<td>II-1</td>
<td>Elevation (land, ice and ocean surfaces; terrestrial elevation, bathymetry, shoreline)</td>
<td>ITGI-DEDS DTM</td>
<td>1:10 000</td>
<td>N</td>
<td>ITGI-DEDS DTM 1 mercator.belgium.be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NGI</td>
<td>1:10 000</td>
<td>ISO</td>
<td></td>
</tr>
<tr>
<td>II-2</td>
<td>Land cover (physical and biological)</td>
<td>ITGI-VRef Top10v-GIS Belgian CLC95, CLC2000 CADNET, CADGIS (under construction)</td>
<td>1:10 000</td>
<td>Y</td>
<td>1 mercator.belgium.be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NGI</td>
<td>1:10 000</td>
<td>ISO</td>
<td></td>
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<td></td>
<td>NGI</td>
<td>1:100 000</td>
<td>ISO</td>
<td></td>
</tr>
</tbody>
</table>
|       |          | AGDP | / | N | /
| II-3  | Orthoimagery (geo-referenced image data) | ITGI-Ortho Ortho | 1:10 000 | N | 1 mercator.belgium.be |
|       |          | NGI | 1:10 000 | ISO | |
| II-4  | Geology (including bedrock, aquifers and geomorphology) | | | | |

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41 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)

42 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)

43 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).

44 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)
### Data sets ANNEX III

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<th>Theme</th>
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<th>Scale/resolution</th>
<th>Metadata (N/Y/ISO)</th>
<th>Can be discovered, viewed, downloaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>III-1</td>
<td>Statistical units (for dissemination or use of statistical data)</td>
<td>ITGI-VRef</td>
<td>NGI</td>
<td>1:10 000</td>
<td>N</td>
</tr>
<tr>
<td>III-2</td>
<td>Buildings (geographical location of buildings)</td>
<td>ITGI-VRef Top10v-GIS CADNET, CADMAP, CADGIS (under construction)</td>
<td>NGI NGI AGDP and partners</td>
<td>1:10 000 1:10 000 From 1/500 to 1/10 000</td>
<td>N ISO N</td>
</tr>
<tr>
<td>III-3</td>
<td>Soil (and sub-soil characteristics)</td>
<td>ITGI-VRef Top10v-GIS Belgian CLC95, CLC2000 CADNET, CADGIS (under construction)</td>
<td>NGI NGI</td>
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<td>N ISO ISO</td>
</tr>
<tr>
<td>III-4</td>
<td>Land use (e.g. residential, industrial, commercial,</td>
<td>ITGI-VRef Top10v-GIS Belgian CLC95, CLC2000 CADNET, CADGIS (under construction)</td>
<td>NGI NGI AGDP</td>
<td>1:10 000 1:10 000 1:100 000 /</td>
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<tr>
<td>III-5</td>
<td>Human health and safety (see</td>
<td></td>
<td></td>
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45 See also description of the data themes in document D2.3 Definition of Annex Themes and Scope (http://www.ec-gis.org/INSPIRE)

46 Name the data set. Can be a database with multiple layers and thus including several themes, or a specific data set which covers part of a theme (e.g. Natura 2000), you can also have several data sets with the same information at different scales/resolutions. Please only include only the ‘basic’ data sets (e.g. generalised versions derived from large scale base data sets should not be included)

47 Indicate whether the data set has no metadata (N), metadata but not according to the ISO 19115 standard (Y), or metadata according to ISO 19115 (ISO).

48 Can the data set be discovered (1), viewed (2), downloaded (3) through at least one such standardised service? Indicate this using the numbers (1,2,3)
<p>| III-6 | Utility and governmental services (sewage, waste management, energy, etc.) | ITGI-VRef (part) | NGI and partners | 1:10 000 | ISO | 1 mercator.belgium.be |
| III-7 | Environmental monitoring facilities (emissions, ecosystem parameters) | ITGI-VRef (part) | NGI and partners | 1:10 000 | ISO | 1 mercator.belgium.be |
| III-8 | Production and industrial facilities (water abstraction, mining, storage sites) | ITGI-VRef (part) | NGI and partners | 1:10 000 | ISO | 1 mercator.belgium.be |
| III-9 | Agricultural and aquacultural facilities | ITGI-VRef (part) | NGI and partners | 1:10 000 | ISO | 1 mercator.belgium.be |
| III-10 | Population distribution - demography | | | | | |
| III-11 | Area management / restrictions / regulation zones / reporting units | | | | | |
| III-12 | Natural risk zones (e.g. atmospheric, hydrologic, seismic, volcanic, wildfire) | | | | | |
| III-13 | Atmospheric conditions | | | | | |
| III-14 | Meteorological geographical features (weather conditions, measurements) | | | | | |
| III-15 | Oceanographic geographical | | | | | |</p>
<table>
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<tr>
<th>Class</th>
<th>Description</th>
<th>Reference ID</th>
<th>Projection</th>
<th>Scale</th>
<th>Coordinate System</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>III-16</td>
<td>Sea regions (physical conditions of seas and saline water bodies)</td>
<td>Top10v-GIS</td>
<td>1 mercator.belgium.be</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-17</td>
<td>Bio-geographical regions (areas with homogeneous ecological conditions)</td>
<td>NGI</td>
<td>1 mercator.belgium.be</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-18</td>
<td>Habitats and biotopes (geographical areas for specific ecological conditions)</td>
<td>ITGI-VRRef</td>
<td>1 mercator.belgium.be</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-19</td>
<td>Species distribution (geographical boundaries for animal and plant species)</td>
<td>Top10v-GIS</td>
<td>1 mercator.belgium.be</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-20</td>
<td>Energy resources (hydrocarbons, hydro-power, bio-energy, solar, wind, etc.)</td>
<td>Top10v-GIS</td>
<td>1 mercator.belgium.be</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III-21</td>
<td>Mineral resources (metal ores, industrial minerals depth/height)</td>
<td>Top10v-GIS</td>
<td>1 mercator.belgium.be</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.4.2 Data by resolution or scale range for the INSPIRE themes

Description of the products

A. Vector data

NGI and GAPD produce vector data in CAD or in GIS environment and in different scales.

The 3D line dataset is a CAD product. In the 3D line dataset (1:10 000 scale), points and lines are saved in thematic layers (x, y, z coordinates).

The “Top” (for topographic) databases are GIS oriented. They make use of points, lines and polygons (x, y coordinates) which are related to “codes”. These codes are in fact objects, described in a data dictionary. These objects are extended with attributes which describe the object in detail.

Products of NGI

3D-line

Conceptual scale: 1:10 000
Formats: dgn, dxf, dwg
Availability: 85% of the territory (March 2005)

The geometry of the 1:10 000 data is captured by photogrammetry on aerial photos.

This initial “CAD” dataset after restitution is also based on field survey. It is made in Microstation (dgn) and uses beside the x and y coordinates also z values.

The data have no object-attribute structure and are saved in about 40 thematic layers. As it is an initial dataset, not all the information that NGI collects is used in this product.

Top10v-GIS

Conceptual scale: 1:10 000
Formats: native ESRI formats, other formats available via FME
Availability: 75% of the territory (March 2005)

The geometry is captured by photogrammetry on aerial photos.

Top10v-GIS is a thematically and topological structured 2D database. Field survey is the base for the structuring of the data in 15 coverages with information about administrative borders, electricity, hydrography, railways, roads, constructions and land use.

This database is a rich and correct source of information for local and regional applications.
Top10v-GIS and Top50v-GIS have the same structure of data.

Full description,

in French : 
http://www.ign.be/Common/articles/CA_Top10V-GIS_TOP50V-GIS/restruct_doc.htm#top

in Dutch : 
http://www.ign.be/Common/articles/CA_Top10V-GIS_TOP50V-GIS/restruct_doc_nl.htm#top

Top50v-GIS

Conceptual scale: 1:50 000
Formats: native ESRI formats, other formats available via FME
Availability: whole territory

Top50v-GIS is a thematically and topological structured 2D database. This GIS is derived by generalization from Top10v-GIS and updated by field survey.

This database is good source of information for regional applications.

Top10v-GIS and Top50v-GIS have the same structure of data.

Full description,

in French:
http://www.ign.be/Common/articles/CA_Top10V-GIS_TOP50V-GIS/restruct_doc.htm#top

in Dutch:
http://www.ign.be/Common/articles/CA_Top10V-GIS_TOP50V-GIS/restruct_doc_nl.htm#top

Top250v-GIS

Conceptual scale: 1:250 000
Formats: native ESRI formats, other formats available via FME
Availability: whole territory

Top250v-GIS is a thematically and topological structured 2D database. The geometry is principally obtained by generalization of Top50v-GIS. Different sources of information are used to update the dataset every year.

The database is organized thematically in 13 coverages in an object–attribute structure.

This database is ideal for national and even for European application.
Full description,

in French :

in Dutch :

Corine Land Cover dataset

Conceptual scale: 1:100 000
Formats: native ESRI formats, other formats available via FME
Availability: whole territory

The objective of the pan-European project CORINE (COR = Coordination, IN = Information, E = Environment) is the provision of a unique and comparable data set of land cover for Europe using 44 classes of land use. The Belgian part of Corine is realized by NGI. The classification was done on high resolution Landsat satellite images. Different sources (orthophotos and the different maps and databases of NGI) were also used for the identification.

Administrative borders of Belgium (Admin-v)

Conceptual scale: 1:10 000
Formats: native ESRI formats, other formats available via FME
Availability: whole territory

This database contains the administrative borders of Belgium (country, regions, provinces, arrondissement and communities) and the names of the communities.

This product is derived from the 1:10 000 dataset.

There exists also a generalized version (conceptual scale: 1:300 000): Admin-v-gen.

Products of GAPD

CadMap-shp

Conceptual scale: 1:500 – 1:10 000
Formats: shp (other ESRI formats available on demand)
Availability: whole territory

This initial “CAD” dataset is based on field survey, photogrammetry on aerial photos and sketch mutations. It is made in ArcGIS (shape) and uses x and y coordinates. The data have an object-attribute structure and are saved in 13 thematic layers (information about parcels, buildings, hydrography, railways, roads, border stones, …). As it is an initial dataset, not all the information that GAPD collects is used in this product.

CadMap-dwg

Conceptual scale: 1:500 – 1:10 000
Formats: dwg (other formats available via FME on demand – with reservation)  
Availability: whole territory (on demand)  
This product is derived from the CadMap-shp product by conversion via FME.

**Border stones**

Formats: XML, shp  
Availability: whole territory (under construction)  
This database contains the coordinates of the border stones of Belgium (country) in different reference systems and the names of the points, based on legal definition of boundaries and related in reference documents. This dataset is based on field survey and calculations. This dataset is produced using all the treaties and warrants concerning the borders of Belgium.

**B. DTM**

Formats: TTN, GRD, ASCII, DGN,

A great number of users are especially interested in the altimetry of a region.

So, NGI has produced Digital Terrain Models (DTM’s) - sometimes called Digital Elevation Models (DEM’s) - for a great part of Belgium.

NGI dispose of two DTM’s: DTED (DTM on a scale 1:50 000) and the DTM 1:10 000. These DTM’s can be delivered in different forms and formats (elevation lines, ASCII lists, etc.).

**C. Raster data**

**Raster maps**

Formats: tiff (+ tfw), 381 dpi

NGI produces colored raster maps by symbolization of the different vector databases (Top10v-GIS, Top50v-GIS, Top250v-GIS, Corine Land Cover and Admin-v-gen). After symbolization the contour lines and topology (names) are also integrated in the raster maps.

**Products**

Top10r raster  
Top50r raster  
Top250r raster  
Corine raster  
Administrative borders  

**Orthophoto’s**
A conventional aerial photograph contains image distortions caused by the tilting of the camera and the usual distortions in a photo. You cannot measure distances on an aerial photograph like you can on a map. The effects of the distortions are removed from the aerial photograph by a mathematical process called rectification to obtain an orthophoto. An orthophoto is a uniform-scale image. It is possible to measure directly on it. In Belgium NGI orthophotos are often used to measure parcels.

**Other digital products from NGI**

NGI tries to develop “popular” digital product for the common citizen. These products are derived from the more professional top-v or top-r products. The development is done by NGI or by private partners. The goal is to create digital products usable in GPS, PDA, internet or other new and popular multimedia applications.

Samples of such products: CDROM 1:50 000 Wallonië en Brussel/ Vlaanderen en Brussel; Topomap Belgium for Garmin GPS.

**Other digital products from GAPD**

GAPD tries to develop “popular” digital product for the common citizen and the different governments (regions, provinces, municipalities). These products are derived from the CadMap-product. The development is done by GAPD. The goal is to create digital products usable in internet or other (external) applications.

Samples of such products: CDROM Municipality; CDROM Province and CDROM Officially agreed surveyor.

**5.4.3 Geodetic reference systems and projections**

The Belgian National System 1972, the Belgian National Reference System, was developed in the 1970'ies when a need for a precise national coordinate system to be used by the mapping authorities had become essential.

The Belgian National System 1972 is characterized by:

- Ellipsoid: Hayford 1924
- Geodetic Datum: Belgian Datum 1972 (BD72)
- Height reference system: Deuxième Nivellement Général / Tweede Algemene Waterpassing.
- Map projection: Lambert conformal conic projection 1972 (Lb72)
The Belgian Lambert Conformal Conic projection - system 1972 - is used for all scale mapping.

Recently the Lambert 2005 system has been introduced (see chapter 1).

Link between the Belgian National System and the European Reference

The Global Positioning System (GPS) enables precise positioning anywhere on earth with a precision of a few millimeters, if an appropriate reference frame is in place. This framework in Belgium is known as BEREF, and is a precise realization of the European Terrestrial Reference System, ETRS89.

BEREF is characterized by:

- Ellipsoid: Geodetic Reference System 1980 - GRS80
- Geodetic Datum: Belgium Reference frame – BeRef

5.4.4 Quality of the data

- The positional accuracy is related to the scales.

  1:10 000 scale < 1m
  1:50 000 scale < 5m
  1:250 000 scale < 25m

- Attribute and object attribution are controlled systematically

- Update

  - First edition of the 1:10 000 will be finished 2006/2007;
  - First edition of the 1:50 000 was finished in 2002/2003. Second edition will be ready in 2007;
  - 1:250 000 is updated yearly.

Accuracy of a cadastral map (GAPD):

There is a difference of accuracy between old cadastral maps, analogic remeasured maps and digital maps.

Original cadastral maps: Taking into account the accuracy mistake, the reading mistake and the drawing mistake, the accuracy is:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mistake</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/500</td>
<td>± 0.90m</td>
</tr>
<tr>
<td>1/1250</td>
<td>± 1.89m</td>
</tr>
<tr>
<td>1/2500</td>
<td>± 3.53m</td>
</tr>
<tr>
<td>1/5000</td>
<td>± 6.81m</td>
</tr>
</tbody>
</table>
b) **Analogue measured maps**: These maps are always drawn on scale 1/500 before being transformed.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mistake</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/500</td>
<td>± 0,90m</td>
</tr>
<tr>
<td>1/1000</td>
<td>± 1,01m</td>
</tr>
<tr>
<td>1/2000</td>
<td>± 1,28m</td>
</tr>
<tr>
<td>1/5000</td>
<td>± 2,35m</td>
</tr>
</tbody>
</table>

**Scale Mistake**

c) **Digital maps**: We must only take into account the accuracy mistake and thus the result is: mistake = ± 0,25m

Attributes are controlled systematically.

Updates:

- Digital maps: updated permanently (sketch mutations), digital maps available on situation 1.1.2xxx
- Border stones: updated permanently (under construction).

### 5.4.5 Interoperability

**NGI**

**Formats:**

The vectorial CAD product 3D line is available in dgn, dxf and dwg formats. The vectorial GIS Top10v-GIS, Top50v-GIS, Top250v-GIS, Corine Land Cover, Admin-v, Admin-v-gen are available in ESRI formats (coverages, shape).

The raster products are available in Tiff (with tfw) format.

Other software-related formats are available via FME (Safe Software).

**Conceptual:**

Within the framework of the SGISR project a Glossary of terms, a ISO19115 metadata profile, a O-O Conceptual Data Model (UML) and a ISO19110 Feature Catalog were created.

**GAPD**

ESRI’s .shp-format is considered the reference exchange-format. The maps are available in ESRI formats and dwg. Other software-related formats are available via FME (Safe Software) on demand. Border stones are available in XML or shape.
5.4.6 Language and culture

Geographical names: Dutch or French
Metadata: Dutch and French
Documents: Dutch and French
Glossary of terms (TOC project): Dutch and French

5.4.7 Data content

Data description exists in French and Dutch and is delivered automatically with the data (see 5.3.2).

5.4.8 Geographical names

Currently, information concerning the geographical names is available, in French and Dutch, in the raster products and on the paper maps.

For the future, within the framework of SGISR project, a database of the geographical names is under development.

5.5 Component 4: Metadata

5.5.1 Availability of metadata

An ISO19115 “Discovery and exploration” metadata catalogue will be available as from May 2005 for the existing NGI products (see 5.4.2). A new metadata ISO19115 profile was created in the framework of the SGISR project.

5.5.2 Metadata catalogues availability + standard

An on-line metadata catalogue for the national GI products will be available as from May 2005 on the website http://mercator.belgium.be. This catalogue is based upon the international standard ISO 19115.

5.5.3 Dublin core metadata standards for GI-discovery

Not available

5.5.4 Metadata implementation

Within the framework of the FP7, an on-line metadata catalogue for the national GI products has been implemented (http://mercator.belgium.be).
5.6 **Component 5: Network services**

On the next page an overview of services and their characteristics are given for both NGI and AGDP. For the use of these services (NGI) we refer to section 5.8.

5.6.1 **On-line access service for metadata of reference data and core thematic data**

An on-line metadata catalogue for the national GI products will be available as from May 2005 on the website [http://mercator.belgium.be](http://mercator.belgium.be). This catalogue is based upon the international standard ISO 19115.
<table>
<thead>
<tr>
<th></th>
<th>Services</th>
<th>Organisation responsible</th>
<th>Type of service</th>
<th>Metadata (N/Y/ISO)</th>
<th>Open for Public (Y/N)</th>
<th>Free/Not free (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Metadata server mercator.belgium.be</td>
<td>NGI</td>
<td>Discover</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>SSE portal (ESA project)</td>
<td>Project partners</td>
<td>View</td>
<td>Y</td>
<td>Y (registration needed)</td>
<td>N</td>
</tr>
<tr>
<td>3</td>
<td>Topographic maps WMS</td>
<td>NGI</td>
<td>View</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>4</td>
<td>InfoShop (online map ordering)</td>
<td>NGI</td>
<td>View</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>G-Doc (Geodetic points)</td>
<td>NGI</td>
<td>View, Download</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>6</td>
<td>AI-IA (Avian flu info)</td>
<td>NGI and FAVV</td>
<td>View</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>7</td>
<td>AGN (Active Geodetic Network)</td>
<td>NGI and partners</td>
<td>Download</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>8</td>
<td>Coordinate transformation (for text, .csv, shape)</td>
<td>NGI</td>
<td>Transformation</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>9</td>
<td>Coordinate transformation (SOAP)</td>
<td>NGI</td>
<td>Transformation</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

URL: see 08_NGI_Services_URL_Statistics.doc

---

**Services**

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

50 Indicate the type (discover, view, download, transformation and invoking services)

51 Indicate whether the service has no metadata (N), or metadata according to ISO 19119 (ISO).

52 Whether or not the service is free for use.
<table>
<thead>
<tr>
<th>Service</th>
<th>Organisation responsible</th>
<th>Type of service</th>
<th>Metadata (N/Y/ISO)</th>
<th>Open for Public (Y/N)</th>
<th>Free/Not free (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CADNET AGDP</td>
<td>View</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>2 CADMAP WMS AGDP</td>
<td>View</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>3 EuroBoundaries</td>
<td>View</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

53 List the names/IDs and where possible the link (URL) of all the discover, view, download, transformation and invoking services that are part of your infrastructure.
54 Indicate the type (discover, view, download, transformation and invoking services).
55 Indicate whether the service has no metadata (N), or metadata according to ISO 19119 (ISO).
56 Whether or not the service is free for use.
5.6.2 On-line access service for reference data & core thematic data

On-line geodetic documentation application

The online geodetic documentation is a web-based, GIS application that allows users to search for, and retrieve geodetic markers information using a graphical interface. The information about geodetic markers includes description, coordinates, photographs, graphic and sheet. This application is completely free, and does not require registration to use.

See:

in Dutch: http://www.ngi.be/gdoc/default_nl.htm

On-line paper maps distribution application

An application, called "Infoshop", relates to our topographic charts.

This application allows:

- to locate itself in the cutting of our maps
- to know the availability and the date publication
- to order online

This application is completely free, and does not require registration to use.

See:


5.6.3 Inter-linkages of on-line access service for metadata of reference data and core thematic data

The future applications will be interlinked.

5.6.4 OpenSource software and access services

No OpenSource software is used for the access services. The applications described in 5.5.2 are based on ESRI software.

5.6.5 Availability of web mapping services and WebMap server interface

See 5.5.2 and 5.5.4
5.6.6 Availability of catalogue services to regulate access

Not available.

5.6.7 Availability of catalogue services that perform payment operations

Not available.

5.6.8 Availability of catalogue services to extract and send data to a user application

Not available.

5.6.9 SDI user applications

cConvert-application

cConvert is a coordinates conversion software operating under Windows. This program is completely free, and does not require registration to download.

Conversions are performed between the various following systems and associated projections used in Belgium:

BD72 - Belgian Datum 1972

- tridimensional coordinates:
  - Geographic: latitude (φ), longitude (λ) ellipsoid height (h).
  - Geocentric (cartesian): (X, Y, Z)
- plane representation associated: Belgian Lambert 1972.
  - plane coordinates (x,y) + orthometric height (H)

ED50 - European Datum 1950

- tridimensional coordinates:
  - Geographic: latitude (φ), longitude (λ) ellipsoid height (h).
  - Geocentric (cartesian): (X, Y, Z)
- plane representation associated: UTM (Universal Transverse Mercator)
  - zones: 31, 32
  - plane coordinates: Easting, Northing

ETRS89 - European Terrestrial Reference System

- tridimensional coordinates:
  - Geographic: latitude (φ), longitude (λ) ellipsoid height (h).
  - Geocentric (cartesian): (X, Y, Z)
- plane representation associated: UTM (Universal Transverse Mercator)
  o zones: 31, 32
  o plane coordinates: Easting, Northing

5.6.10 Availability of geo-processing services

Not available.

5.7 Component 6: Thematic environmental data

CLC95 and I&CLC2000 programs

The Belgian part of Corine Land Cover programs is realized by NGI.

The objective of the pan-European project CORINE (COR = Coordination, IN = Information, E = Environment) is the provision of a unique and comparable data set of land cover for Europe using 44 classes of land use.

The classification was done on high resolution Landsat satellite images. Different sources (orthophotos and the different maps and databases of NGI) were also used for the identification.

See:

in French: http://www.ign.be/FR/FR1-5-4.shtm
in Dutch: http://www.ign.be/NL/NL1-5-4.shtm
### 5.8 Use of the infrastructure

<table>
<thead>
<tr>
<th>Service</th>
<th>URL</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata Server</td>
<td><a href="http://mercator.belgium.be">http://mercator.belgium.be</a></td>
<td>-</td>
</tr>
<tr>
<td>SSE portal</td>
<td><a href="http://services.eoportal.org/portal/order/PrepareOperation.do?serviceId=2780CF80&amp;operation=Search">http://services.eoportal.org/portal/order/PrepareOperation.do?serviceId=2780CF80&amp;operation=Search</a></td>
<td>-</td>
</tr>
<tr>
<td>Topographic Maps WMS</td>
<td>See below</td>
<td>-</td>
</tr>
<tr>
<td>G-Doc</td>
<td><a href="http://www.ngi.be/gdoc/">http://www.ngi.be/gdoc/</a></td>
<td>Since September 2006, the monthly average number of Gdoc viewings is 2367</td>
</tr>
<tr>
<td>AI-IA</td>
<td><a href="http://www.ngi.be/ai-ia/">http://www.ngi.be/ai-ia/</a></td>
<td>-</td>
</tr>
<tr>
<td>AGN</td>
<td><a href="http://www.ngi.be/agn/">http://www.ngi.be/agn/</a></td>
<td>Since September 2006, the monthly average number of AGN viewings is 257</td>
</tr>
<tr>
<td>Coordinate Transformation Lb7208WS (SOAP)</td>
<td><a href="http://www.ngi.be/Lb7208WS/Lb7208Service?wsdl">http://www.ngi.be/Lb7208WS/Lb7208Service?wsdl</a></td>
<td>-</td>
</tr>
</tbody>
</table>

URL to be used in a browser to test the NGI top50r WMS:

http://www.ngi.be/dhjgt56tyjkg/com.esri.wms.Esrimap?BBOX=15000.0,100000.0,287000.0,233000.0 &WIDTH=400&HEIGHT=300&SRS=EPSG:31370&LAYERS=15,1,&version=1.1.1&service=WMS &FORMAT=PNG&request=getmap

BBOX=15000.0,100000.0,287000.0,233000.0 : xmin, ymin, xmax, ymax in the current projection system (SRS)
WIDTH=400&HEIGHT=300 : output picture width & height, in pixel
SRS=EPSG:31370 : Spatial Ref system, here EPSG 31370 = Lambert72
LAYERS=15,1 : layer(s) to be displayed
version=1.1.1 : WMS version
service=WMS : OGC service type
FORMAT=PNG : output image format
request=getmap : request type (here : image request)
## 6 Annexes

### 6.1 List of SDI addresses / contacts for Belgium

<table>
<thead>
<tr>
<th>NSDI/RSDI</th>
<th>Web address</th>
<th>Organisational mailing address</th>
<th>Over-all contact person: tel./fax/e-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ondersteunend Centrum GIS-Vlaanderen; Afdeling van de Vlaamse Landmaatschappij,</td>
<td><a href="http://www.gisvlaanderen.be">http://www.gisvlaanderen.be</a></td>
<td>Gebroeders Van Eyckstraat 16, 9000 Gent</td>
<td>Mr. Joris Sanders Tel: +32-9-261.52.00; Fax: +32-9-261.52.99 <a href="mailto:Joris.sanders@vlm.be">Joris.sanders@vlm.be</a></td>
</tr>
<tr>
<td>Federal Platform Geographic Information (FPGI)</td>
<td></td>
<td></td>
<td>Ir. Ingrid Vanden Berghe, NGI - Director General Email: <a href="mailto:ivb@ngi.be">ivb@ngi.be</a> Tel: +32 2 629.82.11 Fax: +32 2 629.82.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mr. Daniel De Brone, GAPD - Administrateur général / Administrateur général <a href="mailto:daniel.debrone@minfin.fed.be">daniel.debrone@minfin.fed.be</a> Tél : +32 257 628 53</td>
</tr>
</tbody>
</table>
| Administration générale de la Documentation patrimoniale / Algemene Administratie van de Patrimoniumdocumentatie | http://www.fiscus.fgov.be/interfakredfr/Taken/overzicht.htm | North Galaxy (B8)  
Bd du Roi Albert II, 33, bte 50  
1030 Bruxelles  
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+32 257 636 68  
Fax +32 257 617 52 |
| Nationaal Geografisch Instituut / Institut Géographique National | http://www.ngi.be | Abdij ter Kameren, 13 /  
Abbaye de la Cambre, 13 B-1000 Brussel / B-1000 Bruxelles | Ir. Ingrid Vanden Berghe, Director General  
Email: ivb@ngi.be  
Tel: +32 2 629.82.11  
Fax: +32 2 629.82.12 |
6.2 List of references for Belgium

Table: list of references used to compile the Country Report

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