INSPIRE

Infrastructure for Spatial Information in Europe

Member State Report: Belgium, 2010-2012

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1 INSPIRE Reporting – Overview of requirements

There are five topics addressed in the Reporting chapter of the IR:

1. Organisation, co-ordination and quality assurance

   The first part of this section is concerned with the way in which the contact point and co-ordinating structure for the infrastructure for spatial information are organised – the body responsible, its associated co-ordinating structure and some information about how this works. The second part offers the MS the opportunity to report on quality assurance processes within the infrastructure for spatial information (as required by Article 21 of the Directive).

2. Contribution to the functioning and coordination of the infrastructure

   The second section asks for information about the stakeholders involved in the infrastructure for spatial information – including a description of their roles, how they co-operate, how they share data/services and how access is made to services via the INSPIRE geo-portal.

3. Usage of the infrastructure for spatial information

   Having some or all of the various components of the infrastructure for spatial information in place is important, but equally important is if, or how much, the infrastructure is being used. This part of the report is intended to give MS the opportunity to comment and explain the results of the indicators on the usage of the different services, and to describe how spatial data and services are being used by public bodies and if possible (because it is recognised that this is difficult to observe) how they are being used by members of the general public. Because of the environmental emphasis of the Directive MS are particularly encouraged to find and describe examples of use within the field of environmental policy. The report should also describe examples of cross-border usage, efforts to improve cross-border consistency and examples of the use of transformation services.

4. Data-sharing arrangements

   Chapter 5 of the INSPIRE Directive is concerned with data-sharing. It has not been possible to derive adequate indicators to monitor data-sharing – the subject does not lend itself to quantitative methods in a way that would provide meaningful output. It is a major part of the Directive however and so this Chapter is dealt with, in terms of monitoring and reporting, by asking MS to describe data-sharing arrangements in their 3 yearly reports. MS are required to provide an "*overview*" of data-sharing arrangements i.e. not all such agreements have to be listed and described (which would be very difficult and extremely onerous) – but MS are encouraged to provide sufficient description to enable readers to understand the main type or types of agreement that are used – both for sharing of data between public bodies in the MS and between those public bodies and the institutions of the EU. An important section also required is a description of known barriers that may be inhibiting the sharing of spatial data and services, and what steps the MS are taking to overcome those barriers.

5. Cost and benefit aspects

   Finally, the Directive requires MS to quantify the costs and benefits involved in the establishment and maintenance of the infrastructure for spatial information *that are directly attributable to the implementation of the Directive*. The report should attempt to estimate the costs and to provide examples of benefits as described in the IR. As with other aspects of the report MS are responsible for deciding the depth/level of reporting that they find appropriate to satisfy the IR and to provide a suitable level of information for stakeholders.

2 How to use this template

This template provides a structure Member States can use to collect and transmit the reporting information to the EC.

This template mainly reflects the list of elements required by the Commission Decision 2009/442/EC on monitoring and reporting. These are the mandatory elements. For every chapter the relevant article of the implementing rules on monitoring and reporting will be reported.

Also some optional features, not strictly required by the relevant legislation, are included. These features can either contain a suggestion on what elements can be grouped under a certain topic foreseen by the legislation or they can contain additional elements that enhance the readability of the document. These features are optional.

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3 Executive summary

1. Organisation, coordination and quality assurance

Because of the federal structure of government, four parties are responsible in Belgium for implementing the INSPIRE Directive: the federal government, the Walloon Region, the Flemish Region and the Brussels Capital Region. Each level is responsible for coordination and implementation within its territory and its jurisdiction. The INSPIRE Coordinating Committee is an umbrella committee with representatives from the 4 levels, which is responsible for coordinating INSPIRE implementation across the four levels. The preparation of this report was coordinated by the Member State Contact Point via this Coordinating Committee.

In addition to the Coordinating Committee, the national organisational structure for Belgium consists of the INSPIRE unit, which is assigned the role of Member State Contact Point (MSCP) or INSPIRE national contact point, and the INSPIRE forum. This structure was formally established in the Cooperation Agreement concluded between the three regions and the Federal State.

The MSCP is, among other things, the contact point for the European Commission regarding operational aspects of implementing INSPIRE and the interface for sharing information between the European Commission and the parties concerned in Belgium. Third parties will be involved at national level in the implementation of INSPIRE through the INSPIRE forum. Information can be shared between the authorities concerned and third parties through this forum, which is still to be established.

In addition to the Coordinating Committee, the INSPIRE unit, and the INSPIRE forum, a further representative has also been appointed to represent Belgium in the Comitology Committee.

The various authorities also each have their own coordination body to coordinate the implementation of INSPIRE within its level. The powers of these bodies are usually far wider and also cover coordination concerning the production, management and distribution of geographical information in general (broader than INSPIRE).

With regard to quality assurance of geographical data and services, high quality is essential to guarantee proper and efficient use of geographical data. There are no formal quality control procedures at national level. Each level determines for itself how it will ensure the quality. Sometimes this is organised centrally, sometimes each data manager is individually responsible.

2. Contribution to the functioning and coordination of the infrastructure

There is currently no umbrella infrastructure yet in Belgium. Such an infrastructure will be phased in for Belgium as soon as the reference data have been indicated. There will be a national geoportal providing access to all Belgian data sets coming within the scope of INSPIRE, both regional and federal and also local datasets.

Within Belgium, the four sub-units are at different stages regarding the development of a GDI. In the Brussels Capital Region, the infrastructure is gradually being rolled out as part of the transposition of the Directive to offer a single access to the Brussels geographic information without centralisation of the metadata or the actual data. Currently, there is still no organised infrastructure for geographical data at federal level, but work is in progress on various modules for establishing such an infrastructure. In Flanders, the cooperative association GDI Flanders is developing the Geographical Data Infrastructure for Flanders as a geographical crossroads bank, with www.geopunt.be as central geoportal and access portal to the Flemish GDI. The Walloon Region has had InfraSIG or the Walloon infrastructure since 2001. This is currently being developed further.

3. Usage of the infrastructure for spatial information

The use of geographical services differs from level to level. Since the Brussels Capital Region is still at the initial phase of the development of its infrastructure, no information can yet be provided on this subject.

Within the federal government, it was difficult for the listed spatial data services to refer to an INSPIRE theme as defined in the Directive, because only a few give direct access to the sets of reference data which are listed in the monitoring. Moreover, various services are still at the prototype stage and are still not accessible to the public. For some services, such as the web map services for the themes 'cadastral parcels' and 'administrative units', information about usage is already known.

In 2010-2012, the use was monitored for a number of services in Flanders. A few discovery, view and transfer services are already available at Flemish Region level. When service requests were counted, no distinction was made between public service requests, service requests from a public authority or internal service requests. For a number of network services, recording of service requests is still non-existent or inadequate. As a result, there is a lack of statistics, or they are extrapolations.

The use of geographical information sources also differs from level to level. For the Brussels Capital and Walloon Regions, no information is currently available regarding the use of geographical datasets. The use of geo-information within the federal government is varied: the use of cadastral data, aerial photographs, topographical maps, etc. The federal organisations also participate in numerous projects and are members of European associations, within which are very active. In Flanders, about 50 data sources, which are centrally disseminated, come within INSPIRE. Each year, about 30 000 datasets are transferred.

At Federal level, use of the GDI by the general public relates mainly to its cartographic products (topographical maps), both digital and on paper. The general public can view most maps via 'Topomapviewer', a free web application. Cadastral parcel plans can also be consulted online via het internet. In Flanders, the publicly accessible geo-windows are particularly popular with the general public. For all geo-windows together, there are on average over 2 million hits per year. This has been constant in the past years. In 2012, AGIV worked on the development of a new geoportal 'geopunt.be'. A beta version of the new GDI Flanders geo-window was made available in November 2012. The release of the first production version is planned for November 2013. In Wallonia, a new publically accessible geoportal was launched at the beginning of 2013: 'Géoportail de la Wallonie'. The public portal consisted of various websites for this. Each month, there were more than 10 000 single visitors.

4. Data-sharing arrangements

The measures adopted for sharing data and services between public authorities differ from level to level. In the Brussels Capital Region, data-sharing between public authorities is regulated by the ordinance on geographical information, which is to be implemented gradually. A large number of regulations are applicable within the federal government. There are various reciprocal agreements with the regions, provinces, municipalities and between federal public administrations. In Flanders, all Flemish public authorities are obliged by decree to input their geographical data into the GDI. The AGIV has concluded user agreements with the federal public authorities regarding cadastral plans and topographical maps on behalf of the cooperative association. The Walloon Region has a number of agreements with the federal authorities. Data-sharing within the Walloon authorities is regulated through specific licences.

Some specific arrangements have already been made within the federal public authorities regarding data-sharing with European institutions and bodies. This refers primarily to arrangements under EuroGeographics.

5. Cost and benefit aspects

The Flemish government and the federal government were able to provide fairly detailed statements of costs. For Brussels and Wallonia, only overall costs are indicated.

For Flanders, a distinction has been made between costs incurred by the AGIV, the coordinator of the Flemish GDI, for DOV, an intermediate interface of the GDI, and where possible also the costs incurred by individual data administrators. The costs for the federal government are broken down for the NGI, the AAPD and the MUMM. The various authorities have presented the costs in various ways (in man days or in euro) and in different breakdowns/categories.

The actual costs are even greater than those shown in the report because not every body was able to provide statistical information. In addition, it is often not possible to make a distinction between the costs for the implementation of INSPIRE and the costs which would have been incurred anyway in connection with the extension of the regional/federal SDI, and the management and opening of geographical data.

For all these reasons, it is not possible and there is no point in providing overall costs for Belgium in this summary.

For the time being, it is still too early to calculate the benefits of INSPIRE in monetary terms. A concrete example of an advantage of INSPIRE is provided by the Flemish transport company De Lijn through the use of map material of neighbouring provinces in the Netherlands and France with the cross-border public transport connections. Furthermore, INSPIRE is often cited as a catalyst for knowledge-sharing, cooperation, (accelerated) provision of geographical information via services – therefore better and smoother accessibility and a stimulus to making data available (free of charge) for (commercial) reuse.

4 Abbreviations and Acronyms

AAPD	Algemene administratie van de Patrimoniumdocumentatie (General Administration of Patrimonial Documentation)
ADSEI	Algemene directie Statistiek en Economische informatie (Directorate-General for Statistics and Economic Information)
AGIV	Agentschap voor Geografische Informatie Vlaanderen (Flemish Geographical Information Agency)
BGD	Belgian Geological Survey
BIRA	Belgisch Instituut voor Ruimte-Aeronomie (Belgian Institute for Space Aeronomy
CC	Coordinating Committee
CIRB / CIBG	Centre d'Informatique pour la Région Bruxelloise / Centrum voor Informatica voor het Brusselse Gewest (Information Centre for the Brussels Region)
CRAB	Centraal Referentieadressenbestand (Central reference address file)
CSG	Comité Stratégique de la Géomatique (Geomatics central committee)
DAR	Beleidsdomein Diensten voor het Algemeen Regeringsbeleid (policy area 'General Government Policy Services')
DDAR	Departement Diensten voor het Algemeen Regeringsbeleid (Department for General Government Policy Services)
DOV	Databank Ondergrond Vlaanderen (Databank Underground Flanders)
Fedict	Federale Overheidsdienst Informatie- en Communicatietechnologie (Federal Public Service on Information and Communication Technology)
FTE	Full-time equivalent
GDI	Geographical data infrastructure
GDI-Decree	Decreet van 20 februari 2009 betreffende de Geografische Data-Infrastructuur Vlaanderen (Decree of 20 February 2009 on the Geographical Data Infrastructure of Flanders)
GDI-plan	Strategisch plan GDI-Vlaanderen (strategic plan for GDI Flanders)
GRB	Grootschalig Referentiebestand (large-scale reference database)

IBGE / BIM	Institut Bruxellois pour la Gestion de l'Environnement / Brussels Instituut voor Milieubeheer (Brussels Institute for Management of the Environment)
INSPIRE Directive	Directive 2007/2/EC
KBS	Koninklijke Sterrenwacht van België (Royal Observatory of Belgium)
KMI	Koninklijk Meteorologisch Instituut (Royal Meteorological Institute)
MS	Member State
MUMM	Management Unit of the Mathematical Models of the North Sea and of the Scheldt estuary
NGI	Nationaal Geografisch Instituut België (National Geographic Institute of Belgium)
PCC	Permanent Committee on Cadastre in the European Union
SDI	Spatial Data Infrastructure
SPW	Service Public de Wallonie (Public Service of Wallonia)
WIG	Wetenschappelijk Instituut Volksgezondheid (Scientific Institute for Public Health)

5 Introduction

- Background

Because of the federal structure of government, four parties are responsible in Belgium for implementing the INSPIRE Directive: the federal government, the Walloon Region, the Flemish Region and the Brussels Capital Region. Each level is responsible for the coordination and implementation within its territory and its jurisdiction. The INSPIRE Coordinating Committee is an umbrella committee with representatives from the 4 levels, which is responsible for coordinating INSPIRE implementation across the four levels. The preparation of this report was coordinated by the Member State Contact Point via this Coordinating Committee.

- Method used to compile the report

This report is a compilation of the contributions by the four levels which are responsible in Belgium for implementing INSPIRE within their territory and jurisdiction: the federal government, the Walloon Region, the Flemish Region and the Brussels Capital Region. The four parties have collected all necessary information within their level and provided feedback to all parties concerned. The Member State Contact Point has brought everything together in a single report. Where some parts of answers relate specifically to a party, this is always indicated with a subtitle.

6 Coordination and quality assurance (Article 12)

6.1 Coordination (Article 12(1))

6.1.1 Member State contact point

Article 12(1)(a) the name, contact information, role and responsibilities of the Member State contact point;

Name and contact information

Member State Contact Point	
Name of the public authority	INSPIRE unit
Contact information:	
Mailing address	p/a AGIV, Gebroeders Van Eyckstraat 16, 9000 Ghent, Belgium
Telephone number	+32 9 261 72 21
Fax number	+32 9 261 52 99
Email address	Leen.detemmerman@agiv.be
Organisation's website URL	www.agiv.be
Contact person (if available)	Leen De Temmerman
Telephone number	+32 9 261 72 21
Email address	Leen.detemmerman@agiv.be
Contact person - substitute (if available)	Jessica Lelong (secretariat INSPIRE unit)
Telephone number	+32 2 629 82 30
Email address	Jessica.lelong@ngi.be

Role and responsibilities

The national contact point or Member State contact point (MSCP) is the interface for sharing information between the European Commission and Belgium. Within Belgium, the national contact point communicates with the bodies concerned via representatives, one per body, the "Single Points of Contact' (SPOCs). Under the cooperation agreement concluded between the Flemish Region, the Walloon Region, the Brussels Capital Region and the federal government, a Coordinating Committee has been set up as well as an INSPIRE unit, which supports the work of this Coordinating Committee. This INSPIRE unit also takes on the role of MSCP. The Director of the INSPIRE unit is a member of staff of the AGIV. The secretarial services for the INSPIRE unit are provided by a staff member of the NGI.

To sum up, the Member State contact point is responsible for:

- contact point for the European Commission concerning operational aspects of implementing INSPIRE;
- interface for sharing information between the European Commission and the parties concerned within the Member State Belgium
- coordination of monitoring and reporting within Belgium
- the Director of the INSPIRE unit is a member of the Coordinating Committee.

6.1.2 The coordination structure

Article 12(1)

(b) the name, contact information, role and responsibilities, organisation chart of the coordinating structure supporting the contact point of the Member State
(c) a description of the relationship with third parties;
(d) an overview of the working practices and procedures of the coordinating body;

(e) comments on the monitoring and reporting process.

Name and contact information

Coordinating structure supporting the MSCP	
Name of the coordination structure	INSPIRE Coordinating Committee
Contact information:	
Mailing address	Avenue des Arts 21, 1000 Brussels, Belgium
Telephone number	+32 2 235 05 98
Telefax number	+32 2 230 31 07
Email address	fdumortier@cirb.irisnet.be
Organisation's website URL	www.cirb.irisnet.be
Contact person (if available)	François Du Mortier
Telephone number	
Email address	
Contact person - substitute (if available)	
Telephone number	
Email address	
Date and period of mandate	

Role and responsibilities

The national organisational structure for Belgium consists of the Coordinating Committee, the INSPIRE unit with the role of the Member State Contact Point (MSCP) or INSPIRE national contact point, and the INSPIRE forum (Figure 1). This structure is formally laid down in the Cooperation Agreement concluded between the three regions and the Federal State.

The INSPIRE Coordinating Committee is responsible for the coordination between the Federal State and the regions in order to achieve effective implementation of the INSPIRE Directive in Belgium and to build up the Belgian GDI.

The forum, chaired by the NGI, will provide a platform for discussion and the exchanges of ideas relating to geographical information for all stakeholders in INSPIRE.

In addition, the Walloon Region has been designated to represent Belgium in the Comitology Committee. The INSPIRE Coordinating Committee, or simply the Committee, is the umbrella coordination body for the implementation of INSPIRE in Belgium. Its responsibilities include:

1. If several identical copies of a spatial data set relating to any of the themes listed in the Annexes to this Agreement are kept by or on behalf of different public authorities, the Committee will designate the reference version required by the European infrastructure for spatial information.

2. The Committee conducts negotiations to establish the reference data for each of the themes listed in the Annexes to this Agreement.

3. At the request of the European Commission and connection with formulation of the INSPIRE implementing rules, the Committee ensures collection of the Belgian information relating to feasibility and proportionality in terms of the anticipated costs and benefits of the proposed measures.

4. The Committee ensures that satisfactory common arrangements for access, sharing and use are adopted regarding the sharing of spatial data sets and services for the purposes of carrying out public tasks that may have an impact on the environment. These arrangements are also applicable to sharing with public authorities of other Member States, the European Community or, on a reciprocal and equivalent basis, with bodies established by international agreements to which the Community and Member States are parties, and in so far as these may have an impact on the environment.

5. The Committee ensures that, if necessary, the granting of a licence and/or the charging of a fee comply with the implementing rules on joint use of spatial data and services for joint use between the Member States and the bodies of the European Community.

6. The Committee is responsible for coordinating the preparation of the reports regarding implementation of the Directive and/or their submission to the European Commission.

7. The Committee will share relevant information and, if necessary, cooperate with bodies which are responsible for implementing other Belgian cooperation agreements, the effect of which is influenced by the Directive.

8. The Committee will monitor the working and activities of the NSPIRE Forum, support that Forum in organising debates regarding the content of geographical information, and examine the relevant recommendations by the Forum, and in particular those relating to extension of the national infrastructure for spatial information.

In addition to coordination at national level, there is also coordination at regional and federal levels.

Flemish administration

In Flanders, the Minister-President of the Flemish Government has the authority to develop a geographical information infrastructure. The Minister-President has a Geographical Information policy field and two consultative committees.

The Geographical Information policy field is part of the horizontal policy area General Government Policy Services (DAR). It consists of a departmental unit, a Steering Committee, an agency and two advisory boards which are responsible for tasks relating to geographical information. The Staff Department of the Flemish Government, a division of the General Government Policy Services Department (DDAR), is responsible for policy planning and evaluation regarding geographical information. The Steering Committee makes policy proposals, on its own initiative or at the Minister's request relating to strategic or organisational decisions regarding the development of the GDI. The Flemish Geographical Information Agency (AGIV) is responsible for operational coordination of the development and operation of the Geographical Data Infrastructure (GDI) in Flanders. It provides support for the Flemish public authorities and is responsible for the central services relating to geographical information. In this way, the AGIV is responsible for the central product formation and dissemination of data and operates the Flemish geoportal. Finally, the AGIV itself produces and manages a number of data sources.

The development of the GDI has been carried out (since 1995) by members of the GDI Flanders Cooperation.[1] The cooperative association consists of public authorities from the various Flemish administrative levels. Its purpose is to optimise the production, updating, management, sharing and (re)use of geographical data and services in Flanders. Representatives of the Flemish administration, the Flemish provinces and the Flemish towns and cities form the Steering Committee of GDI Flanders.

The GDI Council is an advisory body with regard to geographical information. On request or on its own initiative, the GDI Council gives strategic advice to the Minister competent for the development of the geographical information infrastructure. This joint advisory body is composed of representatives from civil society and independent experts in geographical information.

The necessary coordination agreements have been entered into regarding the sharing of information on cables and pipes within the GRB Council,[2] an advisory body of the Flemish Government.

[1] Until 2009, the GIS Flanders Cooperation.

[2] GRB = Grootschalig Referentie Bestand = large-scale reference database.

Federal administration

At federal level, the Act transposing Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was promulgated on 15 December 2011. This Act states more specifically that the data and services of the federal network will be made available to the public and will be accessible via a federal geoportal (Article 6, §2).

In the various provisions, the Act amends the mission of the National Geographic Institute, assigning it a leadership role where the development of a national infrastructure for geographical information is concerned. The text reads: 'The task of the Institute shall also consist in setting up and running a geographical information infrastructure in which networks of identifiable sets of geographical data and computer applications regarding these geographical data can be made operational and to which access can be provided *inter alia* by means of a website or an equivalent thereof.'

A Coordinating Committee is currently being set up at federal level. Its purpose is to bring together the various actors, focusing primarily on the integrated use in the federal institutions of the geographical information in general and the data and services introduced for INSPIRE in particular.

In 2008, a cooperation agreement was already concluded to establish a federal platform for the geographical information between the 3 federal bodies which are the main holders of geographical data, i.e. the National Geographic Institute (NGI), the Algemene Administratie Patrimoniumdocumentatie (General Administration of Patrimonial Documentation) (AAPD) and the Directorate-General for Statistics and Economic Information (ADSEI). This agreement is being re-examined and the coordination will be extended to all federal institutions holding geographical information. Nevertheless, it has not yet been clearly established who the official holders are of information covered by Annex III. The concrete conditions for the organisation and coordination of holders of one and the same INSPIRE theme still have to be established.

In 2010-2012, the NGI and the AAPD were the two institutions which were the most active in the implementation of INSPIRE because they are also the main holders of geographical data. At present, work is under way on an agreement between the two for cooperation concerning the implementation of INSPIRE.

Under the present state of affairs, the National Geographic Institute takes charge of the monitoring and reporting on behalf of the federal level.

More details concerning the federal platform and the draft agreement are given in Section 7.5.1 (cooperation agreement)

Brussels administration

A Brussels INSPIRE Committee has been set up (GeoBru Committee) under the Ordinance of 28 October 2010 on geographical information in the Brussels Capital Region (*ordonnantie van 28 oktober 2010 over de geografische informatie in het Brussels Hoofdstedelijk Gewest*). It groups together representatives of the authorities or public interest institutions which are the most closely involved in the themes of the INSPIRE Directive (regional statistics, geomatics, environment, spatial planning, mobility). The task of the Committee is to coordinate the introduction of the Directive in the Brussels Capital Region and more specifically:

- Identification of the reference data
- Creation of the metadata
- Creation and maintenance of the Brussels geoportal
- Communication and sharing

In addition to the plenary Committee, the main coordination body, there are other specific committees:

- the technical working group 'buildings', which deals with the introduction of the layer concerned,
- the technical group (responsible for the structuring of the metadata, the creation of the geoportal, etc.) and
- the editorial committee (responsible for drawing up the content and the structure of the geoportal, in cooperation with the technical group).

Walloon administration

The Walloon Département de la Géomatique is a horizontal unit of the Service Public de Wallonie (SPW). It consists of two sub-departments: the Direction de la Géométrologie, which focuses mainly on the purchase, production and updating of basic geodata and the Direction de l'Intégration des Géodonnées (DIG). This sub-department creates the infrastructure for the dissemination of the Walloon geographic information and manages the geoportal that provides access to it. It coordinates the production and the consistency of the geodata so that they can be used as horizontally as possible. It lays down rules for use which are based on the international norms and standards and comply with the European regulations. It also manages the legal and economic aspects of geomatics and the dissemination of geodata. It not only gives advice and support, but is also responsible for raising awareness and training of users and it represents Wallonia at regional, national and international levels.

Organisation chart

Flemish administration

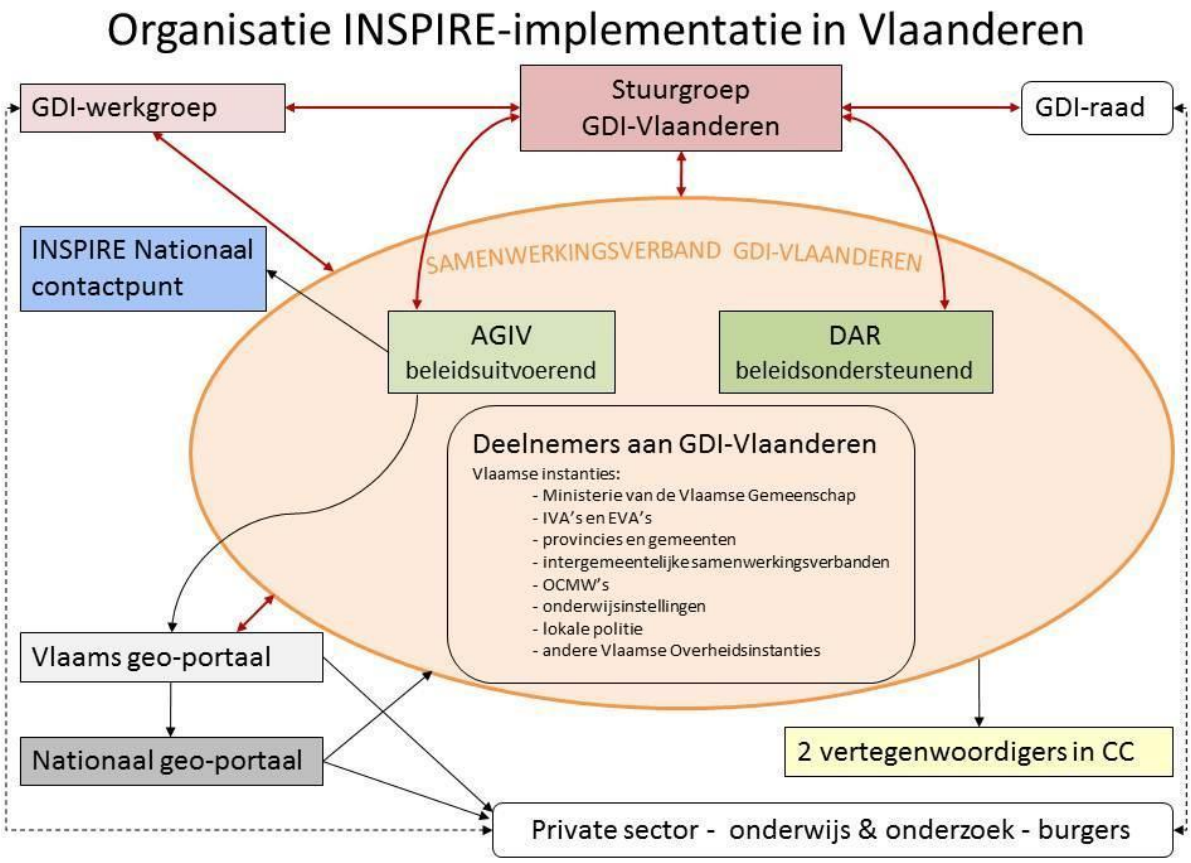

Figure 1: Organisation of INSPIRE implementation in Flanders

Key
GDI-werkgroep = GDI working group
Stuurgrope GDI-Vlaanderen = GDI Flanders Steering Committee
GDI-raad = GDI Council
INSPIRE Nationaal contactpunt = INSPIRE National point of contact
SAMENWERKINGSVERBAND GDI-VLAANDEREN = GDI FLANDERS COOPERATIVE ASSOCIATION
AGIV beleidsuitvoerend = AGIV implementing policy
DAR beleidsondersteunend = DAR supporting policy
Deelnemers aan GDI-Vlaanderen = participants in GDI Flanders
Vlaamse instanties: = Flemish bodies
- Ministerie van de Vlaamse Gemeenschap = Ministry of the Flemish Community
- IVA's en EVA's = internal independent agencies and external independent agencies
- provincies en gemeenten = provinces and municipalities
- intergemeentelijkesamenwerkingsverbanden – inter-municipal associations
-OCMW's = Public social assistance centres

- onderwijsinstellingen = educational establishments
- locale politie = local police
- andere Vlaamse Overheidsinstanties = other Flemish public authorities
Vlaams geo-portaal = Flemish geoportal
Nationaal geo-portal = National geoportal
2 vertegenwoordigers in CC = 2 representatives on Coordinating Committee
Private sector – onderwijs & onderzoek – burgers = private sector – education & research - citizens

Brussels administration

Figure 2: Organisation of INSPIRE implementation in Brussels

Relation with third parties

Flemish administration

The AGIV concludes agreements with third parties regarding dissemination of the geographical data of third parties to Flemish public authorities. The AGIV is responsible for purchasing the data, sets up co-financing where possible or shares data (with other Belgian public authorities).

Although public-private partnerships are possible, there are no such partnerships so far.

In consultation with the managing public authority, the Steering Committee determines the conditions under which government data are made available (to third parties).

Experts from non-Flemish public authorities may be involved in the activities of the Steering Committee via working groups (see overview of working practices and procedures).

Civil society and independent experts in geographic information are officially involved in the development of the GDI via the GDI council.

The managers of information on cables and pipes are involved via the GRB board regarding the

production, updating and dissemination of the Large-scale Reference Database (GRB).

Federal administration

At Federal level, the AAPD and the NGI have concluded agreements with third parties (see 9. Sharing arrangements).

Brussels administration

The various public authorities represented on the GeoBru Committee conclude agreements in their name on the dissemination of geographical data with third parties (public or private).

A priori, the data, in application of the Ordinance on geographical information, are made available free of charge, on condition that the source is mentioned (apart from exceptions which are also included in the Directive). However, the Ordinance provides for the possibility of preventing reuse for commercial purposes. Recently, the CIBG and Brussel Mobiliteit/Bruxelles Mobilité have shared most of their geodata under an open data licence.

The members of the Committee organise meetings with third parties to provide information and share ideas, on request, or they take part in such meetings. For example, contact was made with the GEO-ICT branch of AGORIA (technological industry federation).

If the GeoBru Committee becomes fully operational, annual information meetings are planned with all stakeholders concerned.

Overview of working practices and procedures

Flemish administration

Every four years, the Flemish Government draws up a strategic plan GDI Flanders (GDI plan) which provides direction to the development of the GDI. The Staff Department of the Flemish Government follows that plan together with the GDI Flanders Steering Committee.

On the basis of the GDI plan, the Flemish Government concludes a management agreement for a period of 4 years with the AGIV management board regarding operational objectives. The Staff Department of the Flemish Government is responsible for paying funds to the agency and supervises implementation of the management agreement.

The GDI Flanders Steering Committee meets monthly and adopts decisions which are binding for the public authorities in Flanders. In addition, on its own initiative or at the request of the Minister-President, it makes recommendations regarding the development of the GDI. The Staff Department of the Flemish Government provides the secretariat of the Steering Committee. The Steering Committee can set up working groups, consisting of experts from inside and outside the government, for the purpose of planning its activities. Currently, there are working groups on addresses, buildings, roads and the technical development of the GDI.

Federal administration

At present, there is still no formal Coordinating Committee at federal level, although the NGI and the AAPD have set up an internal organisation for the implementation of INSPIRE.

For the AAPD, the implementation of the Directive is a project (therefore: project leader, sponsor, PBS, project coordination meeting, budget, etc.). An action plan is being drawn up on the basis of the European roadmap and the decisions at the level of the national Coordinating Committee: choice and prioritisation

of the actions, application for budget and preparation of the necessary budgets, etc.

For the NGI, the implementation of the Directive is a development programme within which projects are established. These projects are led and steered by a Coordinating Committee, consisting of the general management, the directorates and the manager of the INSPIRE programme.

A network was set up of persons who are responsible within the various Federal institutions for the geographical information (Best Address, SPOC data NGI, etc.). A formal Coordinating Committee will be organised on the basis of this network**.**

Brussels administration

The Coordinating Committee of GeoBru is responsible for the introduction of INSPIRE. It meets on average every two months. Each member of the Committee may place items on the agenda. Decisions are always taken by consensus.

In addition to these meetings, communication and the necessary clarifications are undertaken electronically.

The GeoBru Committee is supported by various thematic groups:

- the technical group (which coordinates the technical aspects of the introduction of the INSPIRE Directive (structure and encoding of the metadata, structure and tools of the geoportal, etc.)
- the 'buildings' working group,
- the Editorial Committee, which is responsible for the content of the geoportal.

6.1.3 Comments on the monitoring and reporting process

Flemish administration

In relation to the monitoring of 2011, a number of data sets were reported differently for this monitoring of 2012, mainly under the theme of 'soil'. In the reporting of 2011, separate layers were reported. For the reporting of 2012, these were combined and shown as groups of layers or data sets. As a result, the impression may be given that there are a lot fewer data sets in 2012 compared to 2011, but this is therefore not the case. The reason is a different combination/presentation.

Federal administration

The list of sets of geographical data and services recorded at federal level in this monitoring relates to the public services which manage the geographical reference data listed mainly in Annexes I and II. These are:

- the National Geographic Institute (NGI)
- the General Administration of Patrimonial Documentation (AADP)
- the Management Unit of the Mathematical Models of the North Sea and of the Scheldt estuary (MUMM)
- the Belgian Geological Service (BGD)
- the Directorate-General for Statistics and Economic Information (ADSEI)
- the Belgian Institute for Space Aeronomy (BIRA)
- the Royal Meteorological Institute (KMI)
- the Royal Observatory of Belgium (KBS)

These public services also manage certain themes which are listed in Annex III. However, we should point out that the list of data sets in Annex III is incomplete. As further debate is required at Belgian level concerning division of responsibilities for the themes in Annex III and since the specifications have only recently been defined, the public services which manage geographical reference data listed primarily in Annex III consider it necessary to set aside a certain time for consultation before they submit an official list with sets of geographical data categorised into the themes of Annex III.

Note

The theoretical surface area, expressed in km² for the Belgian national territory, is calculated on the basis of the administrative borders of the ITGI database of the National Geographic Institute in the 2008 national Lambert map projection.

6.2 Quality Assurance (Article 12(2))

6.2.1 Quality assurance procedures

Article 12(2)(a) a description of quality assurance procedures, including the maintenance of the infrastructure for spatial information

Flemish administration

In the case of central distribution, the AGIV concludes agreements with the managers laying down the product specifications. On product formation and/or distribution, the AGIV ensures that the agreed structure is observed.

The central metadata base managed by the AGIV is in conformity with the implementing rule on this subject. Most data are described by means of the central metadata base.

Federal administration

For the federal administration, the transposition Act created a sufficient legal basis to establish a formally organised infrastructure for geographical data at federal level at the NGI. However provision was made for the necessary financial resources only from the 2012 budgetary control and then only to a limited extent. So far, no structure has been established yet for the users and data producers who are to participate in this infrastructure, and therefore no concerted procedures have been laid down for quality assurance. Each public service which administers spatial data is responsible for the introduction of its own quality control procedures.

A few examples are given below:

1. The NGI is responsible for collecting and updating the basic topographical data covering the national territory. The NGI ensures quality control of its ITGI database, from which the other reference data sets are derived.

2. The AAPD is responsible for collecting and updating the data recorded in the digital cadastral parcel plan, i.e. including the cadastral parcels and the administrative boundaries, with quality control. Moreover, the AAPD will participate in the necessary partnerships because it has information at its disposal regarding the themes ‘buildings’ and ‘addresses’. The regional and federal actors will be involved in this to deliver coherent data sets.

3. IASB-BIRA → in atmospheric sciences, the three most important elements of quality assurance of a data set are:

    - The specification of a quality indicator in the metrological sense of the term; this indicator (error or uncertainty) provides information on the accuracy (precision or exactitude) of a measurement or a calculation result;
    - the supplementary data with which the user can estimate the suitability of the product for the use he wishes to make of it;
    - the description of the production chain (process and intermediate products) which gave rise to the creation of the final product, including information on the calibration of the instruments, the evaluation of the models and validation of interim results (‘traceability information’).

Relevant websites:

CEOS Committee on Earth Observation Satellites
http://www.ceos.org/

GUM Guide to the Expression of Uncertainty in Measurement
http://www.bipm.org/utils/common/documents/jcgm/JCGM_100_2008_E.pdf

IGOS Integrated Global Observing Strategy
http://www.fao.org/gtos/igos/

JCGM Joint Committee for Guides in Metrology
http://www.bipm.org/en/committees/jc/jcgm/

QA4EO Quality Assurance Framework for Earth Observation
http://qa4eo.org/

VIM International Vocabulary of Metrology
ttp://www.bipm.org/en/publications/guides/vim.html

WMO World Meteorological Organization
http://www.wmo.int/

Brussels administration

An integrity check of the geometrics, with validation before they are made accessible, takes place for the data originating from Leefmilieu Brussel/Bruxelles Environnement (BIM).

Walloon administration

For the Walloon authorities, quality control consists in determining whether the data set does in fact meet the specifications which have been drawn up in advance and which are incorporated into the conceptual model of the data which was usually laid down before the start of production of the data set.

These quality assurance procedures are regrouped into two parts. The first describes the logical level of the data set, it deals with the definition of the data set (mandatory basic information) and the conceptual model of data (all of the concepts and rules which determine precisely the structure of the data: space entities, type of establishment, attributes, links, combined legend). When the definitive data set is delivered, the conformity between the model laid down and the final model is checked.
The physical level is dealt with in the second part: the features of the attribute data: (names, size, number of decimals and user area) and the spatial data (quality of georeference, compliance with topological requirements) must be in line with the specifications in the model; the information relating to the quality criteria (genealogy, control points for georeference, description and results of the quality tests for accuracy and correctness of position, the accuracy and semantic correctness, completeness, logical link and temporal accuracy) must be described in detail.

6.2.2 Analysis of quality assurance problems

Art. 12.2. (b) an analysis of quality assurance problems related to the development of the infrastructure for spatial information, taking into account the general and specific indicators

Flemish administration

The AGIV checks whether the structure of the data conforms to the agreed specifications and, if necessary, reports on this to the manager. In the case of vector data, checks are carried out in due form regarding the attributes, geometry and possible topological relationships.

Federal administration

The drastic economy measures to be taken by the federal administration result in a reduction in the data update frequency, which means that the data rapidly become out of date. There is no loss of quality of the data which have been updated. The further development of a quality policy for the geodata also suffers from these budgetary restrictions.

As far as the federal administration is concerned, various federal public services currently manage reference data which are classified under one and the same theme and cover one and the same territory. For example, there were processes at both the NGI and the AAPD for the collection of information on the administrative borders or buildings. Since the processes and the resolution were different, this led to different and inconsistent data sets.
For the addresses, the present situation is even more complicated: the municipalities are the sources, the national register is the manager of the address list and the AAPD and the NGI (for the streets) update the geographical information on this theme. The control and validation of the addresses take place at the AAPD by means of comparison with information from other sources. At the NGI, the management of the street names is based on the collection from various sources.

Walloon administration

At the Walloon administration, no analysis has yet been made of the problems associated with the quality assurance.

6.2.3 Measures taken to improve the quality

Walloon administration

At the Walloon administration, the ISO quality control method is applicable to the Public Service of Wallonia – SPW (agriculture – natural resources – environment). In general, quality control is carried out by SPW or through a services contract. This control relates to the production of geographical data, the development of the catalogues and services and operation of the Walloon geoportal. Contracts for improved, rolling maintenance are signed for necessary updating.

6.2.4 assurance

Art. 12.2. (c) a description of the measures taken to improve the quality assurance of the infrastructure

Flemish administration

The GDI Decree provides that, on the proposal by the GDI Flanders Steering Committee, all INSPIRE data sets will be established as authentic geographical data sources.[3] The Flemish Government designates the manager and ensures that all implementing rules of the Directive are observed. The manager must adopt the necessary measures to guarantee management and updating (including an error reporting system) of the data.[4]

Federal administration

In order to improve the unique character and authenticity of the source data, various cooperation agreements (see Chapter 9) have been concluded at federal level between the holders of spatial reference data (mainly listed in the themes of Annex I), with a view to achieving greater authenticity and coherence of the jointly managed source data and better cooperation on quality assurance.

[3] Article 22 of the Decree of 20 February 2009 on the Geographical Data Infrastructure of Flanders.
[4] Article 3, first paragraph, of the Flemish Government Decree of 15 May 2009 implementing the Decree of 18 July 2008.

At the level of the reference versions for the INSPIRE themes, currently agreements are being concluded and working groups are at work to identify authentic sources and to structure them according to a data model and common specifications for all data holders.

For example:

- The AAPD is the authentic source for the cadastral parcels.
- For the administrative boundaries, various versions existed, managed by various producers. It was agreed between federal and regional partners that the AAPD would create an authentic source of the administrative boundaries at the most detailed scale (>1 :10 000) and the NGI the authentic source for the administrative boundaries at medium and small-scale level (<1 :10 000), by generalisation of the source data of the AAPD. The work is currently in progress and the administrative boundaries at large scale were combined in 1 common file which will become available in the course of 2013. This product will also contain the statistical sectors of the DGADSEI.
- For the addresses, a project was launched to create a unique and authentic source for the addresses (Best Address), with the federal institutions (AAPD, NGI, etc.), the regions and the municipalities. The project has not yet been completed because the discussion on the address model is still in progress.
- For the buildings, the CC INSPIRE decided to set up a working group with the federal level and the regions. The expected result is the introduction of a joint data and specification model at national level to provide coherent data sets.

6.2.5 Quality certification mechanisms

Art. 12.2. (d) where a certification mechanism has been established, a description of that mechanism

Flemish administration

No use has been made of certification mechanisms.

Federal administration

At federal level, various cooperation agreements (see Chapter 7) have been concluded between the holders of spatial reference data (mainly listed in the themes of Annex I) with a view to achieving greater authenticity and coherence of the jointly managed source data and better cooperation on quality assurance.

Agreements have been concluded and working groups are working towards optimisation of the collection and updating of the INSPIRE themes. For example, the AAPD is the authentic source for the cadastral parcels, the NGI for the system of coordinates. It has been agreed between federal and regional partners that the AAPD would produce an authentic source of the administrative boundaries on a large scale and that, on the basis of the authentic source, the NGI would be responsible for the generalisation on a small scale and the ADSEI for the subdivision of the municipality into statistical sectors. The work is in progress, version 0 is available. In future, the authentic version will therefore always be that of the Patrimonial Documentation for the large scale (>1:10 000) and that of the NGI generalised for the small scales.

In view of the information available to it for the themes ‘Buildings’ and ‘Addresses’, the AAPD and NGI will participate in the necessary partnerships, in which regional and federal actors are involved, to produce coherent data sets.

The NGI is taking part in the ELF project, a European project for the introduction of procedures and services to establish a European Infrastructure for Spatial Information (EISI). This EISI will comply with the INSPIRE rules and the data administered by the national cartographical and cadastral agencies. The ELF project will be launched in 2013 and more specifically introduce a mechanism and tools for quality control, based on a quality assurance model, which will be applicable to the Member States.

7 Functioning and coordination of the infrastructure (Art.13)

7.1 General overview description of the SDI

- Vision / policy / strategy (where applicable, reference could be given to existing documents, as well as a short summary within the report)

Flemish administration

The strategic objectives relating to the GDI are laid down by the policy document 2009-2014[5] and the strategic plan for 2011-2015.[6] Further details of the operational objectives are given by means of an annual policy letter concerning the cooperative association and by means of the management agreement 2011-2015 concerning the AGIV in particular.

Data exchange within and between administrations must be integrated during 2009-2014, with a view to better digital service provision for citizens, businesses and organisations.

The cooperative association GDI Flanders is developing the Geographical Data Infrastructure for Flanders as a geographical crossroads bank. The backbone of this crossroads bank will consist of authentic geographical data sources. The Large-scale reference database (GRB), the Central Reference Address File (CRAB) and an official road network for Flanders are important spearheads. Updating of geographical data must be integrated into the administrative processes and the authentic geographical data must be offered via geographical network services.
Reuse of geographical data and services will be actively encouraged.

Federal administration

At present, there is not yet any organised infrastructure for geographical data at federal level, but the strategy is the following:

In 2020, the national infrastructure for geographical data will have enhanced the quality of the services and the decision-making processes of the federal administration and it will then have ensured that the public administrations, the private sector and academic research are more efficient. Supported by academic research and training, this infrastructure has generated new economic activities and new services for the general public. Web services will be available providing access to federal data. The SDI ensures preferential access for commercial reuse of federal geographical data and services.

The SDI objectives 2012-2016 are the following:

- Each federal official has access to services providing him with the geodata he needs in usable form;
- Each federal official shares the geodata he produces with the others at federal level;
- The non-federal authorities have access to the federal geodata/services and share their geodata/services with the federal level;
- e-gov applications of the federal administration use geo-intelligence;
- The private sector can create added value with federal geodata and services.

[5] Policy Document on General Government Policy 2009-2014, Geographical Information: towards a modern integrated digital services provision by the Flemish Government, Minister-President Kris Peeters, pp. 40-52.
[6] GDI plan 2011-2015 – development of GDI Flanders as a geographical node, where geographical information becomes easily usable for public authorities, citizens and businesses: objectives, indicators and performance standards.

The National Geographic Institute must become the driving force behind the national infrastructure for geographical data. It ensures that the public funds available are put to optimum use to develop the infrastructure in accordance with user needs.

The strategic objectives for the NGI are:

- The federal SDI makes available, free of charge, to all federal users the geodata they need and the NGI data;
- The federal geographical data or the data to be linked to geographical data are available via the federal SDI;
- The topogeographical reference at a medium-scale level of the NGI is offered as authentic source;
- The knowledge of the NGI is further developed and opened up to society;
- The geographical information of the NGI is available to the outside world via the fremium model.

Brussels administration

In the Brussels Capital Region, the infrastructure is gradually being set up in the context of the implementation of the Directive in order to offer single access to the Brussels geographical information, without the metadata or the actual data being centralised.

In accordance with the Brussels Ordinance on geographical information, the geoportal currently being built will offer the geographical data required in Annexes I, II and III, as well as all the Brussels geographical data which the members of the GeoBru Committee consider useful to add. It will offer the following functional possibilities:

- a catalogue of the available (meta)data, with a search engine,
- the possibility to examine the existing thematic maps and to compile maps oneself with the layers available on the site, but also by downloading extra data (accessible for a limited user community),
- services allowing the exploitation of the data (WMS, WFS),
- extra information on the Inspire Directive, the actors and the use of the site (Help / FAQ).

Walloon administration

InfraSIG is the Walloon infrastructure for geographical information for the Walloon Region.

When it becomes fully operational, InfraSIG will contain the geodata, the data sets and the geodata services corresponding to the themes from the Annexes to the Directive, together with the accompanying metadata.

InfraSIG will contain mechanisms for the acquisition, production, updating, administration, quality control and dissemination of the geodata to meet the demand and needs of users. Agreements will also be included on the sharing of, access to and use of the geodata, together with mechanisms, processes and procedures for coordination and monitoring.

At present, the activities for the consolidation and bringing into operation of InfraSIG are in progress, in accordance with the provisions. In the course of 2013, a study will be completed to operationalise the workflow to integrate geographical data, a geographical webservice, a cartographical application or a static map in InfraSIG.

7.2 INSPIRE Stakeholders

Article 13 (a) an overview of the various stakeholders contributing to the implementation of the infrastructure for spatial information according to the following typology: users, data producers, service providers, coordinating bodies

Stakeholders contributing to the implementation of the SDI could be classified according to the following typology: users, data producers, service providers, coordinating bodies).

Flemish administration

Up to now, the GDI has been largely managed by the Flemish public authorities and currently focuses mainly on providing support for carrying out public interest tasks. Improved access for the public is provided by means of e-windows. Reuse is authorised to an increasing extent.

Users

The GDI currently focuses mainly on providing support for carrying out public interest tasks. The main users are the public authorities (in Belgium). Educational establishments are considered as public authorities. The GDI is opened up to the public via e-windows.

Commercial reuse is currently authorised for about 33% of the data sets. Further raising of awareness will take place on this subject.

Producers

The GDI is for the most part managed by Flemish public authorities. A number of data sources are managed by Federal Public Services. Some files are administered by third parties.

Coordination bodies
The following coordination bodies concerning the GDI have been established by decree[7]:

- The GDI Flanders Steering Committee represents public authorities from the Flemish administration, the Flemish provinces and the Flemish towns and cities and municipalities. This body meets monthly.
- The GDI Council represents user groups from outside the public administration.

- The Flemish Geographical Information Agency (AGIV) is responsible for operational coordination of the development and operation of the GDI.

Federal administration

The federal institutions involved in spatial information are:

- The **National Geographic Institute (NGI)** is a type B semi-governmental body, which comes under the Minister for Defence and which is included among the data producers (mainly Annexes I and II) and the data providers.
  Task: It is responsible for the collection and management of the national planimetric and lead levelling networks; for aerial photography coverage of the territory and for the topographical databases, and for the production of map series derived from these, and it develops initiatives with a view to developing, on a voluntary basis, an infrastructure for geographic information, in cooperation with federal and regional institutions, pending a statutory framework for a national infrastructure.

[7] Decreet van 20 februari 2009 betreffende de Geografische Data-Infrastructuur Vlaanderen (Decree of 20 February 2009 concerning the Geographical Data Infrastructure of Flanders) (GDI-Decree).

The NGI is registered as an LMO (Legally Mandated Organisation) and participates in the SDIC 'Federal platform for geographical information'.

- The General Administration of Patrimonial Documentation (**Algemene Administratie van de Patrimonium Documentatie - AADP)** comes under the FPS Finance and is included among the data producers (Annexes I and III) and the service providers.
  Task: It is responsible for the management, adaptation, improvement and updating of the cadastral parcel plan and of all associated data (more specifically, cadastral parcels, buildings, administrative boundaries, etc.).
  The AADP registered as an LMO and participates in the SDIC 'Federal platform for geographical information'.

- The **Belgian Geological Survey (BGD)**: is a department of the Royal Belgian Institute of Natural Sciences and is included among the data producers (Annex I) and the service providers.
  Task: is responsible for the ongoing updating of the database of the Belgian underground and with the documentation centre (70 000 manuals and magazines and more than 11 000 maps).

- The **Management Unit of the Mathematical Models of the North Sea and of the Scheldt Estuary (MUMM)** is a department of the Royal Belgian Institute of Natural Sciences (KBIN) and is included among the data producers (mainly Annex III) and the service providers.
  Task: It is responsible for study of the ecosystems of the North Sea using mathematical modelling techniques and for the collection of marine information. In this respect, it is a data producer and service provider relating mainly to the marine environment.

- The **Directorate-General for Statistics and Economic Information (ADSEI)** comes under the FPS Economy, SMEs, Self-employed and Energy and is included among the data producers (Annex III) and the service providers.
  Task: It is responsible for producing (official) national statistics of Belgium. It is also responsible for producing European statistics.

- The **Belgian Institute for Space Aeronomy (BIRA)** is included among the data producers (Annex III) and the service providers.
  Task: It is responsible for obtaining scientific and technical expertise regarding the physics and chemistry of the atmosphere and the action of the Sun on this. They must collect and analyse data for their field of expertise at local, regional and global level; by means of *in situ* collection and teledetection (for example by deduction from information based on satellite observations).

- The **Federal Public Service Mobility and Transport (FPS Mobility)** is first and foremost a data user.
  Task: It is responsible for the introduction of an organised federal policy relating to mobility and transport (road, rail, sea and internal waterways) for the benefit of the population, businesses and the national economy.
  The FPS Mobility and Transport uses geographical data such as the maps and the other sources of geographical data relating to transport, inhabited areas and addresses. These source data are used to analyse traffic: statistics, journeys by commuters to their workplaces, routes for exceptional transport, etc.

- The **Scientific Institute for Public Health (WIG)** is a scientific institution of the Belgian Federal State and is in part a data producer and user (Annex III) and a service provider.
  Task: To offer scientific support for health policy and also to provide expertise and public services in the field of public health.
  In this respect, the compiled data sets relate to the following areas:
  - Births and deaths
  - Public health surveys
  - Data on hospitals and emergency services
  - Register of cancers, congenital defects and strokes

- Care pathways for type II diabetes and chronic kidney disease, and indicators derived from this information.

The **Royal Meteorological Institute (KMI)** is a scientific institute concerned with meteorology and in comes under the FPS SMEs, Self-employed, Agriculture and Science Policy and is included among the data producers (Annex III) and the service providers.
Task: It is responsible for weather forecasts for Belgium and for studying its climate. In this respect, the KMI supplies a whole series of products and services relating to the analysis of the meteorological and climate data.
The **Geophysics Centre (CGF)** comes under the KMI. It is responsible for measuring the earth's magnetic field within Belgian territory, for seismic and gravimetric observations and for observations of radioactivity.

- **Federal Public Service (FPS) Health, Food Chain Safety and Environment** is classified as a data and services user.
  Mission: Innovative, sustainable, scientific, dynamic and transparent development ensuring health, a healthy diet and better environment, now and in the future, in consultation with the partners concerned.

- **Federal Public Service Information and Communication Technology (Fedict)** is classified as a service provider.
  Mission: It is responsible for drawing up and monitoring e-government for the federal administration. Therefore Fedict assists the Federal Public Services with a view to them improving their services to citizens, businesses and officials with the help of information and communication technology (ICT).

- **Belgocontrol** is an autonomous public enterprise and is classified as a user of geographical data.
  Mission: It is responsible for air traffic safety in Belgian airspace. Belgocontrol fulfils this mission by optimising costs and punctuality, increasing capacity and guaranteeing sustainable development for air transport. Belgocontrol provides the services which are essential for the management and control of air transport in total safety.

- **Federal police (Telematics Directorate)** is classified as users of data and services.
  Mission: It is responsible for the development and management of the telematics of the police services, including with regard to the management of the telematics architecture which supports the general national database and the national part of the international information systems of the police, on the national data network, including the ASTRID network and preparation of the technical standards and rules concerning the technical management of the local and federal telematics.

- **Defence** (Directorate-General Material Resources, Division CIS & Infrastructure, Section Infrastructure, Sub-section Support, Geomatics Office), of which the GEO service of the Belgian armed forces forms a part, is classified as user of data and services.

Brussels administration

At the level of the Brussels Capital Region:

Coordinating bodies:
A Brussels INSPIRE Committee has been set up (GeoBru Committee) under the Ordinance of 28 October 2010 on geographical information in the Brussels Capital Region. Its members include representatives of the authorities or public interest bodies which are the most closely involved in the themes of the INSPIRE Directive (regional statistics, geomatics, human environment, spatial planning, mobility).

Data producers (and possible service providers):

The public administrations or public interest bodies developing data covered by the INSPIRE Directive are concerned with its implementation (regional statistics, geomatics, human environment, spatial planning, mobility, concession holders).

Users:
As implementation of the Directive is still at an organisational stage (establishment of the geoportal), data users are not yet concerned, with the exception of the use of data between authorities concerned. However, preference for centralised access to data is nevertheless evident in connection with similar projects.

Walloon administration

The following parties are concerned at the Walloon SDI:

- the SPW – through its Geomatics Department and its Department for the Integration of geodata or DIG – which is responsible for coordinating these various new operational administrations;
- the producers of geographical data and services;
- public utilities;
- the local administrations (municipalities – associations of municipalities – provinces);
- the crisis centres;
- the network managers.

The users – citizens, businesses, the administration, education – can download geographical data via the geoportal or order copies of geodata.

7.3 Role of the various stakeholders

Article 13(b) a description of the role of the various stakeholders in the development and maintenance of the infrastructure for spatial information, including their role in the coordination of tasks, in the provision of data and metadata, and in the management, development and hosting of services

Flemish administration

Flanders – Regional authority

Policy preparation and evaluation are undertaken by the Staff Department of the Flemish Government (a division of the General Government Policy Services Department).

Operational coordination of the development and operation of the GDI is a core task of the AGIV. It provides support for Flemish public authorities and is responsible for providing central service relating to geographical information. In this way, the AGIV is responsible for central product formation and data dissemination and it operates the Flemish geoportal. Finally, the AGIV is itself a producer and manager of a number of data sources.

Various entities and bodies of the Flemish administration are responsible for collecting or producing, updating and/or managing and sometimes also distributing data (see Annex on monitoring).

Flanders – Provincial administration
The 5 Flemish provinces are responsible for collecting data on specific unnavigable waterways, footpaths and local roads and tourist and functional networks of cycle tracks. The provinces are also authorised to approve municipal spatial structural plans and spatial implementation plans.
Virtually all provinces are opening up geographical data via a geoportal.
Some provinces provide GIS support to towns and cities and municipalities.

Flanders – Urban and municipal administrations

The 308 Flemish towns and cities and municipalities are initiators of geographical data which are collected by a body of the higher authority (addresses, watercourses, spatial plans, undeveloped parcels, road traffic signs, sewer system, etc.).

Federal administration

Under the federal SDI, the NGI is the partner acting as geographical service integrator and as interface in the SDI network will organise itself so as to ensure optimum flow of the traffic through the interface. This includes:

- Federal interface for access to federal data/services for the non-federal administration
- Federal interface for foreign use and access (administration).

As integrator, the NGI is the link in a network of public authorities which convert the data they manage into reference data (authentic sources), unless these administrations themselves (can) operate as authentic sources of reference data.
As broker, the NGI organises the data-sources and web services:

- for the authentic sources that it maintains itself as integrator;
- for other federal authentic sources that do not (wish to) do this themselves.

FEDICT is the federal public service responsible for information technology and e-government. This public service works in close cooperation with the NGI in linking the e-gov strategy to the developments in the field of geographical information. The new applications constructed for INSPIRE must reuse the existing e-gov modules (such as authentication) as far as possible and the federal service port will be adapted where necessary to be able to open up geographical data too.

Brussels administration

Coordination bodies

The first task of the Brussels Coordinating Committee GeoBru was the technical and strategic frame of reference of the draft Ordinance which was to transpose the Directive. After this, the coordination focused on more concrete aspects: preparation of the work for opening up the metadata, coordination of the building of the geoportal (structure and content), etc. As stated above, it is supported by a technical group which has been assigned the analysis and introduction of the technical solutions and by an Editorial Committee which is responsible for putting together and monitoring the content of the geoportal.

Data producers (and possible service providers)

So far, the contribution of the data producers has consisted primarily in an inventory of the data and services concerned and the gradual production of metadata on these elements. It should be pointed out that the present results have led primarily to the identification of data series and the introduction of a few accompanying WMS and WFS.

Walloon administration

In Wallonia, the Geodata Integration Directorate of the Geomatics Department is responsible for the management and provision of the general infrastructure services: this is supplied by the production of geographical data and services of the operational directorate-generals of the SPW (agriculture – natural resources – human environment – waterways – roads and buildings – spatial planning).

The DIG provides the framework for the award of the licences for use of the geographical data, manages the access security for downloading and makes general services available. It coordinates all this with the support and expertise of the operational directorate-generals.

7.4 Measures taken to facilitate sharing

Article 13(c) a general description of the main measures taken to facilitate the sharing of spatial data sets and services between public authorities and a description of how sharing has improved as a result

Flemish administration

The GDI can be accessed by a large number of public authorities. The entities of the Flemish administration, Flemish provinces and Flemish towns and cities and municipalities are obliged to contribute their geographical data into the GDI[8] and have access to the GDI free of charge. All public authorities in Flanders (= participants in GDI Flanders) have access free of charge and may make use of the geographical data sources and services for an unlimited period in order to carry out their public interest tasks.[9] Other public authorities in Belgium also have access to the geographical data sources and services for their public interest tasks, although not necessarily free of charge.[10]
In order to bring about similar advantageous access (access free of charge) for other public authorities in Belgium, the Flemish Government can conclude agreements on this subject with the other Belgian governments.

Through compulsory sharing and joint purchase of data, it has been possible, since the establishment of the cooperative association in 1995, for the public authorities concerned to make a considerable saving. The central distribution, operational coordination and support by the AGIV constitute the most important success factor in this respect.[11] As early as in 1997, a discovery service for metadata was created which was publicly accessible free of charge.

Federal administration

The task of facilitating access to and the opening up of geodata was assigned to the NGI by the transposition Act, but it was only in the budget for 2013 that funds for this were made available to the NGI.
The federal administration already approved 2 projects in 2013 that encourage the public authorities to make more use of geographical information in their decisions. These projects provide a response on the one hand to an urgent need for street name and navigation services and on the other hand to a long-term need for more general tools for geolocalisation based on authentic sources. These tools are necessary building blocks to allow the administrations to open up their own data geographically and also to make more use of geographical data in their processes.

In addition, all geographical data of the National Geographic Institute were made available free of charge to all Federal Public Services.

Brussels administration

A priori, pursuant to the Ordinance on geographical information, the data are made available free of charge, on condition that the source is mentioned (apart from exceptions which are also listed in the Directive). At the CIBG and Brussel Mobiliteit/Bruxelles Mobilité, the majority of geodata are distributed under a licence of the OPENDATA type, which promotes the integration of geographical data, such as Urbis ®© (geomatics reference for the Brussels Capital Region) and therefore allows access to these data sets with fewer physical and administrative obligations.

[8] The Decree of 17 July 2000 establishing the Geographical Information System of Flanders (GIS Decree).
[9] Flemish Government Decree of 10 September 2010 defining detailed rules for access to and use by participants of GDI Flanders of the geographical data sources and geographical services added to the GDI.
[10] Flemish Government Decree of 21 October 2011 defining detailed rules for access to and use by bodies which are not participants of GDI Flanders of the geographical data sources and geographical services added to the GDI, and the regulation on fees for public access.
[11] Het GDI-netwerk in Vlaanderen. Een kwantitatieve verkenning van het gebruik en de uitwisseling van geodata in Vlaanderen (2009), Corompvoets Joep, Vancauwenberghe Glenn, Dessers Ezra, Van orshoven Jos.

The measures to facilitate sharing are listed in the Directive (public access to the data and services and sharing of the data among the public authorities). The discussions which have taken place so far have made it possible to identify the contact persons at each authority concerned and to put them into contact with one another where this had not yet happened. Moreover, the opening of access to the data via single points of contact (which have been introduced at the various public institutions) and of the open technologies which have been widely publicised promote sharing and this will be facilitated in particular when the Brussels geoportal becomes fully operational.

Walloon administration

Anyone wishing for access to the geographical data must subscribe to a licence in Wallonia, which was already drawn up in 2002. This licence puts into practice a policy of dissemination free of charge for all public authorities as well as for the actors cooperating with the administration under an agreement or for a public invitation to tender.

7.5 Stakeholder cooperation

Article 13(d) a description of how stakeholders cooperate

This could for example include the description of:
- Written framework for cooperation
- Working groups (list of active working groups)
- Newsletters, other publications (references)
- Description of the National geoportal (including URL), and where relevant regional or thematic portals

Flemish administration

Cooperation between the Flemish public authorities is regulated by decree by means of a cooperative association, which has existed since 2000.[12] Since 2010, a new Decree[13] has come into force which transposes the INSPIRE Directive. The cooperative association (as a result of the Directive) was extended to all public authorities depending on a Flemish board. The involvement of user groups outside the administration is also regulated by decree. Both the GDI Flanders Steering Committee and the GDI Council can set up working groups. The Steering Committee currently has 4 working groups actively working on the structure of addresses, buildings, roads and the development of the GDI (by means of services). Communication within the association is ensured by the AGIV (including by means of a website, electronic newsletters, information sessions and an annual meeting day). Geopunt Vlaanderen (http://www.geopunt.be) is the regional geoportal which has been structured thematically. The Databank Underground Flanders (http://dov.vlaanderen.be/dov/DOVInternet/default.htm) is a sub-portal with information about the subsoil.

In addition, there are also provincial geoportals:
http://www.provant.be/bestuur/grondgebied/gis/geoloketten/lijst_geoloketten.jsp
http://www.giswest.be/artman/publish/cat_index_106.html
http://www.gisoost.be
http://gis.limburg.be/gislimburg/index.html

Federal administration

A. Cooperation agreements

A draft agreement between the AAPD and the NGI concerning the implementation of INSPIRE is being drawn up.

[12] The Decree of 17 July 2000 establishing the Geographical Information System of Flanders (GIS Decree).
[13] The Decree of 20 February 2009 on the Geographical Data Infrastructure of Flanders (GDI Decree).

Development of the federal platform
The federal platform for geographical information, which started with a cooperation agreement between the NGI and the AAPD, has developed a network of producers and users of geographical information at federal administration level. The platform is an informal structure. The first actions focused on the INSPIRE Directive, via the provision of information and the drawing-up of joint standpoints. In this context, a network of points of contact was organised for the Directive.
The Bill for the transposition of the INSPIRE Directive was prepared in a joint working group and presented to the Government and Parliament. However, it was not possible to draw up a broader Act on geographical information in view of the relatively long period of 'current business' after the 2010 elections.

Authentic source Best Address: Preparation of a cooperation agreement between the Federal State and the 3 Regions.
The agreement with regard to the Authentic Source 'Address', which is currently under preparation, provides for a platform for sharing between the administrators of the authentic sources and the partners so that one of the basic principles of INSPIRE is put into practice, namely that updating information is collected in one go and made available to all parties.

Cooperation between the NGI and INFRABEL (Administrator of the railway network)
The maintenance of the reference data with regard to the railway network is ensured by cooperation between INFRABEL and the NGI, which ensures a permanent stream of updating information to the topogeographical data distributed by the NGI.

Cooperation between the NGI and the Flemish Region concerning the **medium-scale reference file for roads**.
At the beginning of 2012, the implementation of the cooperation agreement 'MRB roads' between the NGI and AGIV was launched. This refers to the production, updating, dissemination and use of a joint Medium-scale Reference File of the roads in Flanders and Brussels.
MRB roads is an initiative of the Flemish Agency for Geographical Information AGIV and offers a structural solution for the needs of users of road files (road authorities, public transport, mobility, etc.).
The first version, which is expected in the course of 2013, will be built up mainly from a selection of the most recent data of the NGI relating to the road network (streets, dirt tracks and paths) which are supplemented by data originating from the Flemish Region. For the updating, reliance is placed primarily on the input of the road users themselves, namely the municipalities and the other road authorities, with the NGI taking charge of the less administered roads (dirt tracks, paths, etc.).
The NGI will in future also build up the MRB roads data set for Wallonia too, if possible in intensive cooperation with the Walloon Public Service and the Walloon municipalities, according to the model launched for Flanders.

The agreements concluded by the AAPD are included in the section 'Data-sharing arrangements between public authorities'.

B. Committee, working groups and representation

At national level, working groups have been set up to identify and harmonise the authentic data sources for the INSPIRE themes. The federal level takes part in:

- WG administrative units (AAPD, NGI))
- WG buildings (AAPD, NGI).

At European level, the AAPD and the NGI delegated experts to the following INSPIRE Drafting Teams in 2010-2012:

- DT Data-sharing (NGI)
- DT Administrative Regions (AAPD)

- DT Transport (NGI)
- DT Geographical Names (NGI)
- DT Buildings (AAPD)

Moreover, the NGI and the AAPD are active members of the organisation EuroGeographics, which brings together European mapping and cadastral agencies and which has the task: to further the development of the European Spatial Data Infrastructure through collaboration in the area of geographical information, including topographic information, cadastre and land information.

EuroGeographics has set up an INSPIRE expert group of which the NGI and AAPD are members. This group follows the developments of the Directive and the experts of the members can share their experiences with the implementation of the Directive.

In the context of the association, the NGI was an active partner in the project ESDIN 'European Spatial Data Infrastructure with a Best Practice Network', a project supported by the eContent+ programme. The ESDIN project was successfully implemented and finished on schedule at the end of February 2011 (see http://www.esdin.eu/. The NGI is now cooperating actively on the ELF project.

Between 2009 and 2011, the NGI played an active part in the ESDIN project (European Spatial Data Infrastructure Network), which was co-financed by the European programme eContent+ and the association EuroGeographics. The project was awarded a prize in 2012 at the Geospatial World Forum for the exemplary implementation of geospatial policy options and programmes. ESDIN constitutes a first step towards a European platform of the geographical and cadastral administrations, namely the drawing up of technical specifications for the data and services. See http://www.esdin.eu. The NGI is currently cooperation in a new project, the European Location Framework or ELF, which builds further on this by establishing its reference framework. The aim of the ELF project is therefore the implementation of this European platform, the anchor point and access to the geographical data and services of the geographical and cadastral administrations, a European platform which will be used by the European public and private sectors.

The AAPD is a member of the Permanent Committee on Cadastre in the European Union (PCC) http://www.eurocadastre.org/.

The NGI is a member of EuroSDR and has devoted itself in particular to the introduction of a repertory of the implementation methods of the Directive, based on the experiences of the Member States. Moreover, the NGI also devotes itself to other research and development projects of EuroSDR, which are associated with the new policies of the field and evolve as a result of the development of the spatial data infrastructure. We can mention, *inter alia*, the development of a high-quality reproduction of the content of the database, adapted for on-screen use.

The Belgian scientific policy (BELSPO) has mandated the NGI to represent Belgium in geographical matters within the SC-AGI (Standing Committee on Antarctic Geographic Information), one of the various standing committees of the SCAR (Scientific Committee for Antarctic Research). The SCAR coordinates the scientific activities in Antarctica and the SC-AGI does the same in the field of cartography and the control of the geographical information with a view to supporting the research in this unique continent.

The NGI (namely the General Administrator) was also designated as Belgian expert in the Committee of Experts on Global Geospatial Information Management which was set up by the United Nations (UN-GGIM). UN-GGIM wishes to encourage the Union Member States to develop high-quality geographical data infrastructures within the administration. In the context of the sustainability agenda, it was strongly emphasised that high-quality geographical government data make an essential contribution to developing a sustainable society.
The MUMM must represent Belgium in various inter-governmental conventions relating to the protection of the marine environment, including the preparation of the Belgian standpoints and the implementation of the decisions taken, under the authority of the Minister competent for the environmental policy.

Within the European Union too, various actions have been taken which have a direct or indirect influence on the quality of the marine environment. Others are still under discussion. In this respect, Water Framework Directive 2000/60/EC constitutes a new important factor in environmental policy with regard to the sea. During the Belgian Presidency (second half of 2001) the MUMM was responsible for a draft recommendation on the introduction of integrated management of the coastal areas in Europe, on which a political agreement was achieved at the Council of Environment Ministers on 29 October 2001.
The dossiers dealt with only relate very seldom to a single sector and in Belgium therefore require detailed consultation with the other competent federal departments and with the regions.
This occurs mainly within the 'North Sea and Oceans' Steering Committee of the Coordinating Committee on International Environmental Policy, of which MUMM holds the chair and provides the secretarial services. For the operational aspects, the coordination takes place under the Coastguard structure which was introduced by the cooperation agreement of 8 July 2005.
The BGD is a member of EuroGeoSurveys, an organisation which brings together 32 geological services of various countries in Europe. The statutory duties of this organisation include responding to European questions, the promotion of the contribution of geology to European affairs, supporting the EU in obtaining technical advice and forming a network between the geological institutes.

The activities of the BIRA in the four fields of expertise listed above take place:

- via scientific cooperation with Belgian partners (ULB, University of Liège);
- in the context of bilateral scientific projects with other countries (Canada, France);
- under the umbrella of international programmes which are set up or run by international organisations and agencies (ESA, Eumetsat, CE, WMO, UNEP).

In general, the data sets are produced and the accompanying services are developed with the context of these international associations.

Brussels administration

In the Brussels Capital Region, the measures to facilitate sharing are included in the Ordinance on access to the geographical information (public access to the data and services and sharing of data between public authorities). Via participation in the GeoBru Committee, a partnership has been formed between the public authorities and the institutions of general interest which are the most closely involved in the themes of the INSPIRE Directive. As soon as the GeoBru Committee is fully operational, there are also plans for an annual forum for sharing information between all the stakeholders concerned.

Walloon administration

Cooperation between the parties involved in InfraSIG is organised in Wallonia within the Strategic Committee on Geomatics (CSG) which was established by the Decree on the Infrastructure for Walloon geographical information (Decree of 22 December 2010 which transposes the INSPIRE Directive in Walloon law). The CSG is appointed by the Walloon Government, which approves its composition and determines its operation. It is being installed in the course of the first half of 2013.

The tasks of the Strategic Committee on Geomatics include the following:

- to present a draft strategic plan for geomatics;
- to coordinate all stakeholders, users and producers of geodata at all levels;
- to draw up proposals, on its own initiative or on the request of the Government, for the management and development of InfraSIG;
- to ensure that as far as possible, geodata and services created for the various needs are capitalised upon and reused by the users and producers of geodata;
- to ensure the (further) deepening of the cooperation between the public authorities and third parties producing geodata to integrate their data using standard methods;

- to promote the cooperation of all third parties who ask and for whom the infrastructure for geographical information is important;
- to propose mechanisms for the production of digital plans of the work carried out and in this way to contribute to the update of the geographical reference file and to mapping the underground networks;
- to ensure that the list of the geodata sets and services corresponding to Annexes I, II and III, as well as the online services covered by Article 10, §1 of the Decree on the Walloon infrastructure for geographical information, are updated annually;
- to forward the list referred to under the previous point to the INSPIRE unit, which is defined in the Decree on the Walloon infrastructure for geographical information.

Various working groups, which were set up in 2001, are continuing their activities. More specifically, this is the case of the WG metadata, the legal WG and the WG (geo)portal (http://geoportail.wallonie.be).

7.6 Access to services through the INSPIRE Geoportal

Article 13(e) a description of the access to the services through the Inspire geo-portal, as referred to in Article 15(2) of Directive 2007/2/EC

Flemish administration

The seven INSPIRE-compatible GDI view services are available to (non-)GDI Flanders participants and third parties according to this right of use:

Disclaimer

No rights can be inferred to the information offered via view service(s) of this kind. The AGIV accepts no liability for damage, of whatsoever nature, relating to the use of the view service or to the temporary impossibility to consult the view service. Equally, the AGIV is not liable for damage resulting from the use of information obtained by means of the view service.

The AGIV also accepts no liability for the content of websites referring to this view service.

This right of use can be changed without notice.

Intellectual property rights

The AGIV or (if the AGIV acts only as distributor) the responsible administrator retains all intellectual property rights (copyright) and other rights of the view service. It is therefore prohibited to copy, reproduce or process the data or to pass them on other than for personal, non-commercial use, without prior written consent from the AGIV or the responsible administrator.

Access and use for GDI Flanders participants

This view service is accessible free of charge to GDI Flanders participants with a view to performing tasks of general interest. Access to and use of this view service is regulated for participants of GDI Flanders by Flemish Government Decree.

The body is responsible for the lawful use of this view service and is required to take adequate and effective measures to prevent unlawful use of this view service.

Access and use for bodies which are non GDI Flanders participants

Applicable for: Belgian bodies as referred to in Article 3, 3°, of the Decree of 26 March 2004 on freedom of information, apart from the Flemish bodies within the meaning of Article 4, §1 of the Decree; the institutions and bodies of the European Union; any natural or legal person or

grouping thereof engaging in public administration activities according to the national law of one of the Member States.

Access to and the use of this geographical view service still as to be regulated for these bodies by Flemish Government Decree in the course of 2011. Pending this Decree, provision has been made for a right of use free of charge with a view to performing tasks of general interest.

The body is responsible for the lawful use of this view service and is required to take adequate and effective measures to prevent unlawful use of this view service.

Access and use for third parties

This view service is offered for the benefit of the GDI Flanders Cooperation and the European legislation on the development of a European infrastructure for spatial information (INSPIRE). The use of and access to this view service for natural persons and legal persons not belonging to the categories above was laid down in Article 33 of the GDI Decree. Under freedom of information, provision is made for public access free of charge to this view service for personal, non-commercial and test use.

Access and use for commercial (re)use

For the use of this view service for commercial purposes, an application must be made to the responsible administrator of this view service in which the applicant describes the intended commercial use of the view service. Depending on the intended commercial use, additional conditions of use and/or cost of provision may be imposed.

These services present data coming under the themes of the various Annexes to the INSPIRE Directive and are grouped in this way.

The metadata of the advisory services can be consulted via the following URLs:

-WMS 'Administrative units':
http://wms.agiv.be/inspire/wms/administratieve_eenheden?service=wms&request=getcapabilities&version=1.3.0;
- WMS 'Addresses':
http://wms.agiv.be/inspire/wms/adressen?service=wms&request=getcapabilities&version=1.3.0;
- WMS 'Protected sites':
http://wms.agiv.be/inspire/wms/beschermde_gebieden?service=wms&request=getcapabilities&version=1.3.0;
- WMS 'Land use':
http://wms.agiv.be/inspire/wms/bodemgebruik?service=wms&request=getcapabilities&version=1.3.0; -
WMS 'Hydrography':
http://wms.agiv.be/inspire/wms/hydrografie?service=wms&request=getcapabilities&version=1.3.0;
- WMS 'Orthoimagery':
http://wms.agiv.be/inspire/wms/orthobeeldvorming?service=wms&request=getcapabilities&version=1.3.0;
- WMS 'Elevation':
http://wms.agiv.be/inspire/wms/hoogte?service=wms&request=getcapabilities&version=1.3.0.
- WMS 'Medium-scale orthophoto mosaic, Flanders, winter photos, most recent':
http://wms.agiv.be/ogc/wms/omkl?service=wms&request=getcapabilities&version=1.3.0

8 Usage of the infrastructure for spatial information (Article 14)

Brussels administration

Since the Brussels Capital Region is still at the starting phase of the development of its infrastructure, no information can yet be given on this subject.

8.1 Use of spatial data services in the SDI

Article 14(a) the use of the spatial data services of the infrastructure for spatial information, taking into account the general and specific indicators

This could include an explanation of how this information was collected, and how it should be interpreted/understood.

Flemish administration

Methodology

When counting the service requests, no distinction is drawn between public service requests, service requests from a public authority and internal service requests. For a number of spatial data services, the service requests have not yet been registered, or not appropriately. As a result, statistics are missing and some values are (incorrectly) zero. As a result, the actual usage figure is higher than the figure in the monitoring table.

General

The 37 spatial data services of which usage is logged together had to process more than 130 million (130 216 666) service requests in 2012. The most sought-after service is the addresses service (WS-CRAB) with over 114 million service requests. In general, there has been a clear rise in the use of services in recent years.

Discovery services

The central discovery service (CSW) was consulted 527 times in 2012. This figure is quite low since the AGIV has its own metadata application which the CSW at present does not yet draw on, but consults the database directly. The CSW figure for DOV (Databank Underground Flanders) (over 1 million) is attributable to the fact that the DOV application makes use of its own discovery service. These values are therefore not comparable.

View services

The total number of service requests for the 29 logged view services for the year 2012 exceeds 14 million (14 117 712). This is a combination of WMSs and other view services which are not network services (spatial data services).

View services of the local authorities which are not linked to the Flemish geoportal were not taken into account.

Download services

In 2012, more than 54 000 data sets were downloaded via the central delivery service of the AGIV (Geographical Information Retrieval Application for Flanders - GIRAF), the download application of the AGIV and the 'DOV INSPIRE download service – test version in the context of GSSoil'. There is a rising trend here. The data sets are supplied via ftp or a download service.

Transformation services

At the end of 2012, no transformation services were operational yet.

Invoke services

At the end of 2012, there was one service which possibly can be considered operational as an invoke service with regard to viewing. This is WS-CRAB, or a service which draws on the central addresses database. This service attracted more than 114 million hits.

Federal administration

Within the federal administration, it was difficult for the listed spatial data services to refer to an INSPIRE theme as defined in the Directive, as only a few give direct access to the series of reference data summarised in the monitoring.
Most of the geographical data services referred to give access to products which are derived from these series of geographical data which are classified in the INSPIRE themes, such as the grid maps or topographical plans, analysis reports, statistics, newsletters, explanatory brochures, specifications, as well as search modules to obtain access to this information.

Within the NGI, the discovery and view services were implemented in accordance with INSPIRE. These services are still at the prototype stage and were not yet made accessible to the public. A download service is being developed.

The services which are currently available to the public are:

- a discovery service giving access to INSPIRE-conform metadata of the NGI vector products http://metadata.ngi.be/metadata/
- a discovery service giving access to the metadata of all NGI products (Mercator) http://mercator.belgie.be/explorer.jsp
- a view service (TopoMapViewer) which allows viewing of the series of NGI topographical maps of http://www.ngi.be/topomapviewer/public
- other geographic data services giving access to the data specifications for the NGI (gdes), to the networks of permanent GPS stations (agn), to the geodetic documentation, to the historical maps (virtual expo).

At AAPD level, there are currently two view services for the themes ‘cadastral parcels’ and ‘administrative units’ available via:

- http://ccff02.minfin.fgov.be/cadgisWMS/CP_CadastralParcels/MapServer/WMSServer?request=GetCapabilities&service=WMS

- http://ccff02.minfin.fgov.be/cadgisWMS/AU_AdministrativeUnits/MapServer/WMSServer?request=GetCapabilities&service=WMS

A few statistics:

- WMS Administrative Units: +/- 12 000 requests/month
- WMS Cadastral Parcels: +/- 14 000 requests/month

There is also a discovery service available at the following address:
http://ccff02.minfin.fgov.be/geoportalext/csw/discovery?Request=GetCapabilities&Service=CSW&Version=2.0.2

Walloon administration

In Wallonia, the spatial data services are performed at the level of the operational directorate-generals responsible for agriculture, natural resources, environment, planning and horizontally at the level of the Walloon infrastructure.

The so-called ‘professional’ applications, i.e. WMS services and WebGIS applications, allowing viewing and downloading of the following spatial data: PICC (projet informatique de cartographie continue – continuous mapping IT project), orthophotos (2006-2007), waterways and natural heritage.

Other applications with the help of secured WebGIS services focus on environmental themes.

8.2 Use of the spatial datasets

Article 14(b) the use of spatial data sets corresponding to the themes listed in Annexes I, II and III to Directive 2007/2/EC by public authorities, with particular attention to good examples in the field of environmental policy

Flemish administration

Flemish public authorities can download geographical data by means of the AGIV download application. The number of downloads refers to the number of transfers of data to users. The data are compiled under the annual INSPIRE monitoring. In 2011, there were 30 083 downloads, compared to 6 683 in 2010. This refers exclusively to data downloaded from the AGIV website and more specifically by the download application and GIRAF.

In 2012, there were 1 929 downloads via GIRAF and 29 269 downloads via the AGIV download application.

The Agentschap Ondernemen (Enterprise Flanders) received 72 queries from public authorities in the period 2010-2012.

Federal administration

Within the federal administration, and more specifically concerning the AAPD, the parcel plan currently also serves as a basis on which the tax, urban development, legal and other information is grafted which is necessary to determine the characteristics of built-up and undeveloped immovable property. The most important task of the AAPD is to provide legal certainty concerning the patrimonial data at its disposal. Under this assignment, a major role is reserved for the cadastral plan. The AADP data are used by the regions for energy audits of buildings. There are also agreements with the surveyors, notaries and estate agents.

The NGI has the key task of providing aerial photographic coverage and of setting up topographical databases of the national territory and of producing the series of maps derived from this. The key product is therefore the topographical map. The NGI produces its maps on the basis of vector databases at the scales of 1:10 000 (Top10v-Gis), 1:50 000 (Top50v-Gis) and 1:250 000(Top250v-Gis). The NGI is engaged in a review of its production chain and the content of its databases in order to be able to respond better to the needs of a new market which is oriented more towards services and applications. The NGI wishes to profile itself as the holder of medium-scale (10 000-250 000) topographical reference data which relate primarily to the themes of Annexes I and II.

The federal organisations participate in a number of projects and are members of European associations, in which they play a very active role. A few examples:

The NGI produces for the Belgian and Luxemburg territory in the context of EuroGeographics for the administrative units at a scale of 1:10 000 (EuroBoundaryMap), for the topographical data at a scale of 1:250 000 (EuroRegionalmap) and at a scale of 1:1 000 000 (EuroGlobalMap), which must cover the European territory.

The EuroGlobalMap data covering the European territory have been made accessible as open data via a download service http://www.eurogeographics.org/form/topographic- data-eurogeographics.

These data are used by the EU (GISCO-Eurostat) and by the European Environment Agency (EEA).

The NGI also supplies data for the Corine Land Cover project of the European Environment Agency (EEA). The NGI is also the point of contact and coordinator of a working group with the Regions to provide high-resolution Corine Landcover data.

The MUMM cooperates in a large number of international projects and makes its data available relating to its services, such as Seadatanet (Pan-European Infrastructure for Ocean and Data Marine Management) and on MyOcean, the implementation of the GMES Marine Core Service.

Walloon administration

All Walloon authorities are registered at SPW, have access to the series of geographical data as a whole, even where the composition of data sets does not necessarily correspond to the classification in themes as listed in the Annexes to the Directive.

8.3 Use of the SDI by the general public

Article 14(c) if available, evidence showing the use of the infrastructure for spatial information by the general public

Flemish administration

Use of Flemish geographical information by the general public occurs mainly via electronic Internet services or 'geo-services'. They are combined by the AGIV as far as possible on the Flemish geoportal 'Geo-Vlaanderen'. In 2012, AGIV worked on the development of a new geoportal 'geopunt.be'. A beta version of the new GDI Flanders geo-service was launched in November 2012. The release of the first production version is planned for November 2013.

In 2012, there were 2 151 267 hits via a Geo-service, compared to 2 356 108 in 2011. Topics relating to spatial planning or the sale of real estate (regional plans, spatial implementation plans and pre-emptive rights), data sets of Databank Underground Flanders and water issues (flood maps and water evaluation) are often consulted. The aerial photos and the street guide are also frequently examined.

Source: INSPIRE monitoring table 2011, INSPIRE monitoring table 2012

Geo-service	Hits 2011	Hits 2012
Regional plan	592 392	525 000
Databank Underground Flanders	282 506	355 600
Water assessment and flood maps	225 924	230 000
Medium-scale colour orthophotos	237 156	212 900
Street guide	256 381	199 000
Pre-emptive rights (RVV)	262 894	135 426
Regional spatial implementation plans (contours)	98 136	108 318
Soil map	74 514	74 166
Large-scale Reference Database (GRB)	46 915	60 810
Flemish Hydrographic Atlas (VHA)	54 300	42 378
Natura 2000	37 326	37 056
Biological evaluation map	47 115	31 620
Flemish Ecological Network (VEN) and IVON	31 896	30 918
Forest mapping and forests	27 816	27 564
Digital Elevation Model (DHM) Flanders	24 972	27 336
Industrial estates	19 056	16 692
Fertilisation areas, situation 1/1/2006	15 222	14 856
Water quality	10 500	10 900

Air monitoring network	4 975	4 975
Flemish Positioning Service (FLEPOS): geometric points	5 500	4 900
Government buildings	612	852
Seveso establishments Flanders	No data	0
Noise pollution map	No data	0
View service	**Hits 2011**	**Hits 2012**
Orthoimagery	850 000	6 269 000
DOV INSPIRE View Service	500 000	2 826 549
Administrative units	850 000	2 000 000
Addresses	850 000	290 000
Hydrography	850 000	284 544
Elevation	850 000	159 000
Protected sites	850 000	131 352
Land use	850 000	6 000
MercatorNet view services	No data	0
River Information Services (RIS)	No data	0
Other services	**Hits 2011**	**Hits 2012**
WS-CRAB	9 227 300	114 802 695
FLEPOS	119 080	125 034

73% of the INSPIRE data sets are accessible to the public (can be viewed and downloaded). For the INSPIRE data sets, it is expected that 87% will be accessible to the public by the end of 2013.

Mercatornet: the publication environment of MercatorNet is responsible for opening up data sources outside the cooperative association. This environment is open to the public and no distinction is drawn between target groups. So far, no requests for reuse have been recorded.

Number of hits:

year	network services
2010	No services available
2011	No services available
2012	CSW, WMS, WFS operational in accordance with INSPIRE since end-2012 – no monitoring results available yet

The Nature and Forest Agency has received 1 concrete request for reuse from a building firm for

- areas with pre-emptive right, nature reserves
- VEN (Flemish Ecological Network) and IVON (integral connection and supporting network) areas
- Habitats Directive areas
- Birds Directive areas

Databank Underground Flanders:

Number of hits:

year	DOV website/Internet viewer	network services
2010	232 038	No services available

2011	282 506	250 000 (discovery service - CSW)

		500 000 (view service - WMS) 0 (download service – WFS)
2012	355 600	1 114 595 (view service - CSW) 2 826 549 (view service - WMS) 23 318 (download service – WFS)

The Agentschap Ondernemen (Flanders Enterprise) received 43 questions for reuse of its data sets (22 commercial and 21 non-commercial).

Federal administration

Within the federal administration, the NGI is known for the products derived from the databases, more specifically for its maps, and its excellence in cartography. The cartographic data are much used by the general public, both on paper and digitally.

Topomapviewer is a free Internet application, which was built and developed by the NGI and which enables the general public to surf most of our sets with grid data (maps on the basis of our data at the scale of 1:250 000 to 1:10 000, black-and-white and colour orthophotos)
see: http://www.ngi.be/topomapviewer/public.

The NGI is also developing Cartoweb, an INSPIRE-compliant tiled WMS, to make available the most recent NGI data in symbols specially adapted for on-screen use.

The NGI data are often used as background reference in the services which are being developed at federal and regional level for the general public. The sites providing access to the Natura2000 sites used the symbolised data of the NGI as background.

The AAPD cadastral plans data are also often used as background map for the general public.

In 2012, the General Administration of Patrimonial Documentation (AAPD) placed its tool for the publication of the cadastral parcel plan online (currently about 340 000 requests/month). The user can now surface at will on the plan or search for a specific parcel per address or per parcel number. In addition to the usual possibilities of cartographic functions (measurements, identification, etc.), he can also print part of the plan.

Access is possible in two ways: public access, naturally limited by compliance with the Protection of Privacy Act, and preferential access for citizens who have an electronic identity card.

Each owner can now view his patrimonial data with his electronic identity card or with a token for citizens, both at the level of the plan and at that of the information from the cadastral register. For this, it suffices to surf to www.myminfin.be and to click on the heading ‘Patrimonium’ of one’s personal file.

Moreover, the citizen needs an extract from the cadastral register or from the plan for administrative formalities (building permit, reduction of registration fees, etc.) or for the purchase of immovable property or in the neighbourhood context, which only the AAPD may deliver.

The CADGIS application offers users the possibility to request an extract from the plan online. It contains all necessary information to obtain the official extract but also the conditions for the delivery thereof. With the secure connection (via the electronic identity card), it is possible to affix a digital signature on the application, after which it is dealt with by the competent services of the Patrimonium documentation until the requested document is delivered.

Walloon administration

Until February 2013, the date of the launch of the new Walloon geoportal 'Géoportail de la Wallonie', the Walloon geoportal was constructed from several websites.

The analysis period chosen for the gathering of information extends from the beginning of October until the end of November 2012.

The statistics of overall consultation of cartographie.wallonie.be show that in the month of November 2012, there were 11 090 individual visitors for 17 668 visits (which therefore boils down to 1.59 visits per individual visitor) and that 166 284 pages were viewed (or 6.59 pages per visit).

The main reasons for access to the geoportal can be quantified based on the keywords sought on various web search engines used by visitors to the site cartographie.wallonie.be. See the main search terms below:

2 950 phrases clé différentes	Recherche	Pourcentage
cartographie wallonie	**412**	**4.9 %**
cartographie	311	3.7 %
cartographie région wallonne	227	2.7 %
portail cartographique	226	2.7 %
aléa d inondation	**159**	**1.9 %**
zone inondable	111	1.3 %
Picc	**111**	**1.3 %**
Dgatlp	**88**	**1 %**
plan de secteur	**80**	**0.9 %**
aléa inondation	67	0.8 %
carto wallonie	64	0.7 %
plan cadastral	**54**	**0.6 %**
carte wallonie	**54**	**0.6 %**
portail cartographique de la région wallonne	48	0.5 %
zone inondable wallonie	47	0.5 %
spw namur	**47**	**0.5 %**
région wallonne cartographie	40	0.4 %
plan cadastre wallonie	39	0.4 %
cartographie region wallone	39	0.4 %
plan de secteur wallonie	38	0.4 %
carte région wallonne	37	0.4 %
cartographie wallonie plan de secteur	35	0.4 %
portail carto	34	0.4 %
cadastre wallonie	33	0.3 %
cartographie.wallonie.be	33	0.3 %
ppnc	**32**	**0.3 %**
zones inondables	31	0.3 %
région wallonne urbanisme	**29**	**0.3 %**
erruissol	**28**	**0.3 %**
plan picc	28	0.3 %
picc wallonie	27	0.3 %

8.4 Cross-border usage

Article 14(d) examples of cross-border use and efforts made to improve cross-border consistency of spatial data sets corresponding to the themes listed in Annexes I, II and III to Directive 2007/2/EC

Flemish administration

No information is available concerning cross-border usage of GDI data sources or services.

Federal administration

As far as the federal administration is concerned, the NGI has already been cooperating for several sister organisations from neighbouring countries to be able to offer cross-border information. The associated agreement are currently being reviewed to be able to respond to technological changes.

The NGI is a member of a working group consisting of the cartographical organisations of the 'Saar-Lor-Lux' Group, which reinforces interregional cooperation between Saarland, Rhineland-Palatinate, Lorraine, Luxembourg and Wallonia. This territory of over 65 000 km² has a population of over 11 million. The working group to which the NGI belongs is one of the many working groups operating in the 'Saar-Lor-Lux' Group which devote themselves to cross-border cooperation and report to the Commission on their work. The activities of this working group currently relate more specifically to the preparation of a GIS portal for the 'Saar-Lor-Lux' Group and geographical data-sharing agreements between the competent bodies of the neighbouring countries.

Within the ESDIN project, the NGI has chaired a working group for the introduction of specifications and recommendations for the administration of the connection between cross-border vector data and therefore between data sets.

In the EuroGeographics context, the NGI and the AAPD are administrators of the production of basic data ensuring the harmonisation and continuity of data at the national borders.

The AAPD is leader of a project (State Boundaries of Europe) for the creation of a data set on the boundary posts recognised by the countries. This State Boundaries of Europe database contains geographical data (coordinates of boundary posts (points), polylines, etc.) and descriptive data (references to the original treaties, reference documents, point of contact, description of the boundary posts, etc.) and will allow the breaks and variations at the national border to be reduced and in this way improve the quality of the national and pan-European cartographic products.

At present, a database with the national boundaries, recognised by the European countries, is available at scale 1:100 000 – 1:250 000. These boundaries are used mainly for perfect coverage by the vector data, EuroBoundaryMap and EuroRegionalMap.

In this context, an edge-matching procedure was introduced at the borders which will be used by all European countries. the immediate consequence for Belgium is that the vector data at scale 1:250 000 (Top250v-Gis) are linked up at the borders with the data of its neighbouring countries.

Walloon administration

In Wallonia, coordination activities have been carried out with the Flemish Region and at the level of the international river committees for the implementation of the Water Framework Directive.

8.5 Use of transformation services

Article 14(e) how transformation services are used to achieve data interoperability

Flemish administration

No transformation services are operational yet. No information is available concerning the use of transformation services offered by non-participants.

Federal administration

Within the federal administration, the NGI makes a service available free of charge via its site with which the national coordinates systems (Lambert 72 and Lambert 2008) can be converted. The NGI currently has no plans to introduce transformation services for data schemas, in accordance with INSPIRE.

Walloon administration

Services for coordinate conversions are used for the coordination work between the partners of the n de partners van de river committees (France, Luxembourg, Belgium, Germany and the Netherlands) for the implementation of the Water Framework Directive.

9 Data-sharing arrangements (Art.15)

9.1 Data-sharing arrangements between public authorities

Article 15(a) an overview of data-sharing arrangements that have been, or are being, created between public authorities

Flemish administration

All Flemish public authorities are required by decree to contribute their geographical data to the GDI.[14] The AGIV, on behalf of the cooperative association, has concluded user agreements with federal public authorities concerning cadastral plans and topographical maps.

The agriculture and fisheries policy area has an agreement with the National Geographic Institute for the use of aerial photos and topographical map in exchange for making available the ALV agricultural use parcels.

The Nature and Forestry Agency has a paying use agreement with the National Geographic Institute for specific purposes. For the period 2010-2012: EUR 1 080 (EUR 360 per year).

Databank Underground Flanders has an NGI Internet licence: EUR 3 195 per year, which gives entitlement to publish topographical map 1/10 000 and topographical map 1/100 000 in both colour and black-and-white.

Federal administration

The following arrangements are applicable for the federal administration:

- AAPD: Agreements with the regions and the provinces: the regions each year receive the digital cadastral parcel plan of their territory.

- AAPD: Agreements with the municipalities: the municipalities each year receive the cadastral parcel plan of their territory. Apart from the digital files, the municipalities each year receive a paper version of all sheets of the plan covering their territory.

- Agreement between AAPD and NGI in the context of the development of a federal platform for geographical information (6/07/2004)

- Agreement between FPS Finance (AAPD), NGI and FPS Economy – Directorate-General Statistics and Economic Information, in the context of the development of cooperation in the field of patrimonial, geographical, statistical, socio-economic, legal and tax information (9/09/2008).

- Agreement between AAPD and FPS Economy, SMEs, Self-employed and Energy - Directorate-General Statistics and Economic Information for sharing information concerning the addresses and the statistical sectors.

- Protocol on cooperation concerning sharing of topographical data between the General Administration of Patrimonial Documentation, Federal Public Service Finance and ELIA SYSTEM OPERATO NV (18/09/2007).

[14] The Decree of 20 February 2009 on the Geographical Data Infrastructure of Flanders (GDI Decree).

- Protocol on cooperation concerning sharing of topographical data between the General Administration of Patrimonial Documentation, Federal Public Service Finance and FLUXYS N.V. (31/08/2007)

- Protocol on cooperation on the making available of geographical information between the General Administration of Patrimonial Documentation (AAPD), the Federal Public Service Finance and non-profit association 'Federaal Kabels en Leidingen Informatie Meldpunt' (KLIM) (21/05/2008)

- Protocol on cooperation concerning sharing of topographical data between the General Administration of Patrimonial Documentation, Federal Public Service Finance and Société wallonne des eaux (SWDE.) (13/10/2008)

- Protocol on cooperation and sharing of topographical data between on the one hand the General Administration of Patrimonial Documentation – Federal Public Service Finance – and on the other hand N.M.B.S., Holding N.M.B.S. and Infrabel (01/09/2010)

- Agreement between the Directorate-General Statistics and Economic Information of FPS Economy, SMEs, Self-employed and Energy, and the General Administration of Patrimonial Documentation of the FPS concerning the DSECR database (27/07/2011)

- Agreement to communicate numerical cadastral data between Federal Public Service Finance, the General Administration of Patrimonial Documentation (AGDP) and Federal Public Service Home Affairs, Directorate-General for Civil Security (ADCV) (15/06/2012)

- Preparation of the Agreement on the Authentic Source BestAddress. Sharing of information between the administrator of the authentic source and the partners.

- NGI – various public customers: In the context of its policy on data distribution, the NGI has concluded contracts with various public institutions authorising the use of the NGI reference data. The list below contain some of the agreements referred to, where the agreement contains more than merely making available on the basis of standard licences.

- NGI: Agreement with Flemish Region concerning data-sharing.

- NGI: Agreement with Walloon Region concerning the creation of a geographical information structure.

- NGI: Agreement with Brussels Capital Region concerning geographical information.

- NGI : Agreement with the French Community: dissemination of map excerpts on the website.

- NGI: Agreement NGI/Royal Library, General State Archives/Royal Museum for Central Africa: concerning the Cartesius project.

- Agreement NGI/ Royal Museum for Central Africa/Royal Observatory of Belgium concerning digital access to aerial and astrophotographic archives.

- NGI Agreement with INFRABEL (administrator of the railway network) on the geographical data concerning the railway network.

- NGI: Agreement with ASTRID concerning the updating of the information in the ASTRID cartographic database.

- NGI: Agreement with Elia concerning a national-scale map of the above-ground current supply lines.

- NGI: Agreement with Belgocontrol concerning studies on photogrammetry and the measurement of obstacles to aviation around airports.

- NGI Agreement with the Minister for Defence in the context of the five-year contract for cartographical production, on the making available of NGI data in the NATO context.

- NGI – Flemish Region: agreement in preparation for the regulation of the cooperation for the devising of medium-scale reference information on the road network.

Brussels administration

In the Brussels Capital Region, sharing data between public authorities is regulated by the Ordinance on geographical information. So far, sharing data has taken place mainly via personal contacts or via special agreements which were concluded to regulate the use and dissemination of the data transferred. However, the gradual addition of content to the Brussels geoportal is gradually making sharing easier, via the opening up and making available of the metadata and, in parallel to this, the introduction of various WMS and WFS by the institutions concerned.

Walloon administration

Since 2002 already, Wallonia has concluded agreements for cooperation and data-sharing with the federal administration: the NGI and the FPS Finance (AAPD).

All public authorities may use the geographical data produced by the SPW, on the basis of a simple licence which specifies the rights and limits of use.

9.2 Data-sharing arrangements between public authorities and Community institutions and bodies

Article 15(b) an overview of data-sharing arrangements that have been, or are being, created between public authorities and Community institutions and bodies, including examples of data-sharing arrangements for a particular spatial data set

Flemish administration

No agreements have yet been concluded with European Community institutions and bodies.

Federal administration

In the context of the association EuroGeographics:

- the NGI and the AAPD have concluded an agreement whereby the European Environment Agency is granted free access to their data for the GMES Emergency Management Service.

- the NGI assumes the role of production manager for the EuroRegionalMap data at European level.

- the NGI has concluded an agreement offering free access to the EuroGlobalMap for its territory.

- the AAPD has committed to providing data for SBE (State Boundaries of Europe).

In the context of the production of the Corine Landcover data set at high resolution (project CLC2012), Belgium has the land cover data collected at federal and regional levels which serve as reference data for the validation and updating of CLC2012. The CLC2012 data set produced by Belgium will be available at the European Environment Agency (EEA). For this project, a cooperation agreement was drawn up between the NGI and the regions: AGIV (Flemish Geographical Information Agency), SPW (Service Public de Wallonie) and CIRB/CIBG (IT Centre for the Brussels Capital Region) and IBGE/BIM (Brussels Institute for the management of the environment). The NGI coordinates the cooperation.

Brussels administration

Sharing between the Brussels public authorities and the European Union institutions takes place mainly indirectly, via the reporting (compulsory or not) which is coordinated by a Belgian institution (NKP Leefmilieu, NIS, etc.). It therefore relates primarily to statistics or environmental data.

Walloon administration

In Wallonia, no agreements at all have been concluded with the European Union institutions and bodies.

9.3 Barriers to the sharing and the actions taken to overcome them

Article 15(c) a list of barriers to the sharing of spatial data sets and services between public authorities and between public authorities and the Community institutions and bodies, as well as a description of the actions which are taken to overcome those barriers

Flemish administration

The opening up of a number of data sources is still not optimum. Some data sources are not yet opened up via network services. Data sources which are updated daily cannot yet be downloaded online. This problem will be tackled, *inter alia*, with the establishment of (middleware) services.

A third of both the INSPIRE data sets and the non-INSPIRE data sets (60 of the 182 data sets) have not yet been added to the GDI. This means that these data are not available in accordance with the regulation of access and use under the GDI Decree for use for government tasks.

Bottlenecks:

- The obligation and the procedure for adding to the GDI is insufficiently known.
- It is unclear for many participants whether and by whom support is offered for addition to the GDI.
- The knowledge of the data policy (data-sharing) which is necessary for this, is often lacking among the entities concerned.
- Addition to the GDI is not a priority.
- Some entities are reticent about sharing their data with other public authorities.
- For some data sets, sensitivity to privacy is a bottleneck, the right of ownership must be explained or (international) agreements play a role.

The following actions are planned:

- The AGIV, MercatorNet and DAB Informatie will guide participants in adding their data sets to the GDI. In addition, there are also thematic pivots around tourist information (Flemish Tourism) and the underground (Databank Underground Flanders).

Federal administration

At federal level, the budget is the problematic factor. Already for several years, there have been strict budgetary restrictions, with the consequence of limited possibilities for new developments. On the other hand, it is at present very difficult to change the financing mechanism with regard to the compilation and updating of geographical information. The mechanisms tend to be based more on the use of geodata than on the actual production costs.

During the budget control 2012 and the preparation of the budget 2013, the Federal Government made a considerable effort by making a budget of EUR 3.3 million available for the NGI and EUR 720 000 for the AAPD. For 2014 and beyond, this decision has to be put into more concrete terms. These funds serve both to be able to comply with the obligations concerning availability of INSPIRE-compliant data and for the development of the spatial information infrastructure at federal level and the role of 'geo-broker' imposed on the NGI by the INSPIRE Act. With these funds, the federal effort for the INSPIRE Directive will be able to change into a higher gear.

Brussels administration

There are various possibilities at the level of the Brussels Capital Region:

- Concerning the communication on and sharing of data: a gradual improvement has been observed here as a result of the introduction of the Ordinance transposing the INSPIRE Directive and of the Brussels geoportal. The institutions concerned have introduced various WMS and WFS in parallel to this.

- The budget: the production of quality data and the introduction of the INSPIRE Directive require considerable funds, which is not obvious in times of economising… However, new funds have been earmarked and the sharing of the efforts thanks to the GeoBru Committee allow some economies of scale.

- The motivation and involvement of other stakeholders (institutional, political, etc.): the INSPIRE Directive is often considered as difficult to understand and reserved for technicians. Since at present no publicity is being organised concerning the Ordinance because the geoportal is not yet fully operational, the other possible authentic sources are ill-inclined to disseminate their metadata and data. The GeoBru Committee is of the opinion that the dissemination of the Brussels geoportal and suitable communication will make it possible to put things into tangible form. Extra attention has been paid to the ergonomics of the geoportal and to the formulation of the information referred to in it.

- A lack of technical experts for the introduction of INSPIRE, in each institution, more specifically to make the data sets compliant. Is it necessary to consider greater involvement and specific training?

- A lack of clarity about how the EU uses the metadata made available: how and when does the EU collect the metadata? How does the search engine of the European site work?
  For information, a search on 19 March 2013 in the European INSPIRE catalogue with the search tool for 'data sets and dataset series' yielded the following results:
  - 'bruxelles' gives no hits / 'Bruxelles' gives 15
  - 'bruxellois' gives 4 hits / 'Bruxellois' gives none
  - 'Brussel' gives 84 hits / 'Brussels' gives 8.
  - 'Région bruxelloise' gives 9 hits (as does 'bruxelloise') / 'Région Bruxelloise' gives 18 (as does 'Bruxelloise')
  - 'Région' gives 120 hits / 'Régions' gives 99 / 'Region' gives 109 / 'region' gives 40 / 'regions' gives 29 938.

  A clear and reliable reply to these questions should allow certainty to be obtained that the subject of the Brussels geoportal provides a coherent and correct inventory of the Brussels data on the European site.

Walloon administration

In Wallonia, the accessibility of the data is still an obstacle. Many data are available and are disseminated, but usually in the form of a copy on a digital medium and still very little via services.

Within the Walloon administration, there are still some directorates or departments which are hesitant about the dissemination of the data they produce or administer.

10 Cost / Benefit aspects (Article 16)

10.1 Costs resulting from implementing INSPIRE Directive

Article 16(a) requires an estimate of the costs resulting from the implementation of Directive 2007/2/EC for the period 2010-2012.

In order to facilitate correct understanding of the report, please indicate what is included in the estimation of costs (e.g. hardware, software, staff time) and how you have approached the estimation (e.g. indicate what proportion of the costs are attributed to INSPIRE or related initiatives such as eGov).

Please indicate either monetary costs (e.g. on hardware or staff) and/or staff time (days, months).

Flemish administration

For Flanders, a distinction is made between costs incurred by the AGIV, the coordinator of the Flemish GDI, for DOV and MercatorNet, intermediate nodes of the GDI, and where possible also the costs incurred by individual data administrators. The actual costs are even greater than the costs indicated in the report because not all bodies were able to provide statistical material. Also it is often not possible to draw a distinction between the costs of the implementation of INSPIRE and the costs which would be incurred in connection with the development of the regional SDI and the administration and opening up of geographical data.

Flemish administration
IT Infrastructure *(Hardware and core software components)*

Set-up costs

Maintenance (yearly costs)

For AGIV:

The historical set-up cost for a server amounted to 1 man day for the infrastructure (Hyper-V server) and on average 2 man days for the installation and configuration of the necessary software. An internal hyper-V server costs the AGIV on average EUR 1200 per year (depending on storage, cpu and RAM memory), the licence costs for the software used are settled in a universal licence concluded by the AGIV (Microsoft licences) or by the Flemish Administration (ESRI licences). For metadata and tile services (TMS, WMTS), use is made of open source, for which there is no licence cost.

AGIV GDI Infrastructure				
Service	**Infrastructure**	**Internal management (md)**	**External management (md)**	**Total cost (EUR/year)**
Load balancing	2 servers	6		4 080
Metadata	2 servers	10		5 200
View services: WMS	2 servers	40		13 600
View services: WMTS, TMS	5 servers (2 LB + 3 Tile servers)		40	120 000
Test environment	2 servers	6		4 080
Beta environment	2 servers	6		4 080
Total		**68**	**40**	**151 040**

For Mercatornet:

Set-up costs:
2011: infrastructure for POC's: internal FTEs: 10 MD – external FTEs: 20 MD
2012: infrastructure for public development, testing and production environment at ACD

- *Deployment of internal and external FTEs of ACD: 10 MD*
- *Support from MercatorNet development team (external FTEs)*

Row labels	Total time spent (d)
1 - costs to set up IT infrastructure	13
Grand total	**13**

Maintenance (annual costs)*:*
*2012: EUR 100 per server per month (2 for geo-network, 2 for geo-server, 1 for data engine, 2 for sesam)*3 environments = EUR 8 400 per year*

For Databank Underground Flanders:
Deployment of DOV development team (external FTEs)

Row labels	Total time spent (d)
5 - coordination	9.21
Grand total	**9.21**

Deployment of internal staff: 10 MD

Set-up costs:
Set up development, test and production environment at ACD (deployment of internal and external FTEs)

Row labels	Total time spent (d)
1 - costs to set up IT infrastructure	17.75
Grand total	**17.75**

Support from DOV development team (external FTEs)

Row labels	Total time spent (d)
1 - costs to set up IT infrastructure	10.59
1 - maintenance IT infrastructure	0.50
Grand total	**11.09**

Maintenance (annual costs)*:*
*EUR 100 per server per month (2 for geo-network, 2 for geo-server, 1 for data engine, 2 for sesam)*3 environments = EUR 8 400*

For the Nature and Forestry Agency: 100 man days were taken into account for the period 2010-2012. ANB has its own infrastructure; no costs were incurred there that would not have been incurred without INSPIRE. To comply with INSPIRE, use is made of Mercator(Net) infrastructure via MercatorNet cooperation agreement.

For Enterprise Flanders: EUR 213 100 for the period 2010-2012.

Flemish administration
Metadata *for data and services falling under INSPIRE Directive and that are indicated in the Monitoring Tables*

Set-up costs (one-off costs)

Software (adapting software, creating new software, setting catalogues)

Production

Creation of metadata for discovery
Creation of metadata for evaluation and use (new metadata elements required by Data Specifications Implementing Rules)
Testing for compliance
Participation of national experts into INSPIRE development process

Maintenance (recurrent yearly costs)

Software (adapting software, creating new software, setting catalogues)

Production

Maintenance of metadata for discovery MD
Maintenance of MD for evaluation and use
Testing for compliance

For AGIV:

The development of an ISO-compliant metadatabase, which can be viewed and edited online cost about EUR 210 000. The additional development of a metadata catalogue service, with which the metadatabase can be opened up via the Commission's Geoportal, is estimated at EUR 105 000. An additional development concerning metadata for services is estimated at EUR 130 000.

For the set-up and maintenance of the metadata, the Geo-network metadata node and possible internal consultation, an annual cost is assumed of:

- 20 man days or EUR 5 600 for the deployment of internal staff
- 20 man days or EUR 19 360 for the deployment of external consultants.

For Mercatornet:
2010: metadata preliminary study: EUR 25 000
2011: POC: internal FTEs 10 MD – external FTEs 10 MD
2012: deployment of MercatorNet development team (external FTEs) (more extensive than INSPIRE > 50% to be taken into account)

Row labels	Total time spent (d)
2 - costs of creation of metadata	9
2 - costs of installation CSW	10
Grand total	**19**

2012: Deployment of internal staff (INSPIRE)

- Creation of metadata: 3 MD

For Databank Underground Flanders:
Deployment of DOV development team (external FTEs)

Row labels	Total time spent (d)
2 - creation of metadata	0.69
2 - costs of installation CSW	8.54
2 - maintenance CSW	7.25
2 - compliance tests	6.66
Grand total	**23.14**

Deployment of internal staff

- Internal preparation/accustomisation to standards: 20 MD
- Creation of metadata: 167*1 @ 0.5 hours > 15 MD

Updating of metadata: 5 MD

Flemish administration

Data interoperability/harmonisation *for data falling under INSPIRE Directive and that are indicated in the Monitoring Tables*

Set-up costs (one-off)

Development (mapping of concepts, setting up tables, setting up registries)

Software (adapting software, creating new software) for data transformation

Production:

Creation of INSPIRE-compliant data set and related support services
Testing for compliance
Participation of national experts in INSPIRE development process

Maintenance (Recurrent yearly costs)

Software for data transformation including maintenance of registries

Production

Maintenance of INSPIRE compliant dataset and related support services
Testing for compliance
Maintaining coherence across domains that evolve

For AGIV:

INSPIRE experts		
Working group	**Man days**	**Total cost (EUR)**
IOCTF Network services	90	25 200
INSPIRE Comitology	10	2 800
DS Addresses	15	4 200
DS Orthoimagery	10	2 800
DS Utility and governmental services	30	18 720
Total	**155**	**53 720**

The Meta-GDI was launched in 2012:
Objective:
The description of meta-information (name spaces, code lists, coordinate systems, discovery services, definitions, etc.). The definition of a unique syntax to establish identifiers. The setting-up of a meta-register in a proof or concept (PoC). The setting-up of a vision and strategy for implementation.

Planning:
Final proposal URI identifiers by June 2013. Drawing up of PoC meta-register by December 2013.

Resources:
External: Quantity: 20 md
Cost: EUR 17 000 excl. / EUR 20 570 incl.

In the period 2010-2012, various training/information sessions were organised by the AGIV to inform the GDI users about the progress of INSPIRE (network services, data specifications, metadata, etc.) and the impact on daily work. Where the sessions are not INSPIRE-specific, the scope of these training/information sessions focuses in most cases on the Flemish context, but the broader INSPIRE is included in the report.

AGIV organises on average about 50 events per year (training, information sessions, meeting day). Assuming that 10% of the context of these sessions is INSPIRE-related, and he total preparatory time of the instructors is estimated at 5 man days, on average 25 man days per year or EUR 7 000 is spent on information about INSPIRE via this channel

For Mercatornet:
2012: Deployment of internal staff

- Training: FME introduction + tests – 3 MD
- Participation in AGIV explanation sessions: 5 MD

For Databank Underground Flanders:
External support:

- 2011: Follow-up assignment 'data specifications': training, guidance, tools, review report by INSPIRE testing: EUR 25 168

Deployment of internal staff

- Training: 5 days * 7 persons = 35 MD
- Testing of data specifications: 20 MD
- Participation in AGIV explanatory sessions: 4 MD
- INSPIRE testing report: 5 MD

For Enterprise Flanders:

- Development (mapping of concepts, establishing tables, establishing registers): 20 man days
- Software (adaptation of software, creating new software) for data transformation: 5 man days

Flemish administration
Network services *falling under INSPIRE Directive and that are indicated in the Monitoring Tables*

Set up costs (one-off)

Development Software (adapting software, creating new software) for network services (Discovery, View, Transformation, Download, Invoke)

Production:
Set- up of INSPIRE-compliant services
Testing for compliance
Participation of national experts in INSPIRE development process

Maintenance (Recurrent yearly costs) of INSPIRE-compliant network service

For AGIV:

Setting up a framework for WMS is estimated at EUR 130 000. Setting up a prototype WCS is estimated at EUR 80 000. The development of a framework for WFS is estimated at EUR 125 000. The development of the download application cost about EUR 200 000.

For Mercatornet:
2010-2011: various POC: internal FTEs 20 MD, external FTEs 20 MD

2012: Deployment MercatorNet development team (external FTEs)

Row labels	Total time spent (d)
4 - costs of setting up infrastructure (geoserver)	38
4 - costs of setting up infrastructure (grids)	14
4 - costs of installing network services (analysis)	21
4 - costs of installing network services public/INSPIRE	6
4 - costs of software development (data engine)	25
4 - costs of software development (sesam)	7
Grand total	**110**

2012: Deployment of internal staff INSPIRE datasets

- Produce Yamls: 5 MD
- Produce/verify SLDs: 5 MD
- Test services: 5 MD

For Databank Underground Flanders:
Deployment of DOV development team (external FTEs)

Row labels	Total time spent (d)
4 - costs of setting up network services	20.83
4 - costs of setting up network services (performances)	7.17
4 - costs of setting up network services (grids)	2.69
4 - costs of software development (sesam)	30.98
4 - costs of software development for network services (data engine)	41.86
4 - maintenance of network services	6.79
Grand total	**110.33**

Deployment of internal staff

- Produce Yamls: 15 MD
- Produce/verify SLD: 20 MD
- Test services: 20 MD

Flemish administration
Monitoring and reporting

Development (refining of tools e.g. online tools, registries etc.)

Production: Collection of monitoring data and filling of templates by stakeholders

Reporting: Coordination activities to collect examples of good practice and as well as difficulties in implementation, cost and benefit consideration, assessment together with stakeholders

Coordination and horizontal measures

Setting up coordination structures, national contact point activities

Activities that relate to the data and service sharing obligations

Supporting activities:

- Training and education organised by different stakeholders in the public and private sectors
- Development of Guidance document to support implementation of INSPIRE and use
- Participation in INSPIRE-related workshops/seminars/standardisation activities
- Coordinating mechanisms at different levels of government
- Outreach, Counselling and Support
- Awareness raising in the private sector and at different levels of government

For AGIV:

INSPIRE experts		
Activity	**Man days**	**Total cost (EUR)**
National point of contact (communication, meetings, reporting and monitoring)	100	28 000
Licences (GDI Flanders, Open Data)	40	11 200
Approach data suppliers and conclude core data set agreements	120	33 600
Develop the Flemish GDI (vision, consultation, feedback, awareness-raising, information)	80	22 400
Consultation with private and academic sector	30	8 400
Total	**370**	**103 600**

For Mercatornet:

2010-2011: Business analyses intermediate node MercatorNet: BD LNE EUR 40 000; BD MOW EUR 17 000 euro; internal FTEs LNE, RWO, MOW 60 MD

2012: transversal deployment of MercatorNet development team (external FTEs) for intermediate node

Row labels	**Total time spent (d)**
5 - coordination	58
Grand total	**58**

2012: Interne FTEs MercatorNet coordination (200 MD by core team (BD LNE, RWO, MOW))

For Databank Underground Flanders:
DOV coordination concerning INSPIRE (+ flow to MercatorNet) (10 MD)
GDI Steering Committee (3MD)
GDI working group (5 MD)
GDI sub-working group metadata + own preparation (10 MD)
GS Soil project (10% of MD deployed >> 40 MD)

Federal administration

The Directive entails the following expenditure at federal level:

- the federal share in the cost of the cooperation agreement between the federal administration and the regions concerning the coordination necessary for the introduction of the Directive in Belgium (see decision of Council of Ministers 12/03/2010, agenda item 15a) Draft cooperation agreement between the Federal State, the Flemish Region, the Walloon Region and the Brussels Capital Region for the coordination of an infrastructure for spatial information - 2010A05030.002)
- the costs for the completion, conversion or adaptation of the data subject to the Directive and of the accompanying metadata and the costs of making these data available in accordance with the Directive, including the costs of the electronic publication and also taking account of the restrictions imposed by the Directive on the maximum cost to be charged for the data

- the costs for the organisation of the network of services that has to be organised to grant access to the data (Article 6 §1 and 2).

The NGI made various experts available part-time from the drafting teams between 2005 and 2008. The total cost of this effort (hourly rate and work) amounts to over EUR 400 000 (data from analytical accounting + extrapolation).

At federal level, an appropriation of EUR 1 338 000 was released to cover the costs for 2012 deriving from the implementation of the INSPIRE Directive. EUR 668 000 were assigned to the National Geographic Institute (NGI) and EUR 720 000 were assigned to the General Administration of Patrimonial Documentation (AAPD) (reference Council of Ministers 20/07/2012, Notification item 138).

The table below shows the figures for the actual expenditure:

Costs	Up to 2010	2011	2012
NGI	599 000	536 000	436 000
AAPD	100 000	230 000	200 000
KBIN	_	0	0
MUMM	21 390	23 290	25 190
TOTAL	**720 390**	**787 508**	**661 190**

The costs shown here are the costs directly associated with the implementation of the INSPIRE Directive and contain no costs deriving from projects or initiatives related to INSPIRE.

These costs can be broken down in more detail as follows for the **NGI**:

	2010-2012				
	Total	**Human resources IGN-B**	**Human resources**	**Software/ outsourcings**	**Travel costs**
	EUR	**man/days**	**EUR**	**EUR**	**EUR**
IT Infrastructure	**338 257**	198	225 628	112 629	0
Metadata	**255 053**	293	255 053	19	0
Data interoperability/harmonisation	**53 844**	*63*	*53 844*	*15 969*	*0*
Network Services	**172 059**	*108*	*110 860*	*61 199*	*0*
Monitoring/reporting	**15 969**	*0*	*0*	*0*	*0*
Coordination and horizontal measures	**736 082**	1099	727 641	5 893	7 024
Total	**1 571 266**	**1782**	**1 191 758**	**175 245**	**7 024**

Comments:

- The costs for coordination and other horizontal measures were increased in the years 2009, 2010 and 2011 (mainly linked to legal aspects concerning the transposition of the Directive) and will remain a significant budget item (estimated annual cost: EUR 150 000 to EUR 200 000).

- The expenditure for the implementation of the metadata implementing rules was incurred in 2010. No maintenance/updating has yet been carried out since then.
- The costs for data interoperability relate solely to the carrying out of feasibility studies, and not to the actual implementation.
- The services were started up in 2011, with limited resources. These services are at a prototype phase and are not yet accessible to the public.
- No interactive tools have been developed with regard to monitoring and reporting. At federal level, interactive updating of existing files is used.
- In 2011-2012, the IT infrastructure for the federal level was the subject of feasibility studies, with the result of the launch of a (public) invitation to tender. The procurement will take place in 2013.

These costs are broken down in more detail as follows for the **AAPD**:

In 2011, the budget allocated by the Council of Ministers was not received, as a result of which to start with the expenditure was strictly limited and budgeted from other internal projects.

- Personnel costs: +/- EUR 100 000
- ICT investments: +/- EUR 130 000

In 2012 and the following years, budget of EUR 720 000 applied for:

- Personnel costs: EUR 320 000
- ICT investments: EUR 380 000
- General operation: EUR 20 000 €

For various reasons, the appropriations for 2012 were not made available in time and they had to be carried over to 2013. For this reason, no investments were made in 2012. A considerable, but insufficient number of man days (distributed among several people from different departments; estimate EUR 200 000) were generated at the cost of other activities and projects. This refers, *inter alia*, to the participation in various working groups (national and European), the drawing up of a budget, the drawing up of specifications and the production of data, metadata and services.

The costs can be broken down in more detail as follows for the **MUMM**:

	2010-2012				
	Total	**Human resources**	**Human resources**	**Software**	**Outsour-cing**
	EUR	**man/days**	**EUR**	**EUR**	**EUR**
IT Infrastructure	**33 390**	45	15 390	18 000	0
Metadata	**11 400**	30	11 400	0	0
Data interoperability/harmonisation	**22 800**	*60*	*22 800*	*0*	*0*
Monitoring/reporting	**2 280**	*6*	*2 280*	*0*	*0*
Coordination and horizontal measures	**69 870**	0	0	0	0

Brussels administration

The introduction of the INSPIRE Directive in the Brussels Capital Region entails personnel costs relating to the (Belgian or Brussels) coordination and to the various tasks which have been carried out so far:

- Coordination of the activities via the GeoBru Committee and contribution to the Belgian Coordinating Committee;
- Inventory of the Brussels data and of the existing services concerned;
- Preparation of the metadata on these elements;
- Coordination, technical discussions and publication work for the introduction of the Brussels geoportal;
- Administration and organisation of the geographical data at the various institutions concerned [these aspects are attributable not only to the introduction of INSPIRE, but were oriented and supplemented according to it];
- Monitoring of the activities carried out at European level (rules for the introduction, data specifications, etc.).

All in all, the number of persons employed at the level of the Region for 2010 and 2011 was estimated at 2 FTEs, for 2012 at 4 FTEs.

Moreover, for these aspects EUR 800 000 was drawn down over the period 2010-2012 (total budget for the entire 3-year period): drawing up of the profile and of the Brussels metadata catalogue, technical subcontracting to administer and structure the geographical data at the various institutions concerned.

Walloon administration

For the Walloon Region, it is difficult to draw a distinction between the costs incurred for INSPIRE and the overall costs for the implementation and development of the Walloon infrastructure for spatial information. Moreover, a number of works could not be stared before the end of this reporting period.

Some costs are specified below:

Set-up costs (one-off costs)

Software (adapting software, creating new software, setting catalogues)
Development and implementation of Metawal for 2012: 0.75 FTE (full-time equivalent) + EUR 184 000 budget for outsourcing.

10.2 Benefits observed

Flemish administration

Where possible, first general benefits were specified and then also specific benefits for Agentschap De Lijn (Flemish public transport agency) and Agentschap Ondernemen (Flanders Enterprise).

Through the compulsory sharing and joint purchasing of data, it has been possible to achieve considerable savings for the public authorities concerned since the establishment of the cooperative association in 1995.

Core benefits

Benefits for the administration in the improvement of the environmental policy which have an impact on the environment (primary objective of INSPIRE).

De Lijn: improvement of the environmental policy through greater use of public transport via facilitating of public transport with the route-planner.

Broader side-effects

The fact that the various data sets are freely available and are documented via unequivocal metadata ensures substantial gains in efficiency within the entire public administration. The various policy areas make use of: orthophotos, the GRB, CADMAP, Groenkaart (AGIV), industrial estates, mobile mapping images, etc.
In this way, the public authorities can themselves increase the quality of their own data sets more efficiently.

Benefits from enhanced interoperability between environmental information systems, and environmental and other sectoral policy measures (agriculture, transport, regional policy, etc.).

De Lijn: enhancing interoperability between the various transport networks via the route-planner.

Main beneficiaries (public administrations, business, citizens).

De Lijn: production of accessibility plans for centres of attraction, such as: hospitals, schools, businesses, with the help of route-planner data (combination of map material and timetables). The general public obtains access via the Internet to the network and timetables of the public transport companies.

Cross-border examples

De Lijn: The use of map material from neighbouring provinces in the Netherlands and France with the cross-border public transport connections.

Agentschap Ondernemen: benefits for administration with regard to exchange of knowledge through cross-border cooperation and benefits for the citizen (in this case potential investors) through sharing and making available geographical data of (available) business parks in cross-border GIS projects. Example: The Locator (www.the- locator.eu)

Undesired side-effects

Inefficient cost-sharing when setting up services (duplicated development of the same thing).

Summary
Through compulsory sharing free of charge and the joint purchasing of data, it has been possible to achieve considerable savings for the public authorities concerned since the creation of the cooperative association GDI Flanders in 2009.
Access and use of the data for public authorities, citizens, businesses and organisations have been extended and facilitated. Because of the further encouragement of the reuse of the data within GDI Flanders, businesses can now already use a large number of data sets to create innovative products and services. At the moment, however, it is not yet possible to calculate the profits deriving from INSPIRE in concrete terms. Moreover, many activities are a combination of tasks carried out for INSPIRE and for another (statutory) assignment.

Federal administration

Within the federal level, it is too early to determine the profit that this has actually yielded.

One of the possible benefits will lie in the fact that it is possible to determine which institution possesses the reference version for the themes listed in the Annexes.

At present, we can already establish the following:

- Setting-up of working groups and cooperation between the Federal State and the Regions on certain themes listed in the Annexes;
- Better knowledge of the data available to each;
- The determination of some authentic sources.

In the future, harmonisation of the data will also occur.

The benefits for the federal administration can further be defined as follows:

- The NGI makes available all data at its disposal to all federal public services for internal use. This refers to both the digital vector data and the digital grid images and aerial photos that the NGI collects in a 3-year cycle, and which become available via web services.
- The better accessibility of geographical data for all kinds of administration processes must enable these to run more efficiently. When developing the geographical infrastructure aimed at by the NGI, and which starts with the data to which the INSPIRE Directive relates, but which will be extended to cover other geographical data, the intention is explicitly to extend the cooperation which currently already exists between the NGI, other federal public services and the regions in the field of geographical data further and in this way also to make the regional and municipal data smoothly and simply accessible to the federal users (region plans, Natura 2000 protected sites, etc.).
- The efforts made to open up more effectively the geographical data available at federal level for internal use can also enable encouragement of external use of these data in accordance with the provisions of the Public Sector Information Directive.

Brussels administration

The introduction of the Directive in the Brussels Capital Region provided the opportunity to bring together under a joint project the persons responsible for geographical information at the authorities concerned. The regional Ordinance provides anyway for an extension of the initiative which extends further than the 34 data themes covered by the Directive. The leaders of the authorities concerned have also become aware of the interest they have in disseminating the resources, more specifically through the enhancement of their institution.

The coordination, placing online and communication of the data enable gradual improvement of the quality and the effectiveness of the work, both by the authorities and for the public procurement, for example. Moreover, the introduction of the various WMS and WFS by the institutions concerned facilitates the sharing of data.
Nevertheless, these gains are still limited at present and difficult to calculate because the Brussels geoportal is not yet fully operational. Moreover, it is difficult to attribute these gains to the existence of the INSPIRE Directive rather than to a recent evolution in the world of geographical information.

11 Conclusions

General conclusion

On account of the federal government structure, four parties are responsible in Belgium for the implementation of the INSPIRE Directive: the federal administration, the Walloon Region, the Flemish Region and the Brussels Capital Region. Each level is responsible for the coordination and implementation within its territory and its competence. An INSPIRE Coordinating Committee was set up to optimise the alignment concerning the implementation between the four parties and to cooperate where possible.

The four parties have not all made equal progress in the development of a geographical data infrastructure. This has to do mainly with (political) choices made in the past and the budget made available. In any case, all four parties have made great headway in the past three years with regard to the implementation of INSPIRE. Concerning the achievement of the various statutory deadlines with regard to making available metadata and certain services, in most cases the deadlines were met. However, certain data sets are not yet provided with the compulsory metadata and are not yet opened up via the compulsory INSPIRE-compliant services, but the responsible bodies are fully occupied in catching up this limited backlog.

The cost aspect for the implementation of the Directive so far could be calculated in part. Not all bodies involved in the implementation of INSPIRE were able to provide statistical material, and various bodies could only make an estimate. One of the main reasons for this is that it is often difficult to draw a distinction between the costs incurred for the implementation of INSPIRE and the costs that would be incurred in any case for the extension of the federal or regional GDI.

At present, it is still not possible to calculate the benefits as profit. It is still too early for this. In addition to the general advantages of INSPIRE, such as easier accessibility of the data, obtaining uniform services more rapidly, better cooperation and knowledge-sharing, etc., there are concrete examples that demonstrate the added value of INSPIRE. This currently lies mainly in the easier finding and using of data sets of neighbouring countries, for example for the public transport company. It is expected that the benefits will grow in the future as the data and services become increasingly available via the INSPIRE geoportal, and in a harmonised way. Whether in the future the benefit will outweigh the costs cannot yet be estimated for the time being. Also INSPIRE is closely interwoven with already existing regional and/or federal initiatives, so it is not simple to determine whether the benefits (and costs) derive from INSPIRE or from other (statutory) initiatives.

All bodies see the understanding and analysis of the data specifications and the conversion of their data into INSPIRE-compliant data sets as one of the greatest challenges for the future. Both the costs and the benefits of this are difficult to assess at the moment.

Flemish administration

In Flanders, geographical data sources have already been shared among public authorities for more than 15 years. Central coordination, support and distribution and an cooperative association between administrations that was underpinned by decree in 2009, have turned the Geographical Data Infrastructure in Flanders into a success. Under the impetus of the INSPIRE Directive, the basis has been laid in the meantime with the GDI Decree for even better collection, administration and opening up of the data. This will allow considerable improvement of the geographical information service provided to citizens, businesses and organisations.

There are more than 130 data sources listed as INSPIRE data. Nearly all data sources offer area coverage concerning their subject. Some sources are still under construction. Three quarters of the data sources are described via metadata. More than half is described in accordance with INSPIRE and is accessible via a discovery service. 72% of the data sources are already accessible to the public today via a view service or a geo-service. 66% are accessible via a download service.

All data sources are accessible free of charge for entities of the Flemish administration and the local authorities.

The major challenge for Flanders is to make the data further accessible via INSPIRE-compliant network services and to make the data sources interoperable, in accordance with the INSPIRE rules. It is provided for by decree that the INSPIRE data sets will be set up as authentic data sources. This entails a guarantee in of sound administration, interoperability and maximum opening up of the data.

There are also further opportunities and possibilities for data-sharing to run more smoothly both between the Flemish public authorities and with other public authorities (in Belgium). For cross-regional data sources, the first steps have been taken in the field of coordination and harmonisation.

Finally, making the GDI more accessible for commercial reuse is a policy priority for the coming years. This will also give considerable impetus to the further development of the GDI.

Brussels administration

For the Brussels Capital Region in particular, the work has already made good progress: the Ordinance transposing the INSPIRE Directive has been published, the GeoBru Committee and the accompanying working groups are operational, an inventory has been drawn up of the regional metadata, a first version of the Brussels geoportal is nearly completed, etc. The content of the Directive corresponds to the various regional objectives listed in the government policy accord for the 2009-2014 legislative period and the regional plan for sustainable development which is currently being drawn up. The introduction must now be made concrete by freeing up the necessary human and financial resources.

During the next important stage, the databases will have to be made compliant. The final specifications, which have been translated and published, are already gradually being made available, but their introduction is nevertheless a source of concern for the Brussels Capital Region. As matters now stand, and because the data producers do not necessarily possess the necessary technical expertise to understand and adapt these documents, it is difficult to estimate the scale of the work and consequently the costs too.

Annexes

11.1 List of organisations – names and contact details

Name of the public authority	Brussels Institute for Environmental Management (IBGE-BIM)
Contact details:	
Address	Gulleddelle, 100 - 1200 Brussels, Belgium
Telephone number	+32 2 775 79 21
Fax number	
E-mail address	vve@ibgebim.be
Organisation's website URL	http://www.ibgebim.be
Contact person (if available)	Véronique Verbeke and/or Gaël Kruwialis

Name of the public authority	Brussels Regional Informatics Centre (CIRB-CIBG-BRIC)
Contact details:	
Address	Avenue des Arts 21 - 1000 Brussels Belgium
Telephone number	+32 2 235 05 98
Fax number	
E-mail address	fdumortier@cirb.irisnet.be
Organisation's website URL	http://www.cirb.irisnet.be/
Contact person (if available)	Claude Hannecart and/or François Du Mortier

Name of the public authority	Brussels Institute for Statistics and Analysis (BISA)
Contact details:	
Address	Boulevard du Jardin Botanique 20 – 1035 Brussels
Telephone number	+32 2 800 36 42
Fax number	
E-mail address	ljussiant@mrbc.irisnet.be
Organisation's website URL	http://www.ibsa.irisnet.be
Contact person (if available)	Line Jussiant

Name of the public authority	Bestuur Ruimtelijke Ordening en Huisvesting (AATL-BROH)
Contact details	
Address	CCN rue du Progrès, 20 boîte 1 (7e étage) - 1030 Brussels Belgium
Telephone number	
Fax number	+ 32 2 204 15 58
E-mail address	brugis@mrbc.irisnet.be
Organisation's website URL	http://www.urbanisme.irisnet.be
Contact person (if available)	The BruGIS team

Name of the public authority	Brussel Mobiliteit/Bruxelles Mobilité
Contact details:	
Address	CCN rue du Progrès, 20 boîte 1 - 1030 Brussels Belgium
Telephone number	

Fax number	
E-mail address	
Organisation's website URL	http://www.bruxellesmobilite.irisnet.be/
Contact person (if available)	Ruben Cappelle and/or Bénédicte Covens

Name of the public authority	Brussels Intercommunal Transport Company (STIB-MIVB)
Contact details:	
Address	Avenue de la Toison d'Or 15 - 1050 Brussels, Belgium
Telephone number	
Fax number	
E-mail address	
Organisation's website URL	http://www.stib.be/
Contact person (if available)	Aurore Letoret and/or Gaëtan Labbé

Name of the public authority	Urban Development Agency – ATO vzw
Contact details:	
Address	Rue Royale 2-4 - 1000 Brussels Belgium
Telephone number	+32 2 563 62 88
Fax number	+32 2 563 6320
E-mail address	mbreton@adt.irisnet.be
Organisation's website URL	www.adt-ato.be
Contact person (if available)	Michel Breton

Name of the public authority	Raad van de Netwerkbeheerders in Brussel (RNBB)
Contact details:	
Address	Rue aux Laines 70 - 1000 Brussels Belgium
Telephone number	
Fax number	
E-mail address	
Organisation's website URL	
Contact person (if available)	Wim Van Hove (Belgacom) and/or Jacques Detiffe (Sibelga)

Name of the public authority	National Geographic Institute (NGI)
Contact details:	
Address	Abbaye de la Cambre, 13 – 1000 Brussels
Telephone number	32 2 629 84 17
Fax number	
E-mail address	inspire@ngi.be
Organisation's website URL	www.ngi.be
Contact person (if available)	Nathalie Delattre and/or Jessica Lelong

Name of the public authority	Flemish Geographical Information Agency (AGIV)
Contact details:	
Address for correspondence	Gebroeders Van Eyckstraat 16, 9000 Ghent, Belgium
Telephone number	+32 9 261 72 21
Fax number	+32 9 261 52 99
E-mail address	Leen.detemmerman@agiv.be

Organisation's website	www.agiv.be
Contact person	Leen De Temmerman

Name of the public authority	General Government Policy Services Department – Staff Service Department of the Flemish Government
Contact details:	
Address for correspondence	Boudewijnlaan 20, 1000 Brussels, Belgium
Telephone number	+32 0 255 35 826
E-mail address	tom.callens@dar.vlaanderen.be
Organisation's website	www.vlaanderen.be
Contact person	Tom Callens

Name of the public authority	General Administration of Patrimonial Documentation – FPS Finance
Contact details:	
Address for correspondence	North Galaxy, Bd. Roi Albert II 33 boîte 50, 1000 Brussels, Belgium
Telephone number	+32 (0)257 62049
Fax number	+32 (0)257 61752
E-mail address	michel.vanacker@minfin.fed.be
Organisation's website	http://finances.belgium.be/fr/sur_le_spf/structure_et_services/administrations_generales/documentation_patrimoniale/
Contact person (if any)	Michel Van Acker

Name of the public authority	S.P.W - Secrétariat général Département de la GEOMATIQUE Direction de l'Intégration des géodonnées
Contact details:	
Address for correspondence	Chaussée de Charleroi, 83 B – 3ème étage – B-5000 Salzinnes (Namur)
Telephone number	+32 (0) 81.71.59.12
Fax number	+32 (0) 81.71.59.37
E-mail address	xavier.demarets@spw.wallonie.be
Organisation's website	http://www.wallonie.be/
Contact person (if any)	Xavier Demarets

11.2 List of references for the compilation of the report

Websites:

http://www.cirb.irisnet.be/
http://www.bruxellesenvironnement.be/
http://www.urbanisme.irisnet.be
http://www.bruxellesmobilite.irisnet.be/
www.ngi.be
www.agiv.be
www.geopunt.b
http://finances.belgium.be/fr/sur_le_spf/structure_et_services/administrations_generales/documentation_patrimoniale/

http://financien.belgium.be/nl/over_de_fod/structuur_en_diensten/algemene_administraties/patrimoniumdocumentatie/