INSPIRE
Infrastructure for Spatial Information in Europe

Member State Report: Portugal, 2010

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1. INSPIRE Reporting – Overview of requirements

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

1. Organisation, coordination 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 coordinating 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 Art 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 cooperate, 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.

You have full rights to deliver this report in your own language, we will then translate it internally. Of course if the report will be already in English, or accompanied by its English translation, that will be welcome.

Disclaimer: This document will be publicly available as a 'non-paper', as it does not represent an official position of the Commission, and as such cannot be invoked in the context of legal procedures.

3. Executive summary

This document is the first report following the transposition and initial implementation of the requirements of the INSPIRE Directive in Portugal, in strict compliance with the provisions of Article 21.

The National System for Geographic Information (SNIG) is the national spatial data infrastructure (SDI). Its purpose is to allow geographic information on the national territory to be searched, viewed and used, through various access points. It is also a contact space allowing activities associated with this issue in Portugal, and in the context of the INSPIRE Directive (INfrastructure for SPatial InfoRmation in Europe), to be organised, linked and encouraged.

The information included in this report describes the national spatial data infrastructure, indicating the current situation based on information collected from the main stakeholders and on existing documents referring to this situation.

To this end, it was vital to consult the authorities forming part of the INSPIRE Focal Point Network (FPN) set up within the SNIG by the IGP in 2007, immediately after the Directive entered into force. Within this Focal Point Network, only national authorities and the Regional Governments of the Azores and Madeira with responsibility for the themes in the Directive Annexes (INSPIRE FPN (CORE)) were contacted in this phase. The responses received are set out in the Annexes and are commented on within the report.

To calculate the indicators, the INSPIRE FPN authorities were asked to complete an online form, identifying the Spatial Data Sets (SDS) and services under their responsibility that are associated with the Annex themes, and describing these in terms of the existence and conformity of metadata, coverage and conformity of the SDS and existence of services, their accessibility through metadata and their use.

The report includes all the information allowing the national SDI and the situation with regard to the implementation of the INSPIRE Directive to be described, based on the topics indicated by the European Commission for the report and on the information needed to calculate the various monitoring indicators.

The INSPIRE Report was produced in strict collaboration with the authorities involved in the Advisory Council of the SNIG, through a Working Group formed specifically for this purpose. The report was approved in a meeting of the referred Council held on 5 May 2010.

4. Abbreviations and Acronyms

AEGOS	African-European Georesources Observation System
AFN	Autoridade Florestal Nacional (National Forestry Authority)
ANPC	Autoridade Nacional de Protecção Civil (National Civil Protection Authority)
APA	Agência Portuguesa do Ambiente (Portuguese Environment Agency)
ARH	Administração da Região Hidrográfica, I.P. (Hydrographic Region Administration)
B&B	Business & Biodiversity Initiative
BGRI	Base Geográfica de Referenciação de Informação (Reference Geographic Database)
CADC	Convenção sobre Cooperação para a Protecção e o Aproveitamento Sustentável das Águas das Bacias Hidrográficas Luso-espanholas (Convention on Cooperation for the Protection and Sustainable Use of Water in Luso-Spanish Hydrographic Basins)
CAOP	Carta Administrativa Oficial de Portugal (Official Administrative Map of Portugal)
CCDR	Comissão de Coordenação e Desenvolvimento Regional (Regional Development and Coordination Commission)
CDDA	Common Database on Designated Areas
CEAI	Centro de Estudos da Avifauna Ibérica (Study Centre for Iberian Avifauna)
CELPA	Associação da Indústria Papeleira (Paper Industry Association)
CHAM/UNL	Centro de História de Além-mar/Universidade Nova de Lisboa (Maritime History Centre/New University of Lisbon)
CM	Câmara Municipal (Municipality)
CNIG	Centro Nacional de Informação Geográfica (National Centre for Geographic Information)
CO-SNIG	Conselho de Orientação do SNIG (Advisory Council of the SNIG)
CPC	Comité Permanente de Cadastro (Standing Committee on the Land Register)
CTT	Correios de Portugal, S.A. (Portuguese Post)
CVR	Comissão Vitivinícola Regional (Regional Wine Commission)
DB	Database
DGADR	Direcção-Geral de Agricultura e Desenvolvimento Rural (Directorate-General for Agriculture and Rural Development)
DGAE	Direcção-Geral de Actividades Económicas (Directorate-General for Economic Activities)
DGAI	Direcção-Geral da Administração Interna (Directorate-General for the Interior)
DGEG	Direcção-Geral de Energia e Geologia (Directorate-General for Energy and Geology)
DGOTDU	Direcção-Geral do Ordenamento do Território e Desenvolvimento Urbano (Directorate-General for Regional Planning and Urban Development)
DGPA	Direcção-Geral de Pescas e Aquicultura (Directorate-General for Fisheries and Aquaculture)
DGRF	Direcção-Geral de Recursos Florestais (Directorate-General for Forest Resources) (now known as the Autoridade Florestal Nacional [National Forestry Authority])
DGS	Direcção-Geral de Saúde (Directorate-General for Health)
DRA	Direcção Regional do Ambiente - Governo Regional dos Açores (Regional Directorate for the Environment - Regional Government of the Azores)
DRAC	Direcção Regional de Assuntos Culturais - Governo Regional da Madeira (Regional Directorate for Cultural Affairs - Regional Government of Madeira)
DRAP	Direcção Regional de Agricultura e Pescas (Regional Directorate for Agriculture and Fisheries)
DRCIE	Direcção Regional de Comercio, Industria e Energia - Governo Regional da Madeira (Regional Directorate for Trade, Industry and Energy - Regional Government of Madeira)
DRDA	Direcção Regional de Desenvolvimento Agrário - Governo Regional dos Açores (Regional Directorate for Agricultural Development - Regional Government of the Azores)
DREF	Direcção Regional da Educação e Formação - Governo Regional dos Açores (Regional Directorate for Education and Training - Regional Government of the Azores)
DRETT	Direcção Regional de Equipamentos e Transportes Terrestres - Governo Regional dos Açores (Regional Directorate for Land Transport and Facilities - Regional Government of the Azores)
DRF	Direcção Regional das Florestas – Governo Regional da Madeira (Regional Directorate for Forestry - Regional Government of Madeira)
DRIGOT Madeira	Direcção Regional de Informação Geográfica e Ordenamento do Território - Governo Regional da Madeira (Regional Directorate for Geographic Information and Regional Planning - Regional Government of Madeira)
DROTRH	Direcção Regional do Ordenamento do Território e dos Recursos Hídricos - Governo Regional dos Açores (Regional Directorate for Regional Planning and Water Resources - Regional Government of the Azores)
DRP	Direcção Regional do Património - Governo Regional da Madeira (Regional Directorate for Heritage - Regional Government of Madeira)
DRRF	Direcção Regional dos Recursos Florestais - Governo Regional dos Açores (Regional Directorate for Forest Resources - Regional Government of the Azores)
DRS	Direcção Regional da Saúde - Governo Regional dos Açores (Regional Directorate for Health - Regional Government of the Azores)

DRT	Direcção Regional do Turismo - Governo Regional da Madeira (Regional Directorate for Tourism - Regional Government of Madeira)
DSCIG	Direcção de Serviços de Cartografia e Informação Geográfica - Governo Regional dos Açores (Directorate for Geographic Information and Mapping Services - Regional Government of the Azores)
DSIGIG	Direcção de Serviços de Investigação e Gestão de Informação Geográfica (Directorate for Geographic Information Management and Research)
EBM	EuroBoundaryMap
EC	European Community
ECDDA	European Common Database on Designated Areas
EDA	Electricidade dos Açores, S.A. (Azores Electricity Company)
EDIA	Empresa de Desenvolvimento e Infra-estruturas do Alqueva, S.A.
EDP	Energias de Portugal, S.A. (Portuguese Energy Company)
EEA	European Environment Agency
EEZ	Exclusive Economic Zone
EFFIS	European Forest Fire Information System
EFN	Estação Florestal Nacional (National Forestry Office)
EIONET	European Environment Information and Observation Network
EP	Estradas de Portugal, S.A. (Portuguese company responsible for road management)
EPRL	Estrutura de Projecto para a Reposição da Legalidade (Project Structure to Restore Legality)
ERM	EuroRegionalMap
ESAB	Escola Superior Agrária de Bragança (Braganca Agricultural College)
ESAC	Escola Superior Agrária de Coimbra (Coimbra Agricultural College)
ESACB	Escola Superior Agrária de Castelo Branco (Castelo Branco Agricultural College0
ETRS89	European Terrestrial Reference System 1989
EuroGeographics	Association of National Mapping, Land Registry and Cadastral Agencies
EuroGeoSource	EU Information and Policy Support System for Sustainable Supply of Europe with Energy and Mineral Resources
EuroGOOS	European Global Ocean Observing System
Eurostat	European Union Statistical Office
FPN	Focal Point Network
GEO	Group on Earth Observation
GeoALEX	Modelo Geográfico de Gestão Ambiental e Territorial para Espaços Rurais de Baixa Densidade (Geographic Model of Environmental and Land Management for Low-Density Rural Areas)
GeoSeas	European network for marine and ocean geological and geophysical data
GEP	Gabinete de Estratégia e Planeamento (Ministério do Trabalho e da Solidariedade Social) [Strategy and Planning Office (Ministry of Labour and Social Solidarity)]
GEPE	Gabinete de Estatística e Planeamento da Educação (Ministério da Educação) [Education Statistics and Planning Office (Ministry of Education)]
GI	Geographic Information
GIS	Geographic Information System
GIS4EU	Provision of Interoperable Datasets to Open GI to EU Communities
GMES	Global Monitoring for Environment and Security
GML	Geography Markup Language
GPERI	Gabinete de Planeamento, Estratégia e Relações Internacionais (Ministério das Obras Públicas, Transportes e Comunicações) [International Relations, Strategy and Planning Office (Ministry of Public Works, Transport and Communications)]
GT M&R CO-SNIG	Grupo de Trabalho de Monitorização e Relatórios do Conselho de Orientação do Sistema Nacional de Informação Geográfica (Monitoring & Reporting Working Group of the Advisory Council of the National Geographic Information System)
HUMBOLDT	Development of a Framework for Data Harmonisation and Service Integration
IA	Instituto do Ambiente (Environment Institute) (now known as the Agência Portuguesa do Ambiente [Portuguese Environment Agency])
ICNB	Instituto da Conservação da Natureza e da Biodiversidade, I.P. (Nature Conservation and Biodiversity Institute)
IFAP	Instituto de Financiamento da Agricultura e das Pescas, I.P. (Agriculture and Fisheries Financing Institute)
IGeoE	Instituto Geográfico do Exército (Geographic Institute of the Army)
IGESPAR	Instituto de Gestão do Património Arquitectónico e Arqueológico, I.P. (Architectural and Archaeological Heritage Management Institute0
IGN	Instituto Geográfico Nacional (National Geographic Institute)
IGP	Instituto Geográfico Português (Portuguese Geographic Institute)
IH	Instituto Hidrográfico (Hydrographic Institute)
IHRU	Instituto da Habitação e da Reabilitação Urbana, I.P. (Housing and Urban Regeneration Institute)
IICT	Instituto de Investigação Científica e Tropical, I.P. (Tropical and Scientific Research Institute)

IM	Instituto de Meteorologia, I.P. (Meteorology Institute)
INAG	Instituto da Água, I.P. (Water Institute)
INCI	Instituto da Construção e do Imobiliário, I.P. (Construction and Property Institute)
INE	Instituto Nacional de Estatística, I.P. (National Statistics Institute)
INEM	Instituto Nacional de Emergência Médica, I.P. (National Institute for Medical Emergencies)
INRB	Instituto Nacional de Recursos Biológicos, I.P. (National Institute for Biological Resources)
INSA	Instituto Nacional de Saúde Doutor Ricardo Jorge, I.P. (Doctor Ricardo Jorge National Institute for Health)
INSPIRE	Infrastructure for Spatial Information in the European Community
IPA	Inventário do Património Arquitectónico (Architectural Heritage Inventory)
IPTM	Instituto Portuário e dos Transportes Marítimos, I.P. (Maritime Transport and Port Institute)
ISA	Instituto Superior de Agronomia (Agronomy Institute)
ISCTE	Instituto Superior de Ciências do Trabalho e da Empresa (Labour and Business Sciences Institute)
ISO	International Organisation for Standardisation
ITRF93	International Terrestrial Reference Frame 1993
IVBAM	Instituto do Vinho, Bordado e Artesanato da Madeira (Madeira Institute of Wine, Embroidery and Crafts)
IVV	Instituto da Vinha e do Vinho, I.P. (Vine and Wine Institute)
JRC	Joint Research Centre
LIFE	Funding Instrument for the Environment Programme
LNEC	Laboratório Nacional de Engenharia Civil, I.P. (National Civil Engineering Laboratory)
LNEG	Laboratório Nacional de Energia e Geologia, I.P. (National Energy and Geology Laboratory)
MADRP	Ministério da Agricultura, do Desenvolvimento Rural e das Pescas (Ministry of Agriculture, Rural Development and Fisheries)
MAOT	Ministério do Ambiente e do Ordenamento do Território (Ministry of the Environment and Regional Planning)
MARBIS	Information System for Marine Biodiversity
MDN	Ministério da Defesa Nacional (Ministry of National Defence)
MOPTC	Ministério das Obras Públicas, Transportes e Comunicações (Ministry of Public Works, Transport and Communications)
MS	Member State
MSCP	Member State Contact Point
NATO	North Atlantic Treaty Organisation
Nature-SDI	Best Practice Network for SDI in Nature Conservation
OA	Organizações de Agricultores (Farmers' Organisations)
OGC	Open Geospatial Consortium
OneGeology	Making Geological Map Data for the Earth Accessible
OTALEX	Observatório Territorial Alentejo - Extremadura (Alentejo-Extremadura Territorial Observatory)
PA	Protected Areas
PCT-MAC	Programa de Cooperação Transnacional Açores-Madeira-Canárias (Azores-Madeira-Canaries Transnational Cooperation Programme)
PDM	Plano Director Municipal (Municipal Master Plan)
PGF	Planos de Gestão Florestal (Forest Management Plans)
PLEIADeS	Participatory multi-Level EO-assisted tools for Irrigation water management and Agricultural Decision-Support
PNA	Plano Nacional da Água (National Water Plan)
PNM	Parque Natural da Madeira - Governo Regional da Madeira (Natural Park of Madeira - Regional Government of Madeira)
POEM	Plano de Ordenamento do Espaço Marítimo (Maritime Space Development Plan)
POR	Portuguese
PRODER	Programa de Desenvolvimento Rural do Continente (Rural Development Programme for the Mainland)
PROF	Planos Regionais de Ordenamento Florestal (Regional Forest Development Plans)
PT	Portugal
PT-TM06/ETRS89	European Terrestrial Reference System 1989
RAM	Região Autónoma da Madeira (Autonomous Region of Madeira)
REPRAA	Rede de Estações Permanentes da Região Autónoma dos Açores (Network of Permanent Stations of the Autonomous Region of the Azores)
RGII	Infra-estrutura Regional de Informação Geográfica (Regional Infrastructure for Spatial Information)
SAFER	Services and Application For Emergency Response
SALB	Second Administrative Level Boundaries
SCI	Site of Community Importance
SDI	Spatial Data Infrastructure
SDS	Spatial Data Set

SEIS	Shared Environmental Information System
SGIF	Sistema de Gestão de Informação de Incêndios Florestais (Forest Fire Information Management System)
SiNErGIC	Sistema Nacional de Exploração e Gestão de Informação Cadastral (National System for the Management and Use of Cadastral Information)
SIPA	Sistema de Informação para o Património Arquitectónico (Architectural Heritage Information System)
SIPNAT	Sistema de Informação do Património Natural (Natural Heritage Information System)
SNIAmb	Sistema Nacional de Informação de Ambiente (National Environmental Information System)
SNIG	Sistema Nacional de Informação Geográfica (National Geographic Information System)
SNIRF	Sistema Nacional de Informação dos Recursos Florestais (National Forest Resources Information System)
SPA	Special Protection Area
SPEA	Sociedade Portuguesa para o Estudo das Aves (Portuguese Society for the Study of Birds)
SRA	Secretaria Regional do Ambiente - Governo Regional da Madeira (Regional Department for the Environment - Regional Government of Madeira)
SRAF	Secretaria Regional da Agricultura e Florestas - Governo Regional dos Açores (Regional Department for Agriculture and Forestry - Regional Government of the Azores)
SRAM	Secretaria Regional do Ambiente e do Mar - Governo Regional dos Açores (Regional Department for the Environment and the Sea - Regional Government of the Azores)
SRCTE Açores	Secretaria Regional da Ciência, Tecnologia e Equipamentos - Governo Regional dos Açores (Regional Department for Science, Technology and Facilities - Regional Government of the Azores)
SREF	Secretaria Regional da Educação e Formação - Governo Regional dos Açores (Regional Department for Education and Training - Regional Government of the Azores)
SRPC	Serviço Regional de Protecção Civil - Governo Regional da Madeira (Regional Civil Protection Service - Regional Government of Madeira)
SRS	Secretaria Regional da Saúde - Governo Regional dos Açores (Regional Department for Health - Regional Government of the Azores)
TP	Turismo de Portugal, I.P. (Tourism Portugal)
UE	Universidade de Évora (University of Evora)
UMA	Universidade de Madeira (University of Madeira)
UTAD	Universidade de Trás-os-Montes e Alto Douro (University of Tras-os-Montes and Alto Douro)
WEB	World Wide Web
WFD	Water Framework Directive
WFS	Web Feature Service
WG	Working Group
WISE	Water Information System for Europe
WMS	Web Map Service
ZIF	Zonas de Intervenção Florestal (Forest Intervention Areas)

5. Introduction

The National System for Geographic Information (SNIG) was set up 20 years ago through Decree-Law No 53/90 of 13 February 1990. It was the first SDI to be developed in Europe and the first to be made available on the Internet in 1995. At the time, it was regarded as a highly innovative project (Masser, 1999). Given the recent advances made in this area, driven mainly by the Open Geospatial Consortium (OGC) and the International Organisation for Standardisation (ISO), and more recently by the INSPIRE Directive, it has been substantially altered in the last few years.

In addition to the technological and content aspects, the organisational philosophy has also been changed due to the transposition of the INSPIRE Directive through Decree-Law No 180/2009 of 7 August 2009, which revised the former Decree-Law on the SNIG.

This process of organisational, technological and content revision, which began in 2002, has enabled the SNIG to retain its innovative and public service nature. The SNIG was recognised at European level when it was given an SDI Best Practice Award 2009 as part of the eSDI-NET+ project.

Decree-Law No 180/2009 was published on 7 August 2009. It altered the SNIG by transposing into Portuguese law 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) and by repealing Decree-Law No 53/90.

Considering that the collaboration and concerted action of national public authorities is an essential component, the IGP, as the Member State contact point for the INSPIRE Directive, has taken advantage of the SNIG Network, which has been used as a starting point for disseminating the Directive, its requirements and new developments. Starting with the authorities present within the SNIG, the IGP created a Metadata Managers Network in 2005 and the INSPIRE Focal Point Network (INSPIRE FPN) in 2007, bringing together the contact points of each public authority in order to implement the Directive.

In order to help the IGP in its role as INSPIRE contact point, a transitional working group was set up in 2008 as an operational structure to support the Directive's implementation (INSPIRE WG). The aim of the team formed is to ensure that developments associated with implementing the INSPIRE Directive are interlinked with European projects in which the IGP is involved (e.g. HUMBOLDT, GIS4EU), with associated initiatives (e.g. GMES, GEO, SEIS), with other activities carried out within the Directorate for Geographic Information Management and Research (DSIGIG) that are relevant to this process, and obviously with the SNIG's development activities.

In this context, the IGP has promoted various activities aimed at supporting the implementation of the INSPIRE Directive in Portugal.

Accordingly, the INSPIRE-PT website (http://snig.igeo.pt/Inspire) has been redesigned. This now contains all the information and documentation on the INSPIRE Directive and its implementation in Portugal.

In the area of metadata, the National Metadata Profile has been created and a metadata production and editing tool – MIG Editor – has been made available to all authorities intending to create and publish their metadata.

More than 10 sessions have been held in various locations around the country on themes associated with the Directive, in order to publicise the legal, organisational and technical components of the Directive, encourage discussions on the documents being produced by the European Commission and share knowledge associated with national and international best practice. In particular, links have been established with the results of European projects on spatial data infrastructures in which Portugal is involved. Working meetings on the SNIG and the Directive have also been held with various public authorities. Training actions have been organised for approximately **262** metadata managers, with a training plan having recently been set up on Geo Web Services.

A proposal has also been submitted to the CO-SNIG for the creation of working groups that will bring together, within specific groups, the public authorities responsible for the same themes. The aim

of these working groups is to clarify the formal responsibilities of those authorities involved, for each theme, in the production and maintenance of the respective SDS and services. These groups will follow the drafting of implementing rules on the data and service specifications for each theme and will study their application to the SDS and services for which they are responsible, bearing in mind the deadlines defined in the Directive.

It is also intended to set up cross-cutting working groups on Metadata and Geo Web Services, which will support authorities in the production and publication of metadata and in the development of services, in line with the implementing rules and Directive deadlines, by coordinating and bringing together national thematic SDIs and other infrastructures with the SNIG.

The monitoring and reporting process has been carried out thanks to the combined efforts of the IGP, as the INSPIRE MSCP (via the INSPIRE WG) and the INSPIRE FPN. This process has also involved a working group, the GT M&R CO-SNIG, set up within the SNIG coordination structure, namely the CO-SNIG.

As a starting point for the monitoring and reporting activity, the importance of the study entitled 'Analysis of the INSPIRE Directive Annex themes and of the Public Authorities responsible for the Spatial Data Sets of each Theme' should be mentioned. This study, carried out by the IGP, analysed the authorities responsible for producing SDS on the Annex themes. The study began in 2008 and was also used to raise awareness among authorities about the INSPIRE issue and their potential involvement in the process. Based on a methodology involving the analysis of the legislation on public authorities (framework laws, statutes and other specific texts) and the analysis of the description of the Annex themes, this study has identified the public authorities with formal responsibilities for the SDS associated with these themes.

Using the aforementioned list of authorities by theme, the monitoring and reporting of data was obtained by emailing information requests to the INSPIRE FPN, by holding discussion and clarification meetings with members of the referred network and by making strategic decisions in the context of the GT M&R CO-SNIG.

In the coming year, the plan is to adopt a more automated approach, based on the information contained in the metadata that must be published by December 2010, on the Annexes I and II themes, in accordance with the implementing rules.

This report answers the required questions, based on the available information on the SNIG and on the information collected from the authorities involved in the national SDI, which is mainly included in the tables in the Annexes.

6. Coordination and quality assurance (Art. 12)

6.1   Coordination (Art. 12(1))

6.1.1   Member State contact point

Name and contact information

Member State Contact Point	
Name of the public authority	Portuguese Geographic Institute (IGP)
Contact information:	
Mailing address	Rua Artilharia Um, 107, 1099-052 Lisbon
Telephone number	00351-213819600
Telefax number	00351-213819699
Email address	igeo@igeo.pt
Organisation's website URL	www.igeo.pt
Contact person (if available)	Rui Pedro Juliao
Telephone number	00351-213819691
Email address	rpj@igeo.pt
Contact person - substitute (if available)	Joao Geirinhas
Telephone number	00351-213819600
Email address	joao.geirinhas@igeo.pt

Role and responsibilities

The Portuguese Geographic Institute (IGP) , which is answerable to the Ministry of the Environment and Regional Planning, is the body responsible for implementing the geographic information policy.

It was created in 2002 as a result of a decision to modernise the administration and consolidate public finances, as set out in the Cabinet Decision No 110/2001 of 10 August 2001.

The IGP assumed all the rights, obligations and responsibilities of the former National Centre for Geographic Information (CNIG) and the Portuguese Institute for Mapping and the Land Register (IPCC) . The IGP was expressly recognised as having the status of National Authority for Geodesy, Mapping and the Land Register.

The IGP's mission and responsibilities are laid down in its framework law, adopted by Decree-Law No 133/2007 of 27 April 2007.

As the National Authority for Geodesy, Mapping and the Land Register, the IGP's mission is to implement the national policy on geographic information. It is responsible for regulating the pursuit of these activities, for approving products, for coordinating and developing the National System for Geographic Information and for promoting research on geographic information sciences and technologies.

The IGP has the following responsibilities:

- regulate the pursuit of activities in the areas of geodesy, mapping and the land register with regard to technical specifications and standards for production and reproduction, with responsibility for licensing and monitoring, and also for approving the respective products;

- monitor compliance with the applicable law and regulations, including bringing and pursuing proceedings for administrative offences falling within its competence;

- carry out the necessary activities to maintain and improve the national geodetic system;

- define technical specifications and standards for cartographic and topographic production and reproduction;

- in coordination with other bodies, encourage the mapping coverage of the national territory, and also the establishment, renewal and conservation of the land register;

- develop and coordinate the National System for Geographic Information;

- in the area of geographic information, promote, coordinate and carry out experimental research and development programmes and projects, and also training and dissemination actions;

- represent the Portuguese State in international bodies and committees on geodesy, mapping and geographic information, and promote international technical cooperation.

As the Member State Contact Point for the INSPIRE Directive (INSPIRE MSCP), the IGP promotes the following:

- dissemination of information on the Directive and associated themes;

- sharing of information and experiences;

- interlinking of developments towards the implementation of the INSPIRE Directive with the European projects in which Portugal is participating;

- encouraging discussions on the documents produced;

- creation of specific working groups;

- promotion of pilot projects;

- organisation of training actions;

- dissemination of national and international best practice;

- organisation of awareness-raising actions and other events;

- establishing procedures to monitor the Directive's implementation.

In the context of its role as INSPIRE MSCP, in March 2008 the IGP set up, within the Directorate for Geographic Information Management and Research Services (DSIGIG), a working group (INSPIRE WG) as an operational structure to support the Directive's implementation.

The aim of the group formed is to ensure that developments associated with implementing the INSPIRE Directive are interlinked with European projects in which the IGP is involved (e.g. HUMBOLDT, GIS4EU, EURADIN and Nature-SDI*plus*), with associated initiatives (e.g. GMES, GEO and SEIS), with other activities carried out within the DSIGIG that are relevant to this process and obviously with the development activities of the National System for Geographic Information.

6.1.2 The coordination structure

Name and contact information

Coordination structure supporting the MSCP	
Name of the coordination structure	CO-SNIG – Advisory Council of the SNIG
Contact information:	
Mailing address	Rua Artilharia Um, 107, 1099-052 Lisbon
Telephone number	00351-213819600
Telefax number	00351-213819699
Email address	inspire@igeo.pt
Organisation's website URL	snig.igeo.pt/inspire
Contact person (if available)	Rui Pedro Julião
Telephone number	00351-213819691
Email address	rpj@igeo.pt
Contact person - substitute (if available)	João Geirinhas
Telephone number	00351-213819600
Email address	joao.geirinhas@igeo.pt
Date and period of mandate	

Role and responsibilities

The Advisory Council of the National System for Geographic Information (CO-SNIG)   was created by Decree-Law No 180/2009 of 7 August 2009 to strategically coordinate the SNIG (Figure 1).

It incorporates the following public authorities:

- Portuguese Geographic Institute (IGP);

- Portuguese Environment Agency (APA);

- National Association of Portuguese Municipalities (ANMP) ;

- National Forestry Authority (AFN);

- National Civil Protection Authority (ANPC);

- Directorate-General for Regional Planning and Urban Development (DGOTDU);

- Nature Conservation and Biodiversity Institute (ICNB);

- Geographic Institute of the Army (IGeoE);

- Hydrographic Institute (IH);

- Water Institute (INAG);

- National Statistics Institute (INE);

- National Energy and Geology Laboratory (LNEG).

It has the following responsibilities:

- approve the strategic guidelines and general objectives of the SNIG;

- ensure that public authorities are technically able to cross-reference their spatial data sets and services on the Internet;

- encourage useful links between members of the SNIG network, and assess and decide on any situations where interests may diverge;

- approve the scheduling of work to consolidate the SNIG and ensure that it is operational, and also the corresponding financing plans and the participation of each service in the costs;

- give opinions on national technical standards for geographic information;

- give opinions on the data-sharing fees proposed by the public authorities involved;

- issue the opinions that are requested under this Decree-Law.

Organisation chart

PT ORIGINAL	EN TRANSLATION
Coordenação estratégica	Strategic coordination
CO-SNIG	CO-SNIG
GT M&R CO-SNIG	GT M&R CO-SNIG
Coordenação operacional	Operational coordination
IGP	IGP
DSIGIG	DSIGIG
GT-INSPIRE	INSPIRE WG
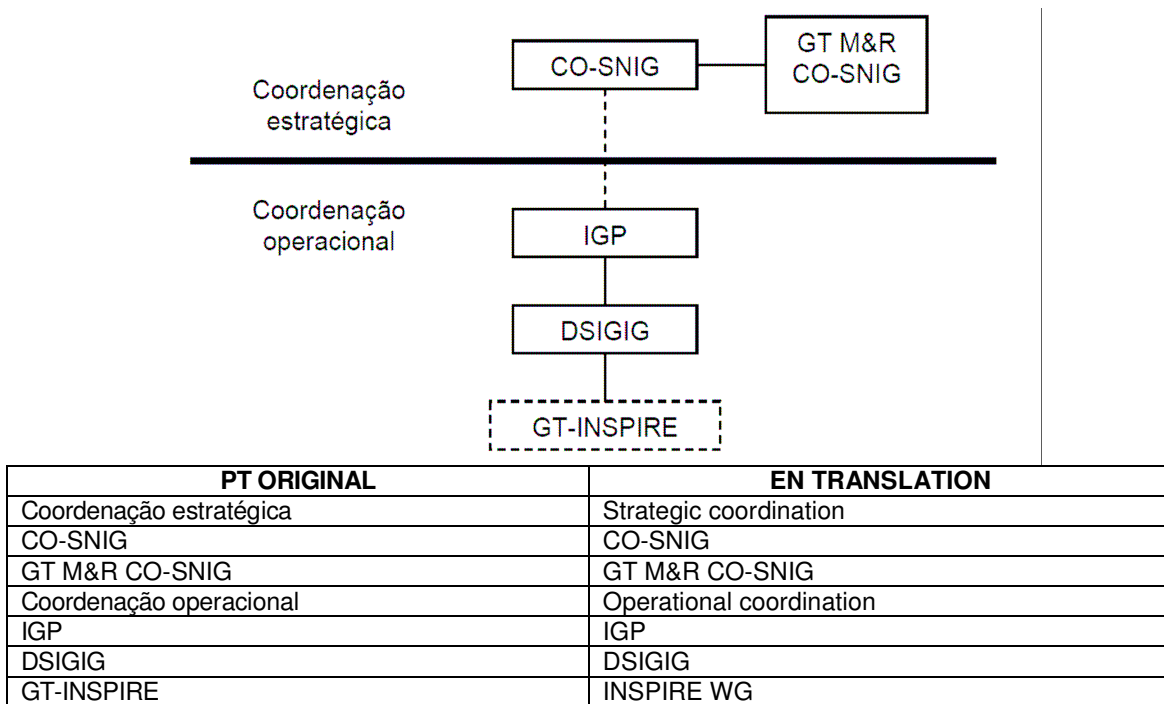
Figure 1 – Organisation chart of the coordination structure

Relation with third parties

Figure 2 shows the bodies involved in coordinating and developing the SNIG and how they interact. It therefore illustrates the relationship between the coordination structure and third parties.

The CO-SNIG is chaired by the IGP, which is the body responsible for the operational coordination of the SNIG and the Member State Contact Point for the INSPIRE Directive. The link between the SNIG's strategic coordination structure and its operational coordination structure, as well as the implementation of the INSPIRE Directive in Portugal, are guaranteed in this way. The link with the SNIG's operational coordination structure also guarantees the relationship with authorities and their representatives in various networks, such as the SNIG Network (Table 12.1.3 in the Annex). This extensive network was created in the 1990s and encompasses public authorities producing and/or using geographic information, as well as private bodies and other users.
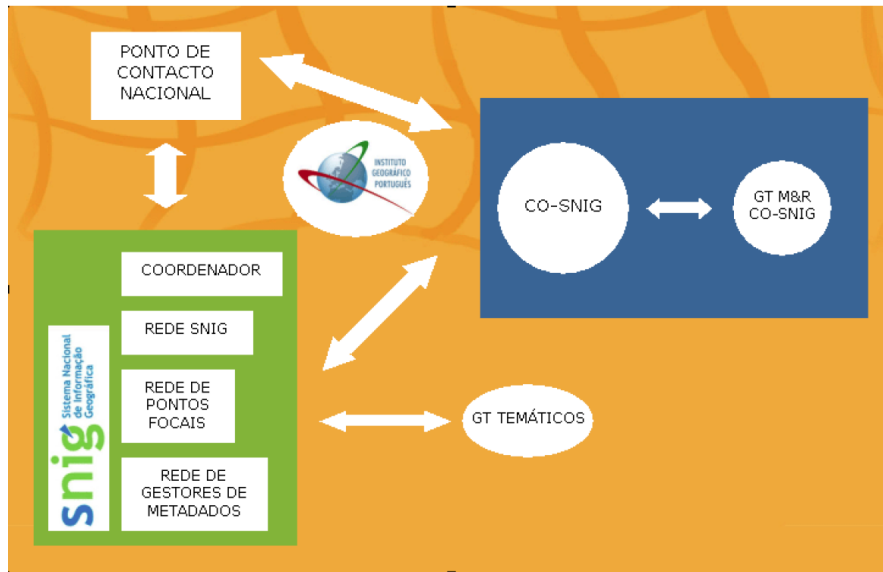
PT ORIGINAL	EN TRANSLATION
PONTO DE CONTACTO NACIONAL	MEMBER STATE CONTACT POINT
INSTITUTO GEOGRÁFICO PORTUGUÊS	PORTUGUESE GEOGRAPHIC INSTITUTE
CO-SNIG	CO-SNIG
GT M&R CO-SNIG	GT-M&R CO-SNIG
SNIG – Sistema Nacional de Informação Geográfica	SNIG – National Geographic Information System
COORDENADOR	COORDINATOR
REDE SNIG	SNIG NETWORK
REDE DE PONTOS FOCAIS	FOCAL POINT NETWORK
REDE DE GESTORES DE METADADOS	METADATA MANAGERS NETWORK
GT TEMÁTICOS	THEMATIC WGs

Figure 2 – Coordination and development of the SNIG

The SNIG encompasses other networks for specific purposes, such as the INSPIRE Focal Point Network (Tables 12.1.1 and 12.1.2 in the Annex). This network was created in 2007 and is intended to promote the exchange of information and experience in order to support the implementation of the INSPIRE Directive. Another example is the Metadata Managers Network (Table 12.1.4 in the Annex), created in 2005, which brings together managers of metadata for the SDS of each public authority. The SNIG also incorporates working groups formed with specific objectives, such as the GT M&R CO-SNIG, created within the CO-SNIG to support the INSPIRE MSCP in monitoring the Directive and preparing the INSPIRE Report. It is planned to form specific working groups to work on the Annex themes data specifications (Thematic WGs).

Overview of working practices and procedures

The CO-SNIG began to work on 16 December 2009 when the items on the agenda of its first meeting were the approval of its regulation, the preparation of the Situation Report on the INSPIRE Directive and the presentation and discussion of the Action Plan for the SNIG.

A working group was set up during this meeting, containing some of its members, which aims to support the INSPIRE MSCP in its task of monitoring the Directive's implementation and preparing the INSPIRE Report. The GT M&R CO-SNIG includes the following authorities and representatives, in addition to the IGP team:

- Portuguese Environment Agency , represented by Luis Baltazar;

- National Forestry Authority , represented by Lúcio do Rosario;

- Nature Conservation and Biodiversity Institute , represented by Henrique Tato Marinho;

- Geographic Institute of the Army, represented by José Travanca Lopes;

- Hydrographic Institute, represented by Rui Reino Baptista;

- Water Institute, represented by Ana Catarina Mariano;

- National Statistics Institute, represented by Ana Santos;

- National Energy and Geology Laboratory , represented by Cristina Antunes.

This working group has been actively involved in the process of monitoring and preparing the INSPIRE Report (three meetings were held from February to April 2010), with various recommendations having been approved on specific monitoring or reporting aspects.

The GT M&R CO-SNIG can profit from any of the work already carried out by the IGP through the INSPIRE WG, particularly efforts made to analyse the Annex themes and the authorities potentially responsible for the SDS and services included in the Annex themes.

A study available at http://snig.igeo.pt/Inspire/NmonitorizacaoRelatorios.asp, entitled ''Analysis of the INSPIRE Directive Annex themes and of the Public Authorities responsible for the Spatial Data Sets of each Theme', analysed the authorities responsible for producing SDS on the Annex themes and constituted one of the most important support mechanisms in the monitoring and reporting task. This study began in 2008 and was used to raise awareness among authorities about the INSPIRE issue and their potential involvement in the process.

The study was based on a methodology involving the analysis of the legislation on public authorities (framework laws, statutes and other specific texts) and identified the public authorities with formal responsibilities for the Annex themes (Figure 3).

The monitoring and reporting process was carried out in phases, based on three main foundations: the INSPIRE FPN, the GT M&R CO-SNIG and the IGP as INSPIRE MSCP through the INSPIRE WG. Another important component in the process was the INSPIRE-PT website (http://snig.igeo.pt/Inspire), which was extensively used as a platform for accessing the process's information and documentation. This website, which was created in 2003, was redesigned in 2008 to allow all the information on the INSPIRE Directive and its implementation in Portugal to be accessed.
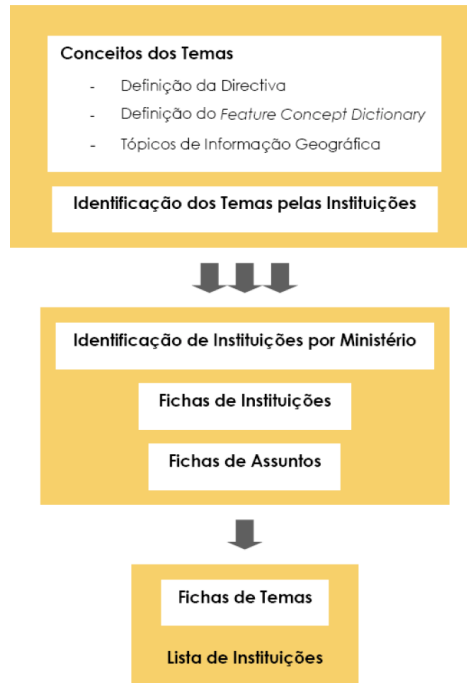
PT ORIGINAL	EN TRANSLATION
Conceitos dos Temas	**Theme Concepts**
- Definição da Directiva	- Definition in the Directive
- Definição do *Feature Concept Dictionary*	- Definition in the Feature Concept Dictionary
- Tópicos de Informação Geográfica	- Geographic Information Topics
Identificação dos Temas pela Instituições	**Identification of Themes by Authority**
Identificação de Instituições por Ministério	**Identification of Authorities by Ministry**
Fichas de Instituições	**Tables on Authorities**
Fichas de Assuntos	**Tables on Subjects**
Fichas de Temas	**Tables on Themes**
Lista de Instituições	**List of Authorities**

Figure 3 – Methodology used to identify the bodies responsible for themes

An initial meeting was held between the GT M&R CO-SNIG and the MSCP (IGP) on 23 February 2010, where the strategy for tackling the monitoring and reporting task was decided.

The INSPIRE monitoring and reporting process involved the following steps:

1. Meeting between the MSCP and the GT M&R CO-SNIG to discuss the methodology to be adopted in the process;

2. Request to complete an online form to identify each authority's SDS and services associated with the Annex themes (sent to the INSPIRE FPN);

3. Questionnaire on the INSPIRE Report sent to the INSPIRE FPN;

4. Meeting with the FPN to discuss and clarify doubts;

5. Meeting between the MSCP and the GT M&R CO-SNIG to analyse the responses received and to harmonise the criteria and responses. Recommendations were drawn up;

6. New request for changes and new responses sent to the INSPIRE FPN, bearing in mind the recommendations;

7. Meeting with the FPN to clarify the recommendations;

8. Calculation of the monitoring indicators and preparation of the draft version of the INSPIRE Report;

9. Meeting between the MSCP and the GT M&R CO-SNIG to analyse the monitoring results and the INSPIRE Report;

10. Submission to the CO-SNIG for approval;

11. Submission to the European Commission.

All the authorities in the INSPIRE CORE FPN were contacted to obtain the information needed for the monitoring and preparation of the INSPIRE Report. At the same time, other authorities regarded as important both in the aforementioned analysis and at the first meeting of the GT M&R CO-SNIG were asked to appoint an INSPIRE contact point. Those authorities without a contact point, which were asked to appoint one, were: DGS, INSA, REFER (Portuguese rail infrastructure manager), DGCI (Directorate-General for Taxation), INAC (National Civil Aviation Institute) and CTT.

The GT M&R CO-SNIG monitored the various phases during which information was collected from the producers of SDS and services, and conducted a final review of the monitoring results and the INSPIRE Report.

Finally, the monitoring indicators and the INSPIRE Report were submitted for approval to the CO-SNIG, before being submitted to the European Commission.

6.1.3 Comments on the monitoring and reporting process

The monitoring and reporting process was carried out in phases, based, as already mentioned, on three main foundations: the INSPIRE FPN, the GT M&R CO-SNIG and the IGP as INSPIRE MSCP through the INSPIRE WG.

Various doubts were raised about some of the monitoring and reporting requirements, as some aspects are not clearly explained in the guidelines for filling in the spreadsheet to calculate the monitoring indicators.

One of the questions that proved critical to the process was identifying the universe of spatial data services to be included. On contacting the JRC, it was determined that this universe might include also the web mapping applications as view services. This information had a huge impact on the results obtained in terms of the monitoring indicators for the implementation of the INSPIRE Directive.

There were also questions about the report, particularly with regard the inclusion of cost estimates, as the authorities approached this issue in very different ways.

The monitoring activity could be made much easier in future years by using the information contained in the metadata. Furthermore, the identification of SDS and services associated with the Annex themes could also be improved in the coming year, thus allowing more complete and realistic results to be obtained.

With regard to the monitoring, the possibility of determining at a much earlier stage the universe to be taken into account (SDS and services associated with each theme) and the availability of metadata containing the information needed to calculate the indicators may allow for a partial automation of the process.

6.2   Quality Assurance (Art. 12(2))

6.2.1 Quality assurance procedures

Various procedures have been established to contribute to quality assurance in the SDI:

- appointment of Metadata Managers with a username and password;

- appointment of INSPIRE Focal Points with a username and password;

- since 2005, organisation of training courses aimed at Metadata Managers;

- creation of the National Metadata Profile;

- based on ISO XML Schemas and INSPIRE's mandatory fields, validation functions have been developed in the tool created in 2005 for producing and editing metadata – MIG Editor (http://sourceforge.net/projects/migeditor/) – as well as in the SDI itself;

- metadata records have been published in the SDI after being approved;

- organisation of training courses on Geo Web Services;

- organisation of dissemination sessions and workshops.

In terms of monitoring and reporting, the creation of a working group for this purpose within the CO-SNIG and the final approval by the CO-SNIG of the obtained result before submission, also contribute to the quality assurance of the information produced.

6.2.2 Analysis of quality assurance problems

The SNIG still contains metadata records that do not meet the INSPIRE requirements as they were published in the SDI before the INSPIRE specifications were drawn up. Furthermore, there have sometimes been difficulties in contacting the public authorities involved in the process due to an internal change of the INSPIRE contact point not having been duly notified to the Member State Contact Point. These issues have caused problems in obtaining the information needed for the monitoring and reporting process.

6.2.3 Measures taken to improve the quality assurance

The IGP supports those authorities that must implement the Directive, as there is a permanent training programme for metadata managers, which has already trained 262 representatives of the authorities. More recently a training programme was initiated which focuses on the creation of view services. Two training actions entitled 'Implementation and use of Geo Web Services: Web Map Service (WMS)' have already trained 24 officials from various public authorities. A series of *e*-learning modules on the INSPIRE Directive and its technical components is currently being finalised.

In addition, meetings are held with authorities, focusing on the various components for implementing the Directive, including monitoring and reporting.

The creation of working groups bringing together, within specific groups, the public authorities responsible for the same Annex themes can also be identified as a procedure contributing to the quality assurance of the infrastructure and of the results of the process covered by this report.

6.2.4 Quality certification mechanisms

The MIG Editor complies with the ISO standard and meets the INSPIRE requirements. In this respect, the quality of metadata is certified.

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

7.1   General overview description of the SDI

The National System for Geographic Information (SNIG) is the national spatial data infrastructure (SDI). Its purpose is to allow geographic information on the national territory to be searched, viewed and used, through various access points. It is also a contact space allowing activities associated with this issue in Portugal, and in the context of the INSPIRE Directive (INfrastructure for SPatial InfoRmation in Europe), to be organised, linked and encouraged.

Set up 20 years ago through Decree-Law No 53/90 of 13 February 1990, it was the first SDI to be developed in Europe and the first to be made available on the Internet in 1995. At the time, it was regarded as a highly innovative project. Given the recent advances made in this area, driven mainly by the Open Geospatial Consortium (OGC) and the International Organisation for Standardisation (ISO), and more recently by the INSPIRE Directive, it has since then substantially altered. The transposition of the INSPIRE Directive through Decree-Law No 180/2009 of 7 August 2009 has led to the former Decree-Law on the SNIG being revised.

The advances made in recent years have resulted in a large number of standards on geographic information (GI), which are following and taking advantage of the development in the Internet and in related technologies, such as XML and Web Services, and in new computing models such as the Service Oriented Architecture (SOA). This is leading to a situation of distributed geographic information services, which are accessible via the Internet and which are helping to increase access to geographic information, among which the SNIG Geo-portal (http://snig.igeo.pt) is a prime access point (Figure 4).

Figure 4 – SNIG Geo-portal

The collaboration and concerted action of national public authorities is essential to the implementation of the national infrastructure, by applying standards and providing access to metadata and services. It may therefore be said that the infrastructure does not only consist of application components but also of a series of measures that aim to harmonise and provide access to national geographic information (metadata, spatial data sets and services). These measures include regulatory documents, contact networks and training of officials from national authorities.

In this context, the IGP has been encouraging:

• the creation of contact networks of public authorities that are part of the SNIG;

• training actions in relevant areas, such as metadata and services;

• dissemination sessions, seminars and workshops on the SNIG and INSPIRE;

• meetings with some of the authorities;

• formation of working groups.

The components of the SDI are as described below (Juliao et al., 2008).

Metadata Catalogue

The catalogue is a metadata database, standardised at national, regional and local levels. This database consists of metadata published by the national authorities. In order to have a reliable metadata database that reflects national geographic production, all the authorities producing and using GI must be involved.

The metadata describe the geographic information in text format, allowing geographic information to be fundamentally understood and evaluated in terms of its quality, spatial and temporal extent, information producers and method of acquisition.

The metadata in the catalogue comply with the following ISO standards: ISO 19115 (schema for geographic information – metadata), ISO 19139 (schema for implementing metadata) and ISO 19119 (extension of ISO 19115 to map service metadata). These metadata included in the catalogue also feed the catalogue search engine.

Figure 5 shows various examples of use of the catalogue and the various stakeholders.

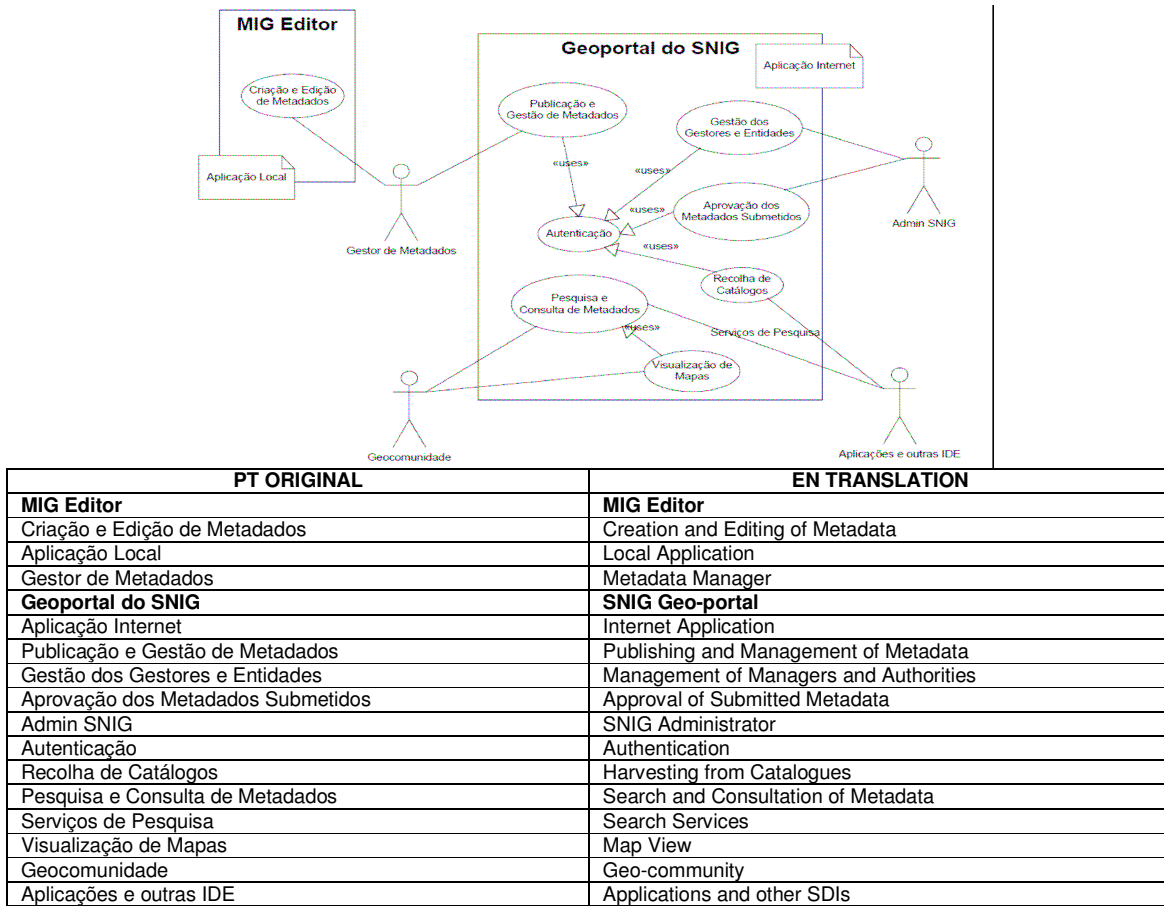| PT ORIGINAL	EN TRANSLATION
MIG Editor	**MIG Editor**
Criação e Edição de Metadados	Creation and Editing of Metadata
Aplicação Local	Local Application
Gestor de Metadados	Metadata Manager
Geoportal do SNIG	**SNIG Geo-portal**
Aplicação Internet	Internet Application
Publicação e Gestão de Metadados	Publishing and Management of Metadata
Gestão dos Gestores e Entidades	Management of Managers and Authorities
Aprovação dos Metadados Submetidos	Approval of Submitted Metadata
Admin SNIG	SNIG Administrator
Autenticação	Authentication
Recolha de Catálogos	Harvesting from Catalogues
Pesquisa e Consulta de Metadados	Search and Consultation of Metadata
Serviços de Pesquisa	Search Services
Visualização de Mapas	Map View
Geocomunidade	Geo-community
Aplicações e outras IDE	Applications and other SDIs

Figure 5 – Diagram showing examples of use of the SNIG infrastructure catalogue

The Metadata Manager is responsible for publishing the metadata in the SNIG and coordinates the production of metadata within the authority. MIG Editor is a metadata production tool made available by the SNIG according to the standards applied. Metadata can be produced using this application or other applications implementing the same standards. The metadata manager is allocated an area within the SNIG to manage the metadata published in the SNIG.

The SNIG Administrator accredits the metadata managers for publication purposes and approves the metadata submitted.

The Geo-community can freely search and consult the metadata, and possibly view the geographic information (if the resource is a map service) or download spatial data sets (SDS), if these are available for this purpose.

Other applications or SDIs can also access the SNIG catalogue through the Catalogue Service for Web (CSW). In its basic form, this web service allows read-only searches to be carried out, while, in its transactional form, it allows the addition and removal of records or harvesting from the catalogue.

Catalogue Search

The catalogue can be searched using a form, which allows free text, spatial extent, temporal extent, thematic category and resource type searches to be combined (Figure 6).

The search interface also includes a geographical name location system with over 30 000 records taken from the Official Administrative Map and from the Geographic Base for

Information Referencing (BGRI). This system quickly and efficiently finds the target location and defines its spatial extent.

Figure 6 – Catalogue search form

The search results in a series of metadata records, which can be read in their shortened or complete forms (Figure 7).

Figure 7 – Metadata in their shortened and complete forms

Another way for searching the catalogue is to use the indexed resources of the portal. There is a directory of applications indexed by theme (land register, geodesy, planning, Municipal GIS, etc.) together with resources indexed by INSPIRE theme, national series, basic geographic information, atlas and services.

Publication of Metadata

There are various ways of publishing metadata in the catalogue: via the geo-portal form, by uploading metadata files produced in MIG Editor (Figure 8), or other editors compatible with the ISO 19139 standard, or by harvesting from other catalogues (Silva, 2009).

System authentication is required to publish metadata. After being published, metadata can have four statuses: submitted, incomplete, rejected or approved. Metadata only become public when approved by the system administrator. The metadata manager has an area for carrying out the metadata management and publication operations.
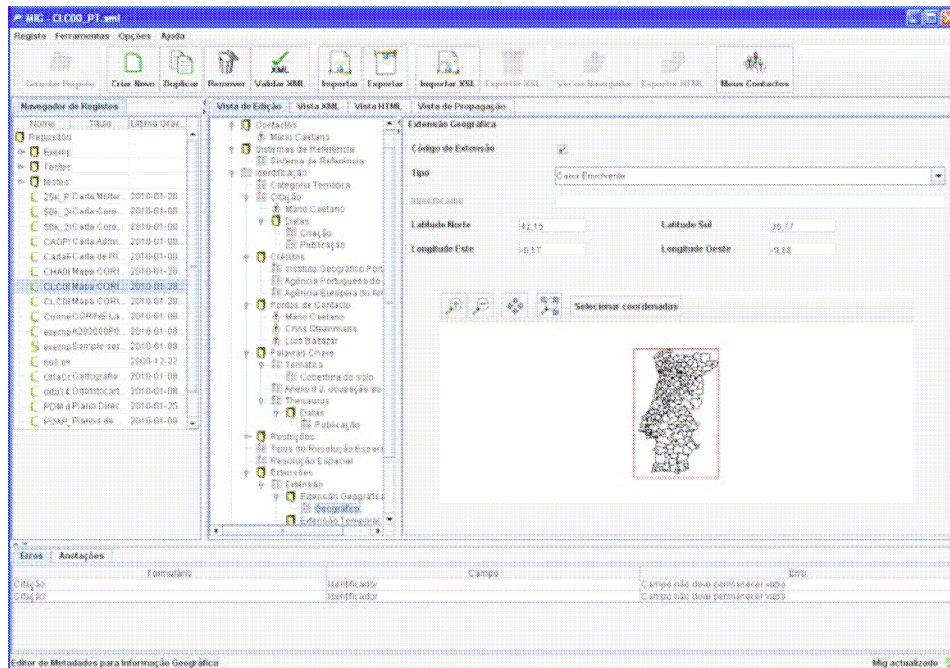
Figure 8 – MIG Editor

Viewer

The SNIG map viewer is a tool allowing spatial data to be viewed and overlaid (thematic maps, orthophotos, etc.), which therefore allows new maps to be created. These data may have different formats and coordinates, and may also be located on different servers sited elsewhere and belonging to different organisations and authorities (Figure 9).

These data must be based on the OGC (Open Geospatial Consortium) specifications, as is the case with the Web Map Service (WMS). These services are generically known as Geo Web Services.

The Web Map Service (WMS), which is the simplest service, only provides images of the geographic information, allowing the associated attributes (text information) to be viewed. The Web Feature Service (WFS) and the Web Coverage Service (WCS) not only allow the information to be viewed but also provide effective access to the geographic information, in the former vector information in GML (Geography Markup Language) format, and in the latter GRID-type information. At the moment, the SNIG viewer only supports the WMS, but the other services may be viewed using any GIS Desktop tool.

To add map services – i.e. to add new maps to the viewer – predefined servers, the URL address of the service where the target data is located or the metadata of these services may be used. In the latter case, the services available may be searched via the catalogue and viewed immediately.

Figure 9 – Viewing of maps from various sources.

Figure 10 shows the Official Administrative Map combined with the Base Map.

The provision of these types of services represents an open and transparent way of exchanging geographic information, using the Internet as a communication channel.
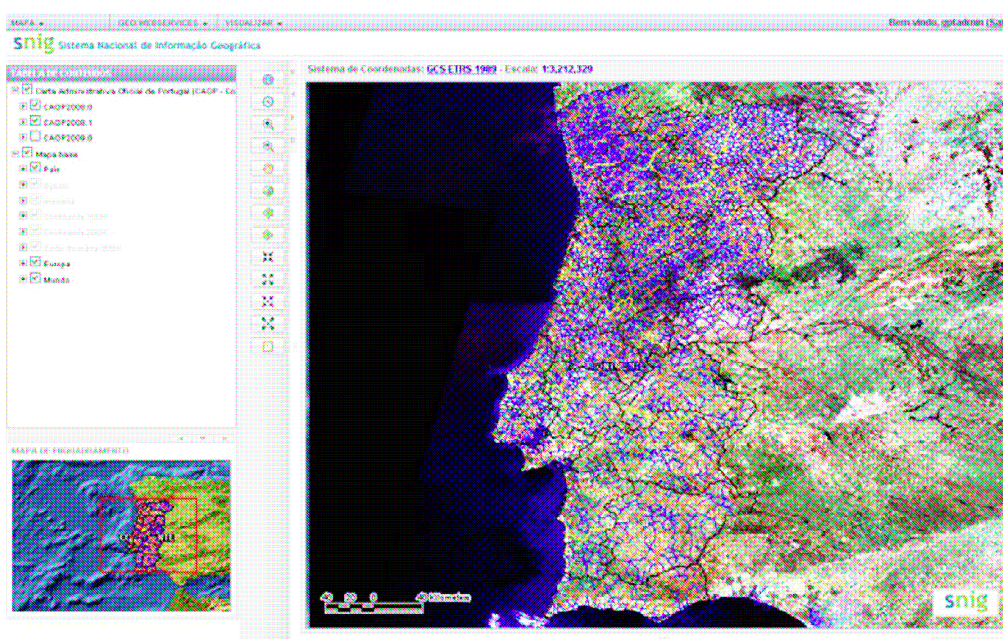
Figure 10 – View of the Official Administrative Map combined with the Base Map.

SNIG Geo-portal – Service guidance – SOA perspective
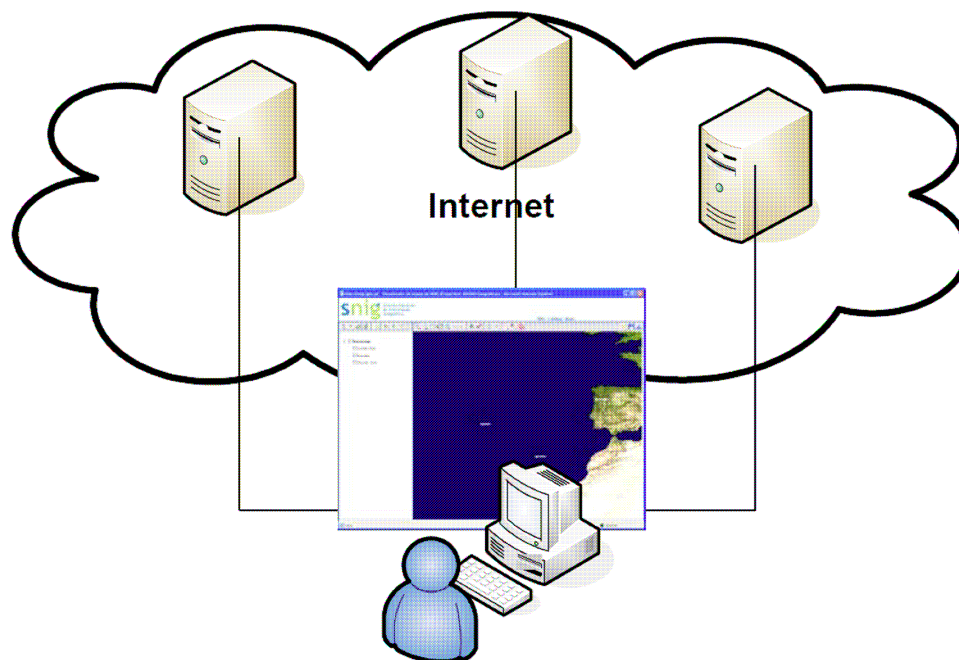
The Geo-portal has evolved into an SOA (Service Oriented Architecture) (Figure 11) in the sense that, by means of searches, it allows users not only to assess the services and resources available by viewing the metadata but also to use the available services and resources, as is the case when viewing maps made available via the Geo Web Services (WMS, WFS and WCS). The Geo-portal therefore mainly functions as a broker, allowing users to find and use services. It should be noted that the Geo-portal can also be a catalogue service client, of the CSW (Catalogue Service for Web) type. The services can be made available by any authority, both national and international.
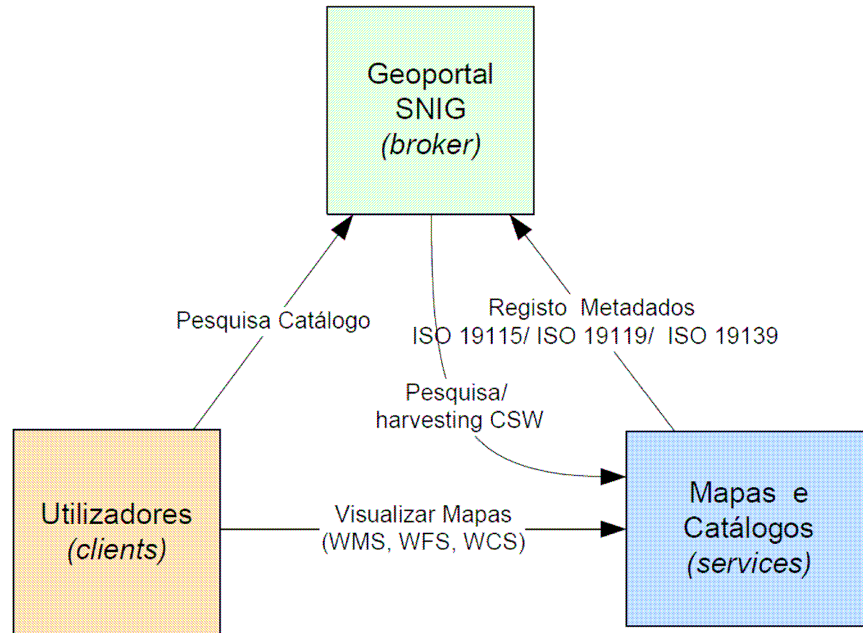
PT ORIGINAL	EN TRANSLATION
Geoportal SNIG (broker)	SNIG Geo-portal (broker)
Pesquisa Catálogo	Catalogue Search
Registo Metadados ISO 19115/ISO 19119/ISO 19139	ISO 19115/ISO 19119/ISO 19139 Metadata Records
Pesquisa/harvesting CSW	CSW search/harvesting
Utilizadores (clients)	Users (clients)
Visualizar Mapas (WMS, WFS, WCS)	View Maps (WMS, WFS, WCS)
Mapas e Catálogos (services)	Maps and Catalogues (services)

Figure 11 – SNIG Architecture (SOA perspective)

With regard to implementing the INSPIRE Directive, Tables 1 and 2 indicate the results obtained recently in the monitoring process.

Table 1 – Monitoring: Results obtained for Spatial Data Sets

SDS	Total	Annex I	Annex II	Annex III
Number of SDS	435	182	63	190
Coverage	96%	98%	96%	95%
Existence of Metadata	68%	67%	73%	67%
Conformity of Metadata	53%	58%	46%	52%
SDS with Search Services	50%	60%	30%	48%
SDS with View Services	38%	37%	27%	44%
SDS with Download Services	19%	24%	10%	17%

Table 2 – Monitoring: Results obtained for Spatial Data Services

Services	Number of Services	Existence of Metadata	Conformity of Metadata	Metadata Search
Search Services	2	100%	100%	100%
View Services	34	56%	56%	47%
Download Services	7	100%	100%	100%
Total	43	65%	65%	58%

Twenty-nine public authorities were contacted, corresponding to the authorities in the Core Focal Point Network, from which 20 responses were received.

It can be seen that the level of coverage of the 435 SDS identified in this phase is almost total (96%).

Metadata exist for 68% of the SDS identified. With regard to the metadata, 80% are in conformity, with the Annex I SDS metadata standing out at a higher percentage of 86%.

Half of the SDS are searchable (50%) through two search services (SNIG and InterSIG), 38% are viewable through 34 view services and only 19% are downloadable, corresponding to seven download services (in this group including Geo Web Services and web mapping applications with file download).

These results confirm that there is still much work to be done, with regard to both producing metadata in conformity and also making services available, preferably Geo Web Services.

7.2   INSPIRE Stakeholders

Focused in developing the SNIG and preparing the implementation of the INSPIRE Directive, networks of contact points and metadata managers have been created. Their active and coordinated participation will allow the harmonised national metadata database to be formed and the SNIG and INSPIRE objectives to be achieved.

The IGP is the body responsible for coordinating the SNIG network. It is also the Member State contact point for the INSPIRE Directive and forms the first ring around the SNIG, as can be seen in Figure 12. The second ring corresponds to all the national authorities, within which the IGP is also included, together with the metadata managers and the authorities' focal points. The INSPIRE Working Groups are interinstitutional groups which the SNIG wants to form and turn operational in order to tackle problems in specific thematic areas of INSPIRE, such as the harmonisation of data models.
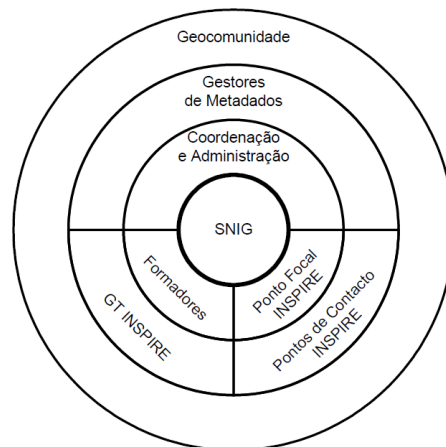
PT ORIGINAL	EN TRANSLATION
Geocomunidade	Geo-community
Gestores de Metadados	Metadata Managers
Coordenação e Administração	Coordination and Administration
SNIG	SNIG
Formadores	Trainers
Ponto Focal INSPIRE	INSPIRE Focal Point
GT INSPIRE	INSPIRE WG
Pontos de Contacto INSPIRE	INSPIRE Contact Points

Figure 12 – SNIG Network

The aforementioned public authorities are involved in the process by participating in various networks and working groups.

At the moment, the following contact networks exist (Figure 13), which have different objectives:

- The SNIG Network, which includes all producers and users registered on the geo-portal and which covers 158 authorities (Table 12.1.3 in the Annex);

- The INSPIRE Focal Point Network (INSPIRE FPN), which is intended to promote the exchange of information and experience in order to support the implementation of the INSPIRE Directive. This network was created in June 2007 and its initial members were those public authorities forming part of the SNIG. A total of 85 INSPIRE Focal Points have been appointed (Table 12.1.2 in the Annex);

- Metadata Managers Network, which was created in 2005 and which includes representatives of public authorities who are certified to publish the authority's information on the SNIG (Table 12.1.4 in the Annex).
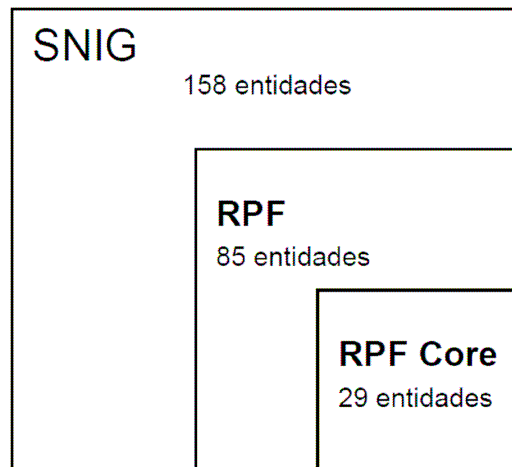
PT ORIGINAL	EN TRANSLATION
SNIG – 158 entidades	SNIG – 158 authorities
RPF – 85 entidades	FPN – 85 authorities
RPF Core – 29 entidades	Core FPN – 29 authorities

Figure 13 – SDI Contact Networks.

Table 3 indicates the public authorities (producers and users) involved in the SDI, categorising them in terms of: user, producer or belonging to the coordination structure.

Despite there being 158 authorities in the SNIG Network, only 84 are indicated in this table. These are the authorities that have appointed an INSPIRE Contact Point (FPN).

The categories in Table 3 were identified by the authorities themselves in 2007. At that time each appointed contact point was asked to identify the respective authority as a producer/user/holder/distributor of each INSPIRE theme. No information on services was requested. Only 43 authorities responded, and these are the ones shown in the following table.

Table 3 – Authorities which are participating in the development of the national SDI, which have appointed an INSPIRE focal point and which have responded

FPN	User	Producer	Coordination structure	Observations
Central Hydrographic Region Administration	X	X		
Portuguese Environment Agency	---	X	CO-SNIG member	
Association of Municipalities of the Litoral Alentejano	X	---		
National Forestry Authority	---	X	CO-SNIG member	
National Civil Protection Authority	X	X	CO-SNIG member	
Municipality of Maia	X	X		
Municipality of Marinha Grande	X	X		
Municipality of Povoa de Varzim	X	X		
Municipality of Arouca	X	X		
Municipality of Castelo Branco	X	X		
Municipality of Estarreja	X	---		
Municipality of Ferreira do Zezere	X	---		
Municipality of Guimaraes	X	---		
Municipality of Matosinhos	X	X		
Municipality of Setubal	X	---		
Municipality of Vila Franca de Xira	X	X		
Municipality of Vila Real	X	---		
Municipality of Seixal	---	X		
Lisbon and Vale do Tejo Regional Development and Coordination Commission	---	X		
Intermunicipal Community of Alto Alentejo	X	---		
Directorate-General for Agriculture and Rural Development	X	X		
Directorate-General for Energy and Geology	X	---		
Directorate-General for Regional Planning and Urban Development			CO-SNIG member	INSPIRE themes distributor
Regional Directorate for Agriculture and Fisheries of Alentejo	X	X		
Regional Directorate for Geographic Information and Regional Planning - Regional Government of Madeira	X	X		

FPN	User	Producer	Coordination structure	Observations
Bragança Polytechnic Institute	X	X		
Estradas de Portugal, S.A.	---	X		
Project Structure to Restore Legality	x	---		
Metropolitan Area of Porto	x	---		

Water Institute	---	X	CO-SNIG member	
Nature Conservation and Biodiversity Institute	X	X	CO-SNIG member	
Housing and Urban Regeneration Institute	---	X		
Vine and Wine Institute	X	X		
Agriculture and Fisheries Financing Institute	---	X		
Architectural and Archaeological Heritage Management Institute	---	X		
Meteorology Institute, I.P.	---	X		
Geographic Institute of the Army	---	X	CO-SNIG member	
Portuguese Geographic Institute	---	x	SNIG coordinator Chairs the CO-SNIG	
Hydrographic Institute	---	X	CO-SNIG member	
National Statistics Institute	X	X	CO-SNIG member	
Maritime Transport and Port Institute	X	X		
National Energy and Geology Laboratory	x	x	CO-SNIG member	
Regional Department for Science, Technology and Facilities - Regional Government of the Azores	x	x		
Regional Department for Regional Planning and Water Resources - Regional Government of the Azores	x	x		

7.3   Role of the various stakeholders

Table 4 indicates the various stakeholders involved in the development of the national SDI, grouped by type and role.

Tables 12.3.1 and 12.3.2 in the Annex give a general description of the authorities that contributed to the INSPIRE Report, as well as a description of their relationship with the geographic information sector.

Table 4 – Identification of the role of authorities participating in the development of the national SDI

Stakeholders	Description
IGP	MSCP, SNIG coordinator, producer and user of SDS and services.
CO-SNIG	Structure responsible for strategically coordinating the SNIG and supporting the MSCP with regard to the INSPIRE obligations.
SNIG Network	Network of public and private bodies producing and using SDS and services, involved in: identification of SDS and services in relation to the Annex themes; creation, editing and publication of metadata for SDS and services; creation, publication and maintenance of spatial data services; description of their SDS and services; reporting on issues for the INSPIRE Report.
INSPIRE FPN	Network of representatives of public authorities producing information on the Annex themes, which promotes the exchange of information and experience in order to support the implementation of the INSPIRE Directive.
WG	Working groups formed within the CO-SNIG and FPN to consider specific topics (e.g. GT M&R CO-SNIG and WG on the Annex themes).

7.4   Measures taken to facilitate sharing

The creation of the CO-SNIG, as part of the transposition of the INSPIRE Directive through Decree-Law No 180/2009 of 7 August 2009, is one of the measures taken to facilitate sharing following the entry into force of the Directive. It involves 12 national authorities (see sub-chapter 6.1.2).

Prior to that, the existence of the SNIG Network and its associated sub-networks can also be regarded as a measure facilitating sharing. The SNIG Network involves 158 national, regional and local authorities.

7.5   Stakeholder cooperation

In the geographic information sector, there are various examples of institutional cooperation, at different levels and in different thematic areas.

Tables 12.3.3 and 12.3.4 in the Annex identify the bodies with which each public authority cooperates and the type of activity or information involved in this cooperation.

Different types of cooperation can be identified, which range from the transfer or exchange of SDS on the respective areas involved, through cooperation in the production of certain types of information (e.g. national forest inventory, nautical mapping and heritage kit) and in the discussion of methodologies or common problems in terms of production, organisation, sharing and availability of SDS and services.

In terms of national strategy, there is the written cooperation agreement of the Advisory Council for the National System for Geographic Information (CO-SNIG) , created through Decree-Law No 180/2009 of 7 August 2009, which identifies those participating public authorities that must cooperate to ensure the strategic coordination of the SNIG.

In terms of Working Groups (WG), the Monitoring & Reporting Working Group (GT M&R CO-SNIG) was formed within the CO-SNIG on 16 December 2009 to support the MSCP in the task of monitoring the implementation of the Directive and preparing the INSPIRE Report.

Furthermore, a proposal has been made to form working groups involving those authorities responsible for SDS and services associated with the Annex themes. This proposal has been submitted to the CO-SNIG for discussion and it is anticipated that these working groups will start work in June 2010. They will discuss and make decisions on the best way of applying the implementing rules associated with the respective themes.

The national Geo-portal (http://snig.igeo.pt) includes 11 120 records from 24 authorities.

The SNIG has evolved into an SOA (Service Oriented Architecture) in the sense that, by means of searches, it allows users not only to assess the services and resources available by viewing the metadata but also to use the available services and resources, as is the case when viewing maps made available via the WMS specification. The Geo-portal therefore mainly functions as a broker, allowing users to find and use services. It should be noted that the Geo-portal can also be a catalogue service client, of the CSW (Catalogue Service for Web) type. The services can be made available by any authority, both national and international. This type of distributed architecture is increasingly being used, thus avoiding the centralisation of resources and services.

In addition to the national and cross-cutting spatial data infrastructure, represented in Portugal by the SNIG, there are also other sectoral initiatives that should be mentioned, including national projects such as the National Water Resources Information System (SNIRH) and the National Land Information System (SNIT) , and regional projects, particularly the infrastructures of the Autonomous Regions of the Azores and Madeira, together with a series of local initiatives supported by municipalities.

In thematic terms, the following national portals exist:

- National Water Resources Information System (SNIRH) (http://snirh.pt/)
  The SNIRH is an information system on water resources created by the Water Institute (INAG).
- InterSIG (http://intersig-web.iag.pt/intersig/)
  InterSIG is a geographic information manager that is intended to centralise and organise all the geographic information existing within INAG, and which can be accessed both internally and by the general public according to defined access levels and using a common interface. Through this platform, INAG provides access to all the basic themes in the Water Framework Directive (WFD) and other official themes under the responsibility of INAG (areas protected by the Water Act, themes in the Urban Wastewater Treatment Directive, reservoirs within the National Programme of Dams with Significant Hydroelectric Potential, etc.).
- National Land Information System (SNIT) (http://www.dgotdu.pt/)
  The SNIT is an information system that contains information on the Portuguese territory and its planning status.
- Natural Heritage Information System (SIPNAT) (http://www.icn.pt/sipnat)
  The SIPNAT is an information system providing species information, occurrence maps and information on Classified Areas (Portugal Continental).

Regional portals also exist, particularly those of the Autonomous Regions (AR):

- Interactive Spatial Data Infrastructure for the Azores (SIGEndA) (http://ideia.azores.gov.pt/sigenda/)
- Regional Spatial Data Infrastructure for Madeira (IRIG-Madeira) (http://www.irig-madeira.com)
  IRIG-Madeira is the spatial data infrastructure for Madeira. It falls under the responsibility of the Regional Directorate for Geographic Information and Regional Planning (DRIGOT), which has defined the legal and institutional framework for implementing the IRIG, in conjunction with the authorities and services involved.

7.6   Access to services through the INSPIRE Geo-portal

Portugal has view services (WMS 1.1.1) and download services (WFS 1.0.0), which are available through the SNIG Geo-portal. These services are accessible through the SNIG metadata catalogue.

8. Use of the infrastructure for spatial information (Art. 14)

8.1   Use of spatial data services in the SDI

Using the form to collect monitoring information on the Directive's implementation, it was possible to confirm that services for some of Portugal's SDS on the Annex themes are accessible to any user.

The indicators obtained for these services suggest that 50% of the 435 SDS included in the analysis are searchable, 38% are viewable and 19% are downloadable (see Table 2).

There are 43 spatial data services, mainly view services (34). All the metadata of the search (2) and download (7) services are in conformity and searchable. With regard to the view services, only 56% have metadata that are in conformity and 47% of the metadata are searchable.

The web mapping applications allowing the SDS to be viewed and in some cases downloaded were included as spatial data services in this initial monitoring exercise, in addition to the Geo Web Services.

8.2   Use of the spatial data sets

Those SDS associated with the Annex themes and used by the public authorities are identified in the Annex to this Report (Table 12.3.5). This identification was made by the authorities that responded to the MSCP's requests for the INSPIRE Report.

The responses received point to a widespread use of SDS on various themes in the three Annexes, particularly SDS on the themes in Annex I.

8.3   Use of the SDI by the general public

Only statistics from October 2009 are available on the use of the SDI, which is when the current version was launched. These statistics are as follows:

- 72 metadata manager records;
- 498 registered users.

The number of hits for some of the most viewed pages are as follows:

Welcome to the SNIG!	43 236
Applications	5 942
Metadata	4 795
Editing and Publication of Metadata	3 435

8.4   Cross-border use

There are some examples of cross-border use and transboundary harmonisation of information (Table 12.3.6 in the Annex). The following are some of these examples:

- Information sharing with Spain on protected areas (e.g. Peneda-Geres National Park and Douro International Natural Park);

- PLEIADeS project, which is using new technologies to ensure the efficient and sustainable use of water in agriculture in areas where there are scarse water resources. This project

involves SDS on various Annex themes, covering countries such as Portugal, Spain, Italy, Greece, Turkey, Morocco, Mexico, Peru and Brazil;

- National geographic information relating to the Water Framework Directive must be in line with the data model of that Directive and be harmonised with the data from Spain;

- Iberian Geological Map;

- Within the GeoALEX and OTALEX I and II projects, partnerships have been formed with the Regional Government of Extremadura (Spain), Badajoz Town Council (Spain) and the Spanish Geographic Institute with a view to harmonising mapping specifications and creating a Web portal.

8.5   Use of transformation services

No transformation services are available.

9. Data-sharing arrangements (Art. 15)

9.1   Data-sharing arrangements between public authorities

Data-sharing arrangements between public authorities, as identified by the authorities that responded to the MSCP request for the Report, are shown in Table 12.3.7 in the Annex.

The arrangements differ according to both their object and their conditions:

- data-sharing and collaboration agreements between public authorities;

- agreements in which information production costs are shared;

- licences to use information;

- information sharing arrangements with private bodies;

- data-sharing arrangements through Geo Web Services;

- information exchange arrangements on certain themes;

- data model definition arrangements;

- application transfer arrangements;

- GI and tool transfer arrangements.

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

In this context, the number of arrangements is fairly limited, with only 7 out of the 18 authorities that responded to the request for the INSPIRE Report having identified such arrangements (Table 12.3.8 in the Annex).

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

The barriers to the sharing of spatial data, as identified by the public authorities that responded (Table 12.3.9 in the Annex), include:

- restrictions on access to data due to highly restrictive data access policies;

- high prices of information;

- failure by authorities to comply with data exchange agreements;

- lack of metadata;

- lack of uniform coverage for the whole territory (scale and data standards);

- difficulties connected with data ownership;

- lack of guidance on the regulation and organisation of GI production;

- non-existence of institutional data-sharing and access policies between the various national authorities;

- non-existence of a sharing 'vehicle';

- structural problems in terms of communications.

In terms of actions taken to overcome the barriers identified (Table 12.3.10 in the Annex), the responses received point to:

- conclusion of geographic information sharing and collaboration agreements;

- elimination of redundant information;

- adoption of common rules on geographic information;

- formation of working groups to harmonise information production and sharing;

- participation in European initiatives and implementation of the INSPIRE Directive;

- creation of a simplified model contract for data sharing;

- organisation of conferences providing examples of best practice;

- technical monitoring and dissemination of projects;

- clarification of formal knowledge and responsibilities with regard to the production of SDS.

10.   Cost / Benefit aspects (Art. 16)

10.1   Costs of implementing the INSPIRE Directive

The costs subdivided into the various components, as estimated by the public authorities for this phase of implementation of the INSPIRE Directive, are indicated in Table 12.3.11 in the Annex.

The indicated costs reveal experiences that differ in their scope and duration, resulting in different figures for the same components. Furthermore, various authorities state that they do not have data in this phase to be able to respond to this question.

10.2   Benefits observed

The examples of benefits identified by the national public authorities (Tables 12.3.12, 12.3.13 and 12.3.14 in the Annex) point to:

1. Positive effects on policy preparation, implementation and evaluation, in particular:
   - greater availability of and access to geo-referenced information;
   - improved organisation, structuring and cataloguing of all information;
   - more effective data sharing;
   - economies of scale in terms of using information;
   - economies of scale in the supply to various users;
   - allocation of budget and procedures;
   - creation of services and compatibility of information;
   - easier to discover and understand the characteristics of existing information;
   - better guarantee of up-to-date data; data producers are more closely associated with the data;
   - more specialisation by authorities on their various themes, leading to better quality geographic information;
   - linking together of public authorities responsible for producing GI, leading to the definition of national policies in this area, particularly policies on data access, on authorities concerted action and on reduction of duplication in data collection and production;
   - greater efficiency in environmental protection, monitoring and evaluation, speeding up the application of legislation in this area;
   - establishment of synergies;
   - better decision-making.

2. Improved services to the citizen, resulting from:
   - greater transparency in access to information and in understanding the quality of information;
   - generalised access to information;
   - improved access, free of charge, to up-to-date data;
   - easier access to harmonised data;
   - easier information search and better understanding of information characteristics and access conditions;
   - creation of new products and services;
   - improved public service for certain services.

3. Benefits of cross-border cooperation, resulting from:
   - easier development of projects with Spain;
   - common use by Portugal and Spain of the same multi-temporal series of satellite images;
   - easier management of common resources such as water; cooperation support in terms of water resources policy;
   - improved evaluation of cross-border impacts;

- improved formulation, analysis, implementation and evaluation of pan-European policies;
- promotion of research activities between different countries.

11.   Conclusions

This report presents the results of the monitoring and reporting process intended to describe the national spatial data infrastructure, the SNIG and the implementation of the INSPIRE Directive in Portugal, by indicating the current situation based not only on information collected from stakeholders but also on existing documents referring to this situation.

The SNIG is the national spatial data infrastructure, which was set up 20 years ago through Decree-Law No 53/90 of 13 February 1990. It was the first SDI to be developed in Europe and the first to be made available on the Internet in 1995. Given the recent advances made in this area, it has since been substantially altered, and the transposition of the INSPIRE Directive through Decree-Law No 180/2009 of 7 August 2009 has led to the former Decree-Law on the SNIG being revised.

The monitoring and reporting process was carried out in phases and was based, as already mentioned, on three main foundations: the INSPIRE FPN, the GT M&R CO-SNIG and the IGP as INSPIRE MSCP through the INSPIRE WG.

To calculate the indicators, the INSPIRE FPN authorities were asked to identify the Spatial Data Sets (SDS) and services under their responsibility and associated with the Annex themes, and also to describe these in terms of the existence and conformity of metadata, coverage and conformity of SDS and existence of services, their accessibility through metadata and their use. They were also asked to respond to a series of questions for the INSPIRE Portugal Report.

In terms of the involvement of the INSPIRE FPN authorities, responses were received from 18 out of the 29 authorities asked to contribute to the INSPIRE Report. The number of responses to the online form was slightly higher, as 20 out of the 29 authorities contacted responded to it.

Efforts were made to include all information that might help to describe the national SDI and situation with regard to implementing the INSPIRE Directive, based on the topics indicated by the European Commission for the Report and the information needed to calculate the various monitoring indicators. Despite everything, it was not possible in this phase to identify SDS and services for two themes in Annex III (Human Health and Safety and Atmospheric Conditions).

The cooperation between the MSCP and the GT M&R CO-SNIG throughout the monitoring and reporting process should be noted, which clearly shows the importance of forming specific working groups on certain themes. The collaboration with the public authorities participating in the SNIG should also be highlighted, particularly those involved in this phase of implementing the Directive.

As this was the first monitoring and reporting process for the Directive, various doubts were raised about some of the monitoring and reporting requirements, which will clearly not be the case in subsequent phases.

Finally, it is believed that the monitoring activity could be made much easier by using the information contained in the metadata. Furthermore, the identification of SDS and services associated with the Annex themes may also be improved during the coming year, as a result of the activity of the thematic working groups, which will allow better validated and more complete results to be obtained. Subsequent efforts will also be made to involve a larger number of authorities in the process.

12. Annexes

12.1 List of organisations – names and contact details

Table 12.1.1 – INSPIRE CORE Focal Point Network

Authority	Acronym	Contact Point	E-mail
Portuguese Environment Agency	APA	Luis Baltazar	luis.baltazar@apambiente.pt
National Forestry Authority	AFN	Lucio Pires do Rosario	luciorosario@afn.min-agricultura.pt
National Civil Protection Authority	ANPC	Giuseppe Cornaglia	giuseppe.cornaglia@prociv.pt
Directorate-General for Fisheries and Aquaculture	DGPA	Francisco Goncalves dos Santos	gsantos@dgpa.min-agricultura.pt
Directorate-General for Agriculture and Rural Development	DGADR	Antonio Perdigao	perdigao@dgadr.pt
Directorate-General for Energy and Geology	DGEG	Isabel Margarida Macieira	isabel.macieira@dgge.pt
Regional Directorate for Regional Planning and Water Resources - Regional Government of the Azores	DROTRH Azores	Joao Luis Gaspar	joao.lr.gaspar@azores.gov.pt
Directorate-General for Regional Planning and Urban Development	DGOTDU	Regina Pimenta	rpimenta@dgotdu.pt
Regional Directorate for Geographic Information and Regional Planning - Regional Government of Madeira	DRIGOT Madeira	Luis Correia Antunes	luisantunes.sres@gov-madeira.pt
Estradas de Portugal, S.A.	EP, S.A.	Andre Melrinho	andre.melrinho@estradasdeportugal.pt
Education Statistics and Planning Office	GEPE	Pedro Jorge Neves Pereira	pedro.pereira@gepe.min-edu.pt
Strategy and Planning Office	GEP	Manuel Joao Duarte	manuel.joao@gep.mtss.gov.pt
Water Institute	INAG	Ana Catarina Mariano	acatarina.mariano@inag.pt
Nature Conservation and Biodiversity Institute	ICNB, I.P.	Henrique Nuno dos Santos Rocha Tato Marinho	marinhoh@icnb.pt

Authority	Acronym	Contact Point	E-mail
Housing and Urban Regeneration Institute	IHRU, I.P.	Joao Manuel Santos Vieira	JSVieira@ihru.pt
Vine and Wine Institute	IVV, I.P.	Maria da Luz Monteiro da Veiga Franca	lfranca@ivv.min-agricultura.pt
Agriculture and Fisheries Financing Institute	IFAP, I.P.	Rita Alexandra Saraiva Araujo	rita.araujo@ifap.pt
Architectural and Archaeological Heritage Management Institute	IGESPAR, I.P.	Fernando de Mello Moser	fmoser@igespar.pt
Meteorology Institute	IM, I.P.	Pedro Viterbo	pedro.viterbo@meteo.pt
Geographic Institute of the Army	IGeoE	Jose Antonio Travanca Lopes	tlopes@igeoe.pt
Portuguese Geographic Institute	IGP	Rui Pedro Juliao	rpj@igeo.pt
Hydrographic Institute	IH	Rui Manuel Reino Baptista	reino.baptista@hidrografico.pt
National Civil Aviation Institute	INAC, I.P.	Maria da Conceicao Amaral	conceicao.amaral@inac.pt
National Institute for Medical Emergencies	INEM, I.P.	Paulo Renato Marques Pinto	paulo.pinto@inem.pt
National Statistics Institute	INE, I.P.	Ana Maria Antonia dos Santos	ana.msantos@ine.pt
National Institute for Biological Resources	INRB, I.P.	Jose Aguiar	jm.aguiar@iniap.pt
Maritime Transport and Port Institute	IPTM, I.P.	Maria Elisabete Ferreira Dias	elisabete.dias@imarpor.pt
National Energy and Geology Laboratory	LNEG, I.P.	Gabriel Luis	gabriel.luis@ineti.pt
Regional Department for Science, Technology and Facilities - Regional Government of the Azores	SRCTE Azores	Marlene Assis	marlene.cs.assis@azores.gov.pt

Table 12.1.2 – INSPIRE Focal Point Network

Authority	Acronym	Contact Point	E-mail
Algarve Hydrographic Region Administration	ARH ALGARVE, I.P.	Anabela Dores	adores@arhalgarve.pt
Central Hydrographic Region Administration	ARHC, I.P.	Maria Leonor Gomes da Silva	leonor.silva@arhcentro.pt
Portuguese Environment Agency	APA	Luis Baltazar	luis.baltazar@apambiente.pt
Association of Municipalities of the Litoral Alentejo	AMLA	Rafael Encarnacao	rafaelencarnacao@amla.pt
Portuguese Association of Geographers	APG	Paulo Morgado	paulo@campus.ul.pt
National Forestry Authority	AFN	Lucio Pires do Rosario	luciorosario@afn.min-agricultura.pt
National Civil Protection Authority	ANPC	Giuseppe Cornaglia	giuseppe.cornaglia@prociv.pt
Municipality of Amadora	CM AMADORA	Maria Deolinda A.R.Teixeira Costa	deolinda.costa@cm-amadora.pt
Municipality of Maia	CM MAIA	Paulo Renato Abreu Marques Matos	dcdt@cm-maia.pt
Municipality of Marinha Grande	CM MARINHA GRANDE	Sandra Elisabete Fonte Saraiva	sig@cm-mgrande.pt
Municipality of Nazare	CM NAZARE	Sofia Catarina Narciso Fernandes	sofia.fernandes@cm-nazare.pt
Municipality of Povoa de Varzim	CM P. VARZIM	Suzete Almeida	suzetealmeida@cm-pvarzim.pt
Municipality of Albergaria-a-Velha	CM ALBERGARIA	Ana Fernandes Barreiros Silva	Ana.silva@cm-albergaria.pt
Municipality of Albufeira	CM ALBUFEIRA	Ricardo Sena	sig@cm-albufeira.pt
Municipality of Alcochete	CM ALCOCHETE	Silvia Rovisco	scrovisco@cm-alcochete.pt
Municipality of Arouca	CM AROUCA	Carlos Almeida	sig@cm-arouca.pt
Municipality of Arruda dos Vinhos	CM ARRUDA	Saul Tiago de Matos	sig@cm-arruda.pt
Municipality of Braga	CM BRAGA	Rui Rodrigues	rui.rodrigues@cm-braga.pt
Municipality of Cantanhede	CM CANTANHEDE	Joao Oliveira Machado	jmachado@cm-cantanhede.pt
Municipality of Cascais	CM CASCAIS	Rui Teixeira	rui.teixeira@cm-cascais.pt
Municipality of Castanheira de Pera	CM CASTANHEIRA DE PERA	Fernando Rui Simoes Mendes da Silva	fernando.rui@cm-castanheiradepera.pt
Municipality of Castelo Branco	CM CASTELO BRANCO	Norberto Jose Rodrigues Grancho	grancho@cm-castelobranco.pt
Municipality of Espinho	CM ESPINHO	Amilcar Jose Fortes Vinagre	amilcar.vinagre@cm-espinho.pt
Municipality of Estarreja	CM ESTARREJA	Teresa Joao dos Anjos Lima	teresalima@cm-estarreja.pt

Authority	Acronym	Contact Point	E-mail
Municipality of Faro	CM FARO	Filomena Correia	sig@cm-faro.pt
Municipality of Ferreira do Zezere	CM FERREIRA DO ZEZERE	Hugo Miguel de Freitas Azevedo	Hugo.Azevedo@cm-ferreiradozezere.pt
Municipality of Guimaraes	CM GUIMARAES	Pedro Pereira	pedro.pereira@cm-guimaraes.pt
Municipality of Lisbon	CM LISBOA	Marcia Esperanca Munoz	marcia.munoz@cm-lisboa.pt
Municipality of Loures	CM LOURES	Paula Vidal Pereira	dig@cm-loures.pt
Municipality of Mafra	CM MAFRA	Carla Romana	cromana@cm-mafra.pt
Municipality of Matosinhos	CM MATOSINHOS	Ana Remelgado	ana.remelgado@cm-matosinhos.pt
Municipality of Odivelas	CM ODIVELAS	Rui Manuel Dias	rui.dias@cm-odivelas.pt
Municipality of Oeiras	CM OEIRAS	Fernando Fonseca Cruz	fcruz@cm-oeiras.pt
Municipality of Santa Maria da Feira	CM S M FEIRA	Sandra Resende	sandra.resende@urbanfeira.net
Municipality of Sao Joao da Madeira	CM S. JOAO MADEIRA	Joaquim Manuel Goncalves Milheiro	joaquimmilheiro@cm-sjm.pt
Municipality of Serpa	CM SERPA	Sergio Pestana	spestana@cm-serpa.pt
Municipality of Setubal	CM SETUBAL	Sonia Candeias Bronze	sonia.bronze@mun-setubal.pt
Municipality of Sever do Vouga	CM SEVER VOUGA	Ana Pinto	anapinto@cm-sever.pt
Municipality of Viana do Castelo	CM VIANA CASTELO	Vasco Manuel Rocha Martins	vmartins@cm-viana-castelo.pt
Municipality of Vila Franca de Xira	CM V F XIRA	Joao Santos	sig@cm-vfxira.pt
Municipality of Vila Nova de Famalicao	CM V NOVA FAMALICAO	Maria Francisca Pinto Mora Pinto de Magalhaes	urbanismo@cm-vnfamalicao.pt a/c Francisca Magalhaes
Municipality of Vila Real	CM VILA REAL	Joao Manuel da Silva Goncalves	jgoncalves@cm-vilareal.pt
Municipality of Barreiro	CM BARREIRO	Ana Luisa da Costa Pereira de Carvalho	ana.pereira@cm-barreiro.pt
Municipality of Montijo	CM MONTIJO	Joao Francisco Silva Cardoso	sigm@mun-montijo.pt
Municipality of Seixal	CM SEIXAL	Claudia Pinto	claudia.pinto@cm-seixal.pt
Irrigation Technology and Operations Centre	COTR	Marta Fabiao	marta.fabiao@cotr.pt
Lisbon and Vale do Tejo Regional Development and Coordination Commission	CCDR LVT	Ricardo Carloa Madeira Simoes	rsimoes@ccdr-lvt.pt
Central Regional Development and Coordination Commission	CCDR CENTRO	Carlos Goulao	carlos.goulao@ccdrc.pt

Authority	Acronym	Contact Point	E-mail
Northern Regional Development and Coordination Commission	CCDR NORTE	Conceicao Pinheiro	conceicao.pinheiro@ccdr-n.pt
Intermunicipal Community of Alto Alentejo	CIMAA	Luis Serra	luis.serra@cimaa.pt
Directorate-General for Fisheries and Aquaculture	DGPA	Francisco Goncalves dos Santos	gsantos@dgpa.min-agricultura.pt
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Directorate-General for Energy and Geology	DGEG	Isabel Margarida Macieira	isabel.macieira@dgge.pt
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Authority	Acronym	Contact Point	E-mail
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Housing and Urban Regeneration Institute	IHRU, I.P.	Joao Manuel Santos Vieira	JSVieira@ihru.pt
Vine and Wine Institute	IVV, I.P.	Maria da Luz Monteiroda Veiga Franca	lfranca@ivv.min-agricultura.pt
Agriculture and Fisheries Financing Institute	IFAP, I.P.	Rita Alexandra Saraiva Araujo	rita.araujo@ifap.pt
Geography and Regional Planning Institute	IGOT-CEG	Francisco Gutierres	franciscogutierres@campus.ul.pt
Architectural and Archaeological Heritage Management Institute	IGESPAR, I.P.	Fernando de Mello Moser	fmoser@igespar.pt
Meteorology Institute	IM, I.P.	Pedro Viterbo	pedro.viterbo@meteo.pt
Geographic Institute of the Army	IGEOE	Jose Antonio Travanca Lopes	tlopes@igeoe.pt
Portuguese Geographic Institute	IGP	Rui Pedro Juliao	rpj@igeo.pt
Hydrographic Institute	IH	Rui Manuel Reino Baptista	reino.baptista@hidrografico.pt
National Civil Aviation Institute	INAC, I.P.	Maria da Conceicao Amaral	Conceicao.amaral@inac.pt
National Institute for Medical Emergencies	INEM, I.P.	Paulo Renato Marques Pinto	paulo.pinto@inem.pt
National Statistics Institute	INE, I.P.	Ana Maria Antonia dos Santos	ana.msantos@ine.pt
National Institute for Biological Resources	INRB, I.P.	Jose Aguiar	jm.aguiar@iniap.pt
Maritime Transport and Port Institute	IPTM, I.P.	Maria Elisabete Ferreira Dias	elisabete.dias@imarpor.pt
National Energy and Geology Laboratory	LNEG, I.P.	Gabriel Luis	gabriel.luis@ineti.pt
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Table 12.1.3 – Composition of the SNIG Network

Authority	Acronym
Algarve Hydrographic Region Administration	ARH ALG, I.P.
Central Hydrographic Region Administration	ARH CENTRO, I.P.
Northern Hydrographic Region Administration	ARH NORTE, I.P.
Portuguese Environment Agency	APA
Grouping of Municipalities of Abrantes, Constancia, Gaviao, Macao and Sardoal (GAT Abrantes)	SIGIA
Grouping of Municipalities of Santarem and Salvaterra de Magos (GAT Santarem)	AMSSM
Grouping of Municipalities of Torres Novas (GAT Torres Novas)	AMTN
Metropolitan Area of Lisbon	AML
Development Association of the Alto Tamega Region	ADRAT
Integrated Rural Development Association of Terras de Santa Maria	ADRITEM
Association of Municipalities of Bairrada/Vouga (CM Anadia)	AMBV
Association of Municipalities of Ria	AMRIA
Association of Municipalities of Terra Quente Transmontana (GAT Mirandela)	AMTQT
Association of Municipalities of Castelo de Vide, Marvao and Portalegre (CM Portalegre)	AMCVMP
Association of Municipalities of Douro Superior for Specific Purposes	AMDSFE
Association of Municipalities of the Litoral Alentejo	AMLA
Association of Western Municipalities	AMO
Association of Municipalities of Vale do Douro Norte	AMVDN
Association of Municipalities of Vales do Ceira e Dueca (GAT Lousa)	AMVCD
National Association of Portuguese Municipalities	ANMP
Portuguese Association of Geographers	APG
National Forestry Authority	AFN
National Civil Protection Authority	ANPC
Municipality of Amadora	CM AMADORA
Municipality of Batalha	CM BATALHA
Municipality of Maia	CM MAIA
Municipality of Marinha Grande	CM MARINHA GRANDE
Municipality of Moita	CM MOITA
Municipality of Nazare	CM NAZARE
Municipality of Povoa de Varzim	CM POVOA VARZIM
Municipality of Albergaria-a-Velha	CM ALBERGARIA
Municipality of Albufeira	CM ALBUFEIRA
Municipality of Alcanena	CM ALCANENA

Authority	Acronym
Municipality of Alcochete	CM ALCOCHETE
Municipality of Aljustrel	CM ALJUSTREL
Municipality of Arouca	CM AROUCA
Municipality of Arruda dos Vinhos	CM ARRUDA
Municipality of Aveiro	CM AVEIRO
Municipality of Beja	CM BEJA
Municipality of Braga	CM BRAGA
Municipality of Caminha	CM CAMINHA
Municipality of Cantanhede	CM CANTANHEDE
Municipality of Cascais	CM CASCAIS
Municipality of Castanheira de Pera	CM CASTANHEIRA DE PÊRA
Municipality of Castelo Branco	CM CASTELO BRANCO
Municipality of Castro Marim	CM CASTRO MARIM
Municipality of Coimbra	CM COIMBRA
Municipality of Espinho	CM ESPINHO
Municipality of Esposende	CM ESPOSENDE
Municipality of Estarreja	CM ESTARREJA
Municipality of Evora	CM EVORA
Municipality of Faro	CM FARO
Municipality of Felgueiras	CM FELGUEIRAS
Municipality of Ferreira do Zezere	CM FERREIRA DO ZEZERE
Municipality of Gondomar	CM GONDOMAR
Municipality of Gouveia	CM GOUVEIA
Municipality of Guimaraes	CM GUIMARAES
Municipality of Lisboa	CM LISBOA
Municipality of Loures	CM LOURES
Municipality of Mafra	CM MAFRA
Municipality of Matosinhos	CM MATOSINHOS
Municipality of Mirandela	CM MIRANDELA
Municipality of Monchique	CM MONCHIQUE
Municipality of Obidos	CM OBIDOS
Municipality of Odemira	CM ODEMIRA
Municipality of Odivelas	CM ODIVELAS
Municipality of Oeiras	CM OEIRAS
Municipality of Oliveira de Frades	CM OLIVEIRA FRADES
Municipality of Palmela	CM PALMELA
Municipality of Santa Maria da Feira	CM FEIRA
Municipality of Sao Joao da Madeira	CM S. JOAO MADEIRA

Authority	Acronym
Municipality of Sao Pedro do Sul	CM S. PEDRO DO SUL
Municipality of Serpa	CM SERPA
Municipality of Setubal	CM SETUBAL
Municipality of Sever do Vouga	CM SEVER DO VOUGA
Municipality of Tomar	CM TOMAR
Municipality of Torres Vedras	CM TORRES VEDRAS
Municipality of Vagos	CM VAGOS
Municipality of Vale de Cambra	CM VALE DE CAMBRA
Municipality of Valenca	CM VALENCA
Municipality of Viana do Castelo	CM VIANA CASTELO
Municipality of Vila Franca de Xira	CM V FRANCA XIRA
Municipality of Vila Nova de Cerveira	CM VN CERVEIRA
Municipality of Vila Nova de Famalicao	CM VN FAMALICAO
Municipality of Vila Real	CM VILA REAL
Municipality of Vila Velha de Rodao	CM V VELHA RODAO
Municipality of Vouzela	CM VOUZELA
Municipality of Barreiro	CM BARREIRO
Municipality of Cadaval	CM CADAVAL
Municipality of Entroncamento	CM ENTRONCAMENTO
Municipality of Montijo	CM MONTIJO
Municipality of Porto	CM PORTO
Municipality of Seixal	CM SEIXAL
National Culture Centre	CNC
Irrigation Technology and Operations Centre	COTR
Lisbon and Vale do Tejo Regional Development and Coordination Commission	CCDR LVT
Alentejo Regional Development and Coordination Commission	CCDR ALENTEJO
Algarve Regional Development and Coordination Commission	CCDR ALGARVE
Central Regional Development and Coordination Commission	CCDR CENTRO
Northern Regional Development and Coordination Commission	CCDR NORTE
Intermunicipal Community of Alto Alentejo	CIMAA
Correios de Portugal, S.A.	CTT, S.A.
Directorate-General for Fisheries and Aquaculture	DGPA
Directorate-General for Economic Activities	DGAE
Directorate-General for Agriculture and Rural Development	DGADR
Directorate-General for National Monuments and Buildings	DGEMN
Directorate-General for Energy and Geology	DGEG

Authority	Acronym
Directorate-General for Regional Planning and Urban Development	DGOTDU
Regional Directorate for Agriculture of Beira Interior	DRABI
Regional Directorate for Agriculture of Beira Litoral	DRABL
Regional Directorate for Agriculture of Entre Douro e Minho	DRAEDM
Regional Directorate for Agriculture of Tras-os-Montes	DRATM
Regional Directorate for Agriculture and Fisheries of Lisbon and Vale do Tejo	DRAP LVT
Regional Directorate for Agriculture and Fisheries of Alentejo	DRAP ALENTEJO
Regional Directorate for Agriculture and Fisheries of the Algarve	DRAP ALGARVE
Regional Directorate for Economic Affairs of the Algarve	DRE ALGARVE
Regional Directorate for Geographic Information and Regional Planning - Regional Government of Madeira	DRIGOT MADEIRA
Directorate-General for the Interior	DGAI
Empresa de Desenvolvimento e Infraestruturas do Alqueva, S.A.	EDIA
Ensul Meci	ENSULMECI
Agricultural College - Viana do Castelo Polytechnic Institute	ESA IPVC
Braganca Polytechnic Institute	ESAB IPB
Ponte de Lima Agricultural College	ESA IPVC
Estradas de Portugal, S.A.	EP, S.A.
Project Structure to Restore Legality	EPRL
Faculty of Sciences - University of Lisbon	FCUL
Faculty of Arts - University of Lisbon	FLUL
European Affairs and Foreign Relations Office	GAERE
Education Statistics and Planning Office	GEPE
Strategy and Planning Office	GEP
Geometral, Técnicas de Medição e Informática, S.A.	GEOMETRAL
Metropolitan Area of Porto	AMP
Water Institute	INAG, I.P.
Nature Conservation and Biodiversity Institute	ICNB, I.P.
Construction and Property Institute	INCI, I.P.
Housing and Urban Regeneration Institute	IHRU, I.P.
Vine and Wine Institute	IVV, I.P.
Agriculture and Fisheries Financing Institute	IFAP, I.P.
Geography and Regional Planning Institute	IGOT CEG
Architectural and Archaeological Heritage Management Institute	IGESPAR, I.P.
Tropical and Scientific Research Institute	IICT, I.P.
Meteorology Institute	IM, I.P.
Geographic Institute of the Army	IGEOE

Authority	Acronym
Portuguese Geographic Institute	IGP
Hydrographic Institute	IH
National Civil Aviation Institute	INAC, I.P.
National Institute for Medical Emergencies	INEM, I.P.
National Statistics Institute	INE, I.P.
National Institute for Biological Resources	INRB, I.P.
Maritime Transport and Port Institute	IPTM, I.P.
J. Serra Ramos	J. SERRA RAMOS
National Energy and Geology Laboratory	LNEG, I.P.
National Civil Engineering Laboratory	LNEC, I.P.
Maretec - Instituto Superior Técnico	MARETEC IST
Migrograf - Tech Data	MIGROGRAF
Novageo Solutions	NOVAGEO
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Portuguese Tourism Authority	TURISMO DE PORTUGAL

Table 12.1.4 – Metadata Managers Network

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12.2.3 Links

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- Housing and Urban Regeneration Institute (2010), SIPA, URL: www.monumentos.pt
- Housing   and   Urban   Regeneration   Institute   (2010),   IHRU,   URL: http://www.portaldahabitacao.pt/pt/ihru/

AFN (National Forestry Authority)
- NFI 1995-98 (National Forest Inventory 1995-98):
  - http://www.afn.min-agricultura.pt/portal/ifn/ifn-acesso-aos-dados-de-base-de-1995-98
- NFI 2005-2006 (National Forest Inventory 2005-2006):
  - http://www.afn.min-agricultura.pt/portal/ifn/ifn-apresentacao-de-resultados
  - http://www.afn.min-agricultura.pt/portal/ifn/manual-de-campo-inventario-florestal-nacional
  - http://www.esac.pt/cernas/cfn5/docs/T2-53.pdf
- FRA 2010 (Global Forest Resources Assessment 2010):
  - http://www.fao.org/forestry/fra/fra2010/en/
  - http://www.afn.min-agricultura.pt/portal/pesca/gestao-de-recursos-aquicolas/proj-aquariport
  - http://www.cartapiscicola.org

ICNB (Nature Conservation and Biodiversity Institute):
- ICNB (2010): http://portal.icnb.pt/ICNPortal/vPT2007/O+ICNB/Áreas+Protegidas/
- ICNB (2010): http://portal.icnb.pt/ICNPortal/vPT2007/O+ICNB/Rede+Natura+2000/
- ICNB (2010): http://portal.icnb.pt/ICNPortal/vPT2007/Valores+Naturais/SIPNAT/
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12.3 Responses from Public Authorities to the INSPIRE Report Questions

12.3.1 Description of Authorities

Table 12.3.1 – Description of Authorities – General

Authorities	Description of Authorities
AFN	The National Forestry Authority (AFN) is a central service of the Ministry of Agriculture, Rural Development and Fisheries. It operates throughout Portugal Continental. Its mission is to promote the sustainable development of forest resources and associated spaces, hunting, apiculture and aquaculture resources in internal waters, and other resources directly associated with forestry and silviculture activities. This involves understanding their development and use, guaranteeing their protection, conservation and management, promoting a balance between the relevant sectors, assigning responsibility to the various officials and appropriately organising the forest spaces. It also involves improving the competitiveness of industries in the various forest sectors, carrying out structural prevention work and taking concerted action in the planning and adoption of joint strategies in the area of forest protection. As the National Focal Point of the United Nations Convention to Combat Desertification, the AFN chairs the National Commission for the Coordination of the National Action Programme to Combat Desertification and the National Desertification Observatory.
ANPC	The National Civil Protection Authority (ANPC) is an operational central service of the Ministry of the Interior. Its mission is to plan, coordinate and implement civil protection policy, particularly in terms of preventing and reacting to serious accidents and disasters, protecting and assisting the population and overseeing the activity of the fire service. It is responsible for risk prediction and management, emergency planning, protection and assistance activities and fire service activities.
APA	The Portuguese Environment Agency (APA) is a central service of the Ministry of the Environment and Regional Planning. Its mission is to propose, develop and monitor the implementation of environmental policies, particularly by integrating the environment into sectoral policies, specifically health and transport policies, and into the areas of combating climate change, protecting the ozone layer, air quality, noise prevention and control, waste, restoration and reclamation of land and other contaminated sites, integrated pollution prevention and control, prevention of serious industrial risks, environmental and population safety, environmental labelling, environmental procurement and voluntary environmental management systems.
DGADR	The Directorate-General for Agriculture and Rural Development (DGADR) is a central service of the Ministry of Agriculture, Rural Development and Fisheries. Its mission is to help implement policies in the areas of agriculture, plant genetic resources, plant health and plant protection products, plant and plant-variety multiplication materials, irrigation and management of hydro-agricultural supplies, protection of natural resources and sustainable management of the land, qualification of rural officials and enhancement and economic diversification of rural areas, promoting their respective application and participating in their monitoring and evaluation. The DGADR acts as the national irrigation authority and as the national plant health authority.
DGEG	The Directorate-General for Energy and Geology (DGEG) is a central service directly administered by the Ministry of Economic Affairs, Innovation and Development. Its mission is to help with the design, promotion and evaluation of energy and geological resources policies, with a view to sustainable development and energy security.

Authorities	Description of Authorities
	Its various departments assess, license and monitor projects involving: - electricity and renewable energy infrastructures (wind, water, photovoltaic, etc); - oil installations and fuel prices; - natural gas infrastructures; - prospecting, exploration and exploitation of public and private mineral deposits and hydrogeological and geothermal resources; - prospecting, exploration and exploitation of oil.
DGPA	The Directorate-General for Fisheries and Aquaculture (DGPA) is an operational central service of the Ministry of Agriculture, Fisheries and Forestry. Its mission is to implement fisheries, aquaculture and processing industry policies, and also other policies connected with these areas, to coordinate, plan and implement, in conjunction with other services, organisations and bodies, the inspection and control of sea fisheries, aquaculture and associated activities, in the area of resource management and conservation policy, and to ensure the professional certification of the fisheries sector. The DGPA acts as the national fisheries authority.
DRIGOT Madeira	The Regional Directorate for Geographic Information and Regional Planning (DRIGOT) is a body directly administered by the Regional Ministry of Social Facilities of the Regional Government of Madeira. Its mission is to coordinate studies and actions aimed at defining the regional policy on geographic, mapping and cadastral information, to implement, coordinate, execute and inspect regional and urban management policies, and to administer and inspect property included within the public maritime domain, except for those areas of interest as port, land and maritime areas used for the operation of ports in the Autonomous Region of Madeira, without prejudice to the responsibilities assigned by law to other bodies.
ICNB	The Nature Conservation and Biodiversity Institute (ICNB) is a public institute indirectly administered by the Ministry of the Environment and Regional Planning. Its mission is to propose, implement and monitor policies on nature conservation and biodiversity and to manage protected areas, with a view to enhancing and ensuring public recognition of the natural heritage.
IFAP	The Agriculture and Fisheries Financing Institute (IFAP) is a public institute indirectly administered by the State, which is supervised by both the Minister for Finance and the Minister for Agriculture, Rural Development and Fisheries. Its mission is to validate and pay the funding resulting from the application of various measures defined at national and Community levels in the areas of agriculture, rural development, fisheries and associated sectors. It also proposes the information and communication technology policies and strategies of the Ministry of Agriculture, Rural Development and Fisheries and plans, designs, implements and evaluates the technological updating and computerisation initiatives of the Ministry's bodies, services and organisations, ensuring efficient and rational management of available resources.
IGeoE	The Geographic Institute of the Army (IGeoE) is the body responsible for the Army's geographic information. It is hierarchically and functionally answerable to the Logistics Command.
IGP	The Portuguese Geographic Institute (IGP) is a central service directly administered by the Ministry of the Environment and Regional Planning. It is the body responsible for implementing geographic information policy and is the National Authority for Geodesy, Mapping and the Land Register. Its mission is to implement the national policy on basic geographic information. It is responsible for regulating the pursuit of these activities, approving products, coordinating and developing the National Geographic Information System and promoting research in the area of geographic information sciences and technologies.
IH	The Hydrographic Institute (IH) is a body of the Navy, which is directly answerable to the Navy's Chief of Staff. Its basic mission is to carry out activities associated with maritime sciences and technologies, with a view to implementing these in the military area, and to help the country develop in the areas of marine environmental science and protection.

Authorities	Description of Authorities
IHRU	The Housing and Urban Regeneration Institute (IHRU) is a public institute indirectly administered by the Ministry of the Environment and Regional Planning. Its mission is to develop the policy defined by central government in the areas of housing and urban regeneration, in conjunction with the policy on towns and cities, other social policies and those policies protecting and enhancing the national heritage. This involves keeping records on the built environment and its development.
INAG	The Water Institute (INAG) is a public institute indirectly administered by the Ministry of the Environment and Regional Planning. Its jurisdiction extends throughout the national territory. Its mission is to propose, implement and monitor national policy in the area of water resources in order to ensure their sustainable management, and to ensure the effective implementation of the Water Act.
INE	The National Statistics Institute (INE) is a public institute indirectly administered by the State. It exercises the powers of the Prime Minister's Office, under the supervision and guidance of the Prime Minister or any other member of the government working within the Prime Minister's Office. Its mission is to effectively, efficiently and impartially produce and publish high-quality official statistical information, relevant to the whole of society. In carrying out this official statistical activity, the INE enjoys technical independence and, in the capacity of national statistical authority, may request the provision of information, on a compulsory basis and free of charge, subject to a guarantee of the protection of statistical secrecy, under the terms of the Act on the National Statistical System. Its aim is to produce and publish official statistical information, by promoting the coordination, development and dissemination of national statistical activity.
IVV	The Vine and Wine Institute (IVV) is a public institute indirectly administered by the Ministry of Agriculture, Rural Development and Fisheries. Its mission is to coordinate and control the institutional organisation of the wine sector, audit the quality certification system, monitor EU policy, prepare the rules for the latter's implementation and participate in coordinating and supervising the promotion of wine products. It is the contact point for the European Union and, through its President, runs and chairs the National Committee of the OIV (International Organisation of Vine and Wine). In addition to the intrinsic responsibilities of this mission, it participates in and monitors procedures relating to the wine sector, supervises and audits certifying authorities, collects taxes and defines and coordinates the application of measures to manage and enhance the national wine heritage, among other equally important responsibilities.
LNEG	The National Energy and Geology Laboratory (LNEG) is a research body indirectly administered by the Ministry of Economic Affairs, Innovation and Development. Its jurisdiction extends throughout the national territory. As the state laboratory, its mission is to encourage and conduct research, knowledge transfer and demonstration, technical and technological assistance and laboratory support actions aimed at businesses, in the areas of energy and geology. Its responsibilities include promoting, conducting and managing studies, systematic mapping and projects in the areas of geology, hydrogeology and marine and coastal geology, as well as promoting the discovery, cataloguing, exploitation, enhancement, monitoring and conservation of mineral resources, ornamental rocks and natural waters.
SRCTE Açores	The Regional Ministry of Science, Technology and Facilities (SRCTE) is the department of the Regional Government of the Azores with responsibility for the areas of public works, maintenance and renovation of public buildings, land transport, civil protection and fire service, communications, science and technology, IT and the information society.

Table 12.3.2 – Description of Authorities – Relationship between authorities and the GI sector

Authorities	Relationship with GI sector
AFN	The AFN is responsible for promoting and managing the National Forest Resources Information System (SNIRF) . This includes: (i) constantly updating the National Forest Inventory; (ii) monitoring the implementation of organisation, management and intervention plans; (iii) promoting information and monitoring systems associated with the universe of Forest Intervention Areas (Zonas de Intervenção Florestal – ZIF); (iv) producing thematic mapping in terms of forest regulation, ZIFs and Forest Management Plans (Planos de Gestão Florestal – PGF); (v) developing techniques, procedures and technologies for collecting and processing data and coordinating responses to statistical questionnaires in the area of forest and inventory management; (vi) guaranteeing the integration/operationality of the Forest Fire Information Management System (Sistema de Gestão de Informação de Incêndios Florestais – SGIF); (vii) monitoring the environmental quality of watercourses; (viii) guaranteeing access to the collection and analysis of data on hunting and fishing in internal waters. In terms of the coordination of the National Desertification Observatory, the AFN is responsible for monitoring and evaluating measures and policy instruments that include the objective of combating desertification and for monitoring the impact of actions on the environment, natural resources and the land, including compiling and systematically organising the relevant information and producing quantitative and qualitative indicators allowing developments to be analysed.
ANPC	District planning, monitoring of Municipal Master Plans, risk mapping (natural, anthropic and mixed), transport of dangerous goods, Seveso II industries.
APA	The APA is responsible for the National Environmental Information System (SNIAmb) , which is based on a series of national and international strategic partnerships.
DGADR	The DGADR produces thematic mapping on a topographic base (soil maps, land use capacity maps and agricultural use maps). As the National Irrigation Authority, its responsibilities include managing the Nitrates Directive and using topographic and thematic mapping on a topographic base in its specific tasks.
DGEG	Bearing in mind the responsibilities of the DGEG, its work is closely related to the land (geological and energy resources), which is why it must have access to up-to-date and accurate geographic information.
DGPA	The relationship between the DGPA and the GI sector is indirect, according to the specific responsibilities of partner bodies. It basically depends on the aim of the project and the influence that this may have on the areas of activity and responsibilities of the DGPA, namely: a) fisheries protection areas included within recovery or management plans; b) marine aquaculture production areas; c) fisheries restriction areas in offshore prospecting areas for oil and natural gas; d) fisheries restriction areas in wave energy production areas.
DRIGOT Madeira	The DRIGOT produces all the basic information for the Autonomous Region of Madeira. It also regulates and supervises the GI of the Autonomous Region of Madeira, where this is produced by other bodies.
ICNB	Since 1986 the Central Services of the ICNB in Lisbon (at the time known as the National Service for Parks, Reserves and Nature Conservation) have had a Geographic Information System (GIS). The GIS tool is now also available for most of the Protected Areas, with geographic information being essential to the ICNB in order for it to fulfil its responsibilities either as producer or as user. The ICNB is responsible for updating the European Common Database on Designated Areas (ECDDA), with the geographic information on the boundaries of protected areas in Portugal forming an integral part of this database. With regard to the EU directives on biodiversity conservation (Birds and Habitats Directives), the ICNB submits periodic reports, many accompanied by geographic

Authorities	Relationship with GI sector
	information requested by the European Commission. Some of this information is also made available to the general public on the portal of the European Environment Agency (EEA) – Eionet Central Data Repository (http://cdr.eionet.europa.eu/pt/eu). The 'SIPNAT Modernisation' project is currently ongoing (SIPNAT is the Natural Heritage Information System), following an application to the NSRF. Its main objective is to re-engineer the current system to allow information to be stored and organised on species, natural habitats, geological heritage, landscape and the Fundamental Nature Conservation Network. At the same time, this information may be accessed through a geographic information system interface accessible via the intranet and Web.
IFAP	The IFAP holds the agricultural parcel information system for mainland Portugal and the Autonomous Regions.
IGeoE	The IGeoE's mission is to provide the Army with geographic information and support and to provide the other branches of the Armed Forces and civil society with geographic information. In this respect, it has to carry out activities connected with geographic science, mapping techniques and the promotion and development of scientific and technological research actions, in the areas of geographic support and geomatics. Regulatory Decree No 74/2007 of 2 July 2007 defined the powers and responsibilities of the IGeoE, in particular: - plan and carry out all work aimed at obtaining and producing maps, plans and other geographic information and documentation needed by the Army, by other branches of the Armed Forces and, where necessary, by other authorities; - design and develop scientific and technological research projects in the area of geomatics, and collaborate with other bodies on development research projects; - plan, develop and carry out all actions needed to implement NATO geographic policy standards ratified by Portugal, as well as all activities connected with the exchange of military geographic information and documentation with allies or friends.
IGP	The IGP is responsible for implementing geographic information policy, as it is the National Authority for Geodesy, Mapping and the Land Register and the body responsible for coordinating and developing the National Geographic Information System. It also promotes research in the area of geographic information sciences and technologies.
IH	The IH has the following responsibilities: - develop and disseminate the mapping coverage of internal and territorial waters and other waters of interest in terms of national mapping, by carrying out the surveys needed to produce and update this coverage and by compiling, where deemed necessary, those surveys produced by other national or foreign bodies; - contribute to the oceanographic understanding of the coastline and exclusive economic zone, particularly in the areas of physics, geology, chemistry and pollution; - promote and carry out research actions, studies and work, on its own initiative or at the request of other national or foreign bodies, in the areas of hydrography, navigation, oceanography and the marine environment;
IHRU	The Architectural Heritage Inventory (IPA), developed since the beginning of the 1990s, is intended to form a support resource for research and actions to protect and enhance the national heritage. Currently, the Architectural Heritage Information System (SIPA), which incorporates the IPA, forms a set of specialised and interconnected information and documentation resources on architectural, urban and landscape heritage. The recently created IHRU (2007) currently manages this information system, which has the following main objectives: 1. support, in terms of information and documentation, the development of regional management instruments; 2. support scientific and technical research in the areas of architecture, town planning, cultural landscape and built heritage; 3. form an information resource to support heritage education and awareness raising and to encourage tourism and cultural activities.

Authorities	Relationship with GI sector
	The SIPA brings together specific methods and tools based on information technologies, allowing the identification, registration, documentation, interpretation, study and dissemination of heritage. The IHRU, as a user and producer of geographic information, aims, through the SIPA and in collaboration with other bodies, to incorporate, process and disseminate GIS information from various sources.
INAG	In order to fulfil its responsibilities, the INAG has always been a user and producer of geographic information. With the development and appearance of new technologies, particularly geographic information systems, the improved performance of networked systems – allowing the integration of geographic information in robust and multidisciplinary systems – has resulted in efforts to adapt and update the institution, in terms of both its internal and external use, in order to optimise its decision-making, planning, monitoring, organisation and other support processes. The INAG has always tried to ensure that the geographic information that it has produced has been available to and freely accessible by the general public via the Web, allowing users to easily access and use the information in their GIS projects. This has also reduced the time taken to respond to information requests submitted to the INAG and ensures that users have access to the most up-to-date geographic information available. To meet the INAG's internal and external requirements, the InterSIG project has been implemented, which aims to organise the geographic information and, at the same time, to make this available via a geographic information system interface accessible via the intranet and Web. As regards the various EU directives on water resources, the INAG submits periodic reports, many accompanied by the geographic information requested by the European Commission (EC). Some of this information is also made available to the general public on the portal of the European Environment Agency (EEA) – Eionet Central Data Repository (http://cdr.eionet.europa.eu/pt/eu) and on the Water Information System for Europe – WISE (http://water.europa.eu).
INE	In accordance with Decree-Law No 166/2007 of 3 May 2007 approving its functional structure, the INE can create, access and manage geographic information files to support the production and dissemination of geo-referenced statistical information.
IVV	The IVV holds the geographic information system for vine and wine for mainland Portugal.
LNEG	The LNEG fulfils its responsibilities in conjunction with services and authorities in other areas of the public administration or the private sector, particularly in terms of scientific and technological research and the GI sector.
SRCTE Azores	The Directorate for Mapping and Geographic Information Services, which is part of the SRCTE, is a service that operates in the areas of regional mapping and geographic information. Its responsibilities include developing and coordinating the implementation of the regional geographic information system, particularly the Regional Metadata System.

Table 12.3.3 – Description of Authorities – Cooperation with other authorities

Authorities	Areas of Cooperation with other authorities
AFN	National Civil Protection Authority– Forest mapping; Operational mapping; Forest fires; Forest fire risk mapping. Republican National Guard – Burnt areas; Forest fires. Meteorology Institute – Meteorological data; Meteorological alerts; Drought Index. Water Institute– Drought Index. Directorate-General for Agriculture and Rural Development – Soil mapping; Irrigation Areas. Directorate-General for Regional Planning and Urban Development – DesertWatch system within the SNIT. MADRP Planning and Policy Office and INRB – Organic carbon in forest and agricultural soils. Nature Conservation and Biodiversity Institute – EEA Grants PT0016 project; Protected Area Plans. Agronomy Institute (ISA) – Forest fire risk mapping; Burnt areas. Provincial Governments – District Forest Fire Prevention Plan. Municipalities – Municipal Forest Fire Prevention Plan; Municipal Operational Plan; Forest fire fighters; Burnt areas. Parish Councils – Forest fire fighters. Forest Producers' Organisations – Pine wood nematode; Forest fire fighters; Forest Intervention Areas. Agreements within the national forest inventory project 'IFN 2005-2006' under the responsibility of the Directorate-General for Forest Resources (DGRF): - IGP (2nd half of 2004 to 2006) – The Directorate-General for Forest Resources concluded an agreement with the Portuguese Geographic Institute(IGP), which is available at: http://www.igeo.pt/instituto/protocolos/Protocolos INTRANET/PROTOCOLOS PDF/dgrf.pdf, on the orthorectification of digital photography in RGB and IV, and the production of digital orthophoto maps on a scale of 1:10 000 (50 cm pixel size) for mainland Portugal. - CELPA – In July 2005, the DGRF concluded an agreement with CELPA on participation in the national forest inventory project, consisting of involvement in the design of the IFN5, procedures and methodologies, production of the National Forest Inventory Field Manual, development of data collection and fieldwork quality control software (SIFN Gestao and SIFN GestaoCQ) and photointerpretation work. - Scientific Council – Agreements were concluded on the formation of a working group, under the executive management of the DGRF, and a Scientific Council to scientifically monitor the project. The Scientific Council was formed by the University of Tras-os-Montes and Alto Douro (UTAD), as coordinator of the scientific group, with the participation of representatives from the University de Evora (UE), Coimbra Agricultural College (ESAC), Castelo Branco Agricultural College (ESACB), Braganca Agricultural College (ESAB), Agronomy Institute (ISA), CELPA, National Forestry Office (EFN) and the DGRF. The field manual was completed in 2005, under the authorship of the Directorate-General for Forest Resources / Directorate for Forest Policy and Strategy Services/ Studies and Information Division, and with the collaboration of the IFN5 Scientific Council. It was made available on the AFN website in 2009: http://www.afn.min-agricultura.pt/portal/ifn/manual-de-campo-inventario-florestal-nacional. VALIDATION OF IFN 2005-2006 FIELD DATA – The higher education establishments were also responsible – through an agreement – for the quality control of the data collected from field parcels for the PROFs (Regional Forest Development Plans), which were assigned as follows: UTAD – PROF for Alto Minho, Baixo Minho, Barroso, Tamega and Douro; ESAB – PROF for the North-east, Beira Interior Norte and Dao Lafoes;

Authorities	Areas of Cooperation with other authorities
	ESAC – PROF for the Metropolitan Area of Porto and Entre Douro e Vouga, Pinhal Interior Norte, Centro Litoral, and the West; ESACB – PROF for Beira Interior Sul, Pinhal Interior Sul and Alto Alentejo; ISA – PROF for Ribatejo, Metropolitan Area of Lisbon and Alentejo Litoral. The ISA was also responsible for quality control of all data and for processing and modelling the IFN data. UE – PROF for Alentejo Central, Baixo Alentejo and the Algarve. EFN – responsible for processing specific field data, particularly plant diversity, fuel models and soils.
ANPC	AFN – National Forestry Authority (forest mapping, forest fires and risk mapping). INAG – Water Institute (water resources, dams and thematic mapping). DGOTDU – Directorate-General for Regional Planning and Urban Development (consultation of PDM). IM – Meteorology Institute (weather forecasts, meteorological alerts and seismology).
DGADR	Thematic mapping on a topographic base is shared with and sold to various authorities under agreements and specific liability documents, particularly with Regional Directorates for Agriculture and Fisheries, AFN, ICNRB, IFAP, independent government agencies, DGOTDU, CCDRs, IGP, APA, ARH and other bodies associated with regional management.
DGEG	The DGEG has an agreement with the IGeoE for online access to the mapping that it produces. It also has access to the IGP's WMS with the DGRF's orthophotos.
DGPA	The Directorate-General for Fisheries and Aquaculture (DGPA) is not involved in any bilateral institutional cooperation beyond that resulting from compliance with its legal obligations.
DRIGOT Madeira	Within the Regional Geographic Information Infrastructure (IRIG) project, the DRIGOT has collaboration agreements with all the Municipalities (CM) and a large number of regional and national GI producers. These include: • CM Funchal • CM Santana • CM Santa Cruz • CM Machico • CM Sao Vicente • CM Porto Moniz • CM Calheta • CM Ponta do Sol • CM Ribeira Brava • CM Camara de Lobos • CM Porto Santo • Regional Department for the Environment – SRA • Natural Park of Madeira – PNM • Regional Directorate for Trade, Industry and Energy – DRCIE • Regional Directorate for Cultural Affairs – DRAC • Valor Ambiente • Regional Directorate for Forestry – DRF • Regional Directorate for Tourism – DRT • Regional Civil Protection Service – SRPC • Regional Directorate for Heritage – DRP • Madeira Institute of Wine, Embroidery and Crafts – IVBAM • Hydrographic Institute – IH • Geographic Institute of the Army – IGeoE • National Energy and Geology Laboratory – LNEG • Directorate-General for Regional Planning and Urban Development – DGOTDU • University of Madeira – UMA • Faculty of Sciences of the University of Lisbon – FCUL

Authorities	Areas of Cooperation with other authorities
	• Technical Institute – IST • Portuguese Geographic Institute – IGP There is also a cooperative blog for the region on its GI production, update and access policy, with reference to the IRIG Project, at: www.irig-madeira.blogspot.com.
ICNB	The ICNB cooperates with other national authorities such as the Portuguese Geographic Institute (IGP), the National Forestry Authority (AFN), the Agriculture and Fisheries Financing Institute (IFAP) and the Management Authority of PRODER (Rural Development Plan for the Mainland). At international level, it cooperates with the European Commission and the European Environment Agency, particularly within EIONET (European Environment Information and Observation Network) and SEIS (Shared Environmental Information System).
IFAP	The IFAP, I.P. cooperates with other authorities such as the Regional Directorates for Agriculture and Fisheries (DRAP), Farmers' Organisations (OA), the Vine and Wine Institute (IVV), the Portuguese Geographic Institute (IGP), the Management Authority of PRODER, the European Commission and the Joint Research Centre (JRC).
IGeoE	The IGeoE has many formal arrangements with other national and foreign authorities in the area of mapping production and research, particularly universities and higher education establishments.
IGP	As coordinator of the SNIG, the IGP concludes cooperation agreements with various public and private bodies with a view to developing the infrastructure and making it operational.
IH	The IH has many formal arrangements with other national and foreign authorities, in particular: in the area of nautical mapping production, with the International Hydrographic Organisation; in the area of oceanography, with the European Global Ocean Observing System (EUROGOOS); and in the area of data management, with SeaDataNet – Marine Data Management Infrastructure.
IHRU	IGESPAR – Joint publication of Heritage Kits. Municipalities and other local operators involved in the protection and enhancement of cultural heritage, under collaboration arrangements. Research centres, under collaboration arrangements, and research projects financed by the Foundation for Science and Technology.

INAG	In terms of cooperation between the INAG and other authorities, with regard to the exchange of geographic information it has:
	• signed agreements with:
	  o the Portuguese Geographic Institute (IGP);
	  o the Agriculture and Fisheries Financing Institute (IFAP);
	  o the National Forestry Authority (AFN);
	  o the Project Structure to Restore Legality (EPRL);
	• set up Working Groups within:
	  o the National Water Plan (PNA), with the Hydrographic Region Administrations;
	  o the Convention on Cooperation for the Protection and Sustainable Use of Water in Luso-Spanish Hydrographic Basins (CADC), namely the Working Group on the Water Framework Directive and Water Quality.

INE	The INE has various arrangements in the context of the National and European Statistical Systems.
IVV	The IVV cooperates with other authorities such as the Regional Directorates for Agriculture and Fisheries (DRAP), the Regional Wine Commissions (CVR) and the Agriculture and Fisheries Financing Institute (IFAP).
LNEG	The LNEG only has arrangements with the IGP.
SRCTE Azores	Various agreements have been signed with regional, national and international bodies, mainly in the area of mapping, geodesy and spatial technologies, including: the Universities of Porto and Lisbon, the Portuguese Geographic Institute, Municipalities, the Spanish Geographic Institute and the European Space Agency.

Table 12.3.4 – Description of Authorities – Other

Authorities	
ICNB	The ICNB markets geographic information supply services, basically on the Habitats and Species themes. Its main customers are private companies carrying out studies, plans and projects.
IFAP	Collaboration with other institutes such as the Water Institute (INAG), the Nature Conservation and Biodiversity Institute (ICNB), the Empresa de Desenvolvimento e Infra-estruturas do Alqueva (EDIA) and the Directorate-General for Agriculture and Rural Development (DGADR) in terms of exchanging geographic information between the authorities.
IHRU	Publication of the *Monumentos* journal every six months since 1994, which focuses on the dissemination of technical and scientific work carried out by the IHRU, university centres and other authorities. The content covers a wide range of heritage issues, reflecting the SIPA universe. Organisation of training actions on heritage information and documentation.
INAG	An internal working group was set up with the main aims of conceptualising geographic information production, organisation, sharing and access methodologies within the InterSIG project. A multidisciplinary team was also set up as part of the preparations for the Maritime Area Organisation Plan (POEM), involving several ministries (MAOT, MDN, MADRP and MOPTC), in which geographic information relevant to the preparation of the plan is shared.
IVV	Collaboration with the Wine Institutes of Douro and Porto.

12.3.2 Use of Spatial Data Services in the Infrastructure

Table 12.3.5 – Use of spatial data sets from other authorities

Authorities	Spatial data sets

AFN	Annex I:
	• Reference systems
	   ○ Horizontal and vertical (land) – defined at national level by the IGP
	• Geographical names
	   ○ Map series on a scale of 1:25 000 (IGeoE)
	• Administrative units
	   ○ Official Administrative Map of Portugal (IGP)
	• Hydrography
	   ○ Map series on a scale of 1:25 000 (IGeoE)
	• Protected sites
	   ○ Sites of Community Importance – SCI (ICNB)
	   ○ Special Protection Areas – SPA (ICNB)
	• National Network of Protected Areas (ICNB)
	Annex II:
	• Land cover
	• Land Cover Map (IGP)
	• CORINE Land Cover (IGP)
	• Orthoimagery
	• Orthophoto coverage of mainland Portugal (CNIG/DGRF, 1995)
	• Orthophoto coverage of mainland Portugal (IGP/DGRF, 2004-2006)
	• Soil
	• DGADR Soil Map on a scale of 1:25 000 and DRAAM, UTAD and DGADR Soil Maps on a scale of 1:100 000
	• Geology
	• Geological Map of Portugal on a scale of 1:500 000 (LNEG)
	Annex III:
	• Statistical units
	• Reference Geographic Database (INE)
	• Land use
	• Land Cover Map – most recent versions (IGP)
	• Atmospheric conditions
	• Atmospheric parameters (IM)

ANPC	Annex I: all Annex II: all Annex III: all
DGADR	Annex I: • Reference systems • Geographical grid systems • Geographical names • Administrative units • Addresses • Cadastral parcels • Hydrography • Protected sites Annex II: • Altitude • Land cover • Orthoimagery • Geology Annex III: • Statistical units • Soil

Authorities	Spatial data sets
	• Land use • Environmental monitoring facilities • Area management/restriction/regulation zones and reporting units • Natural risk zones • Meteorological geographical features • Habitats and biotopes
DGEG	Natura Network Areas supplied by the ICN.
DGPA	The Directorate-General for Fisheries and Aquaculture (DGPA) relies on technical opinions issued by other bodies with responsibility for environmental areas in any decision-making process. These opinions are binding, particularly in the area of aquaculture. The opinions are based on topographic, geo-referenced and coordinate data to allow the identification of aquaculture areas. The Directorate-General for Fisheries and Aquaculture (DGPA) relies on spatial data to define the EEZ. This is fundamental for controlling and supervising fisheries.
DRIGOT Madeira	Outside the responsibilities of the DRIGOT.
ICNB	Annex I: • Reference systems • Geographical names • Administrative units • Transport networks • Land • Hydrography Annex II: • Land cover • Orthoimagery • Geology Annex III: • Statistical units • Land use
IFAP	The IFAP uses spatial data from other authorities only for the following themes in Annex I: • Theme 3. Geographical names • Theme 4. Administrative units • Theme 8. Hydrography
IGeoE	Bathymetry is supplied by the IH. Designation of road network by the INIR.
IH	Although the data used by the IH do not fall within the above-defined concept, the official mapping information on a hydrographic base and the meteo-oceanographic data should be mentioned.
IHRU	IGP – CAOP / WMS orthophoto maps / Altitude 1:50 000 ICNB – Protected areas IA – Digital Atlas of the Environment EP – Road Network INE – BGRI Municipalities – Thematic maps produced on various scales

INAG	Annex I:
	• Reference systems
	  o Horizontal and vertical (land) – defined at national level by the IGP
	  o Vertical (sea) – defined at national level by the IH
	• Geographical grid systems
	  o Geographical grid system used in 1:25 000 mapping (IGeoE)
	  o Geographical grid system used in 1:50 000 mapping (IGP)
	  o Geographical grid system used in 1:2 000 mapping (IGP)
	• Geographical names
	  o Map series on a scale of 1:25 000 (IgeoE)
	• Administrative units

Authorities	Spatial data sets

	○ Official Administrative Map of Portugal (IGP)
	  • Hydrography
	    ○ Map series on a scale of 1:25 000 (IgeoE)
	  • Protected sites
	    ○ Sites of Community Importance – SCI (ICNB)
	    ○ Special Protection Areas – SPA (ICNB)
	    ○ National Network of Protected Areas (ICNB)
	Annex II:
	  • Altitude
	    ○ Bathymetry (IH)
	  • Land cover
	    ○ Land Cover Map (IGP)
	    ○ CORINE Land Cover (IGP)
	  • Orthoimagery
	    ○ Orthophoto coverage of mainland Portugal (CNIG/DGRF, 1995)
	    ○ Orthophoto coverage of mainland Portugal (IGP/DGRF, 2004-2006)
	  • Geology
	    ○ Geological Map of Portugal on a scale of 1:500 000 (LNEG)
	Annex III:
	  • Statistical units
	    ○ Reference Geographic Database (INE)
	  • Land use
	    ○ Land Cover Map – most recent versions (IGP)
	  • Atmospheric conditions
	    ○ Atmospheric parameters (IM)

INE	In terms of developing the spatial data infrastructure supporting the production and dissemination of official statistical information, with particular emphasis on tax-based statistical operations, which started in 1997, the INE uses various spatial data sets from other authorities, namely:
	Annex I:
	  • Administrative units – Portuguese Geographic Institute (IGP)
	  • Addresses
	  • Transport networks
	Annex II:
	  • Orthoimagery (IGP), Regional Directorate for Geographic Information and Regional Planning (DRIGOT) and Regional Department for Science, Technology and Facilities (SRCTE)
	Annex III:
	  • Buildings

IVV	Annex I:
	  • Administrative units
	  • Official Administrative Map of Portugal (IGP)
	  • Natura 2000 Network (ICNB)
	  • Protected Areas (ICNB)
	Annex II:
	  • Orthophoto coverage of mainland Portugal (IFAP)

LNEG	Reference systems Geographical grid systems Geographical names Administrative units Transport networks Hydrography Protected sites Altitude Land cover Orthoimagery Energy resources Soil

Authorities	Spatial data sets
	Land use
	Production and industrial facilities
	Natural risk zones
	Meteorological geographical features
	Atmospheric conditions
	Oceanographic geographical features
	Sea regions
	Environmental monitoring facilities
	Area management/restriction/regulation zones and reporting units
SRCTE Azores	This authority normally supplies basic information, some of which is covered by the Annexes to the INSPIRE Directive, so that other authorities can make environmental decisions at regional level.

Table 12.3.6 – Examples of cross-border use and efforts made to improve consistency of SDS

Authorities	Examples
ANPC	Not applicable.
DGADR	Within the PLEIADeS project, which ended in September 2009: Annex I – Reference system, Administrative units, Cadastral parcels and Hydrography; Annex II – Land cover, Orthoimagery; Annex III – Soil, Land use, Agricultural facilities, Natural risk zones, Meteorological geographical features.
DGEG	Not applicable.
DGPA	The DGPA receives, from other EU Member States and third countries, spatial data on the EEZs of each country so that Portuguese vessels fishing in the EEZs of these countries can be controlled and supervised.
DRIGOT Madeira	Not applicable.
ICNB	Participates with the IGP in the European HUMBOLDT and Nature-SDI projects. Occasionally spatial data is shared in terms of cross-border protected areas: Peneda-Geres National Park and Douro International Natural Park, among others.
IFAP	Not applicable.
IGeoE	Nothing to state.
IGP	Adoption of the ETRS89 reference system for mainland Portugal and of the ITRF93 system for the Autonomous Regions. Within SiNErGIC (linked to the Cadastral Parcel theme): - Use of data models similar to those in the draft Implementing Rules for the theme; - Use of formal language for data modelling (e.g. UML); - Use of international standards (e.g. ISO 19110 – Methodology for feature cataloguing; ISO 19115 – Metadata); - Adoption of the PT-TM06/ETRS89 reference system, in accordance with the provisions of the Directive; - Adoption of a GML schema, in accordance with the OGC specifications, bearing in mind the transfer of data between formats. Within the CAOP (linked to the Administrative Boundaries theme): - Use of data models similar to those in the EBM (EuroBoundaryMap) 3.0 project; - Use of formal language for data modelling (e.g. UML); - Use of international standards (e.g. ISO 19110 – Methodology for feature cataloguing; ISO 19115 – Metadata); - Adoption of the PT-TM06/ETRS89 reference system in accordance with the provisions of the Directive; - Creation of Web Services in accordance with the OGC specifications. Within the EuroRegionalMap and EuroGlobalMap: - Production of the EuroRegionalMap and EuroGlobalMap in accordance with the standards defined by EuroGeographics; - GeoALEX and OTALEX I and II projects – partnerships with the Regional Government of Extremadura (Spain), Badajoz Town Council (Spain) and the Spanish Geographic Institute;

Authorities	Examples
	- Harmonisation of mapping specifications; - Creation of a Web portal.
IH	Nothing to state.
IHRU	Development and periodic update of standards for producing the SIPA content (alphanumeric and images) and corresponding metadata; Development/update of the SIPA support platform in order to introduce, into the inventoried built heritage database, the necessary differentiations according to the lists in Annex I (Protected sites), Annex III (Buildings) and SNIG (Portuguese maritime heritage); Investment in physical, technical and human resources to obtain geographical coordinates for all inventoried properties (approximately 28 000 records); For the SDS of Portuguese maritime heritage, cooperation has been established with private and public, local and national bodies, in particular collaboration arrangements with the Centre for Overseas History (CHAM/UNL), the Labour and Business Sciences Institute (ISCTE) and theTropical and Scientific Research Institute (IICT).
INAG	The national geographic information relating to the Water Framework Directive (WFD), in addition to having to comply with the data model defined in this Directive, must also be harmonised with the data from Spain. This harmonisation task was carried out by one of the working groups of the Convention on Cooperation for the Protection and Sustainable Use of Water in Luso-Spanish Hydrographic Basins (CADC), through which the spatial data sets for delimiting the bodies of water defined for the WFD were harmonised. At the meetings of the working group responsible for this issue, general criteria were laid down for standardising the delimitation of bodies of water, and two coastal bodies of water were also created (in the Hydrographic Region of Minho e Lima and in the Hydrographic Region of Guadiana), shared between Portugal and Spain, thereby overcoming the problem of delimitating the border in these areas. For the first time, Portugal and Spain have joint mapping of border and cross-border bodies of water.
LNEG	OneGeology-Europe project. Iberian Geological Map 1:1M.
SRCTE Azores	Cooperation agreements have been signed for the production of mapping so that this can be carried out and shared by various bodies. In addition, the SRCTE has supported the production of specifications, which will ensure greater homogeneity in the SDS for the region.

12.3.3 Data-Sharing Arrangements

Table 12.3.7 – Data-Sharing Arrangements with other Public Authorities

Authorities	Data-Sharing Arrangements
AFN	National Civil Protection Authority– Resulting from the provisions of Decree-Law No 17/2009 of 14 January 2009. Republican National Guard – Resulting from the provisions of Decree-Law No 17/2009 of 14 January 2009. IM and INAG in the production of the Drought Index Map. DGADR, DRAEDM and UTAD on soil mapping.
ANPC	Geographic Institute of the Army • Licence to use military maps, series M888 Portuguese Geographic Institute • Licence to use 2005 orthophoto maps (IGEO-DGRF) National Statistics Institute • Licence to use 2001 Census data (BGRI)
DGADR	Data-sharing arrangements exist with the Regional Directorates for Agriculture and Fisheries, independent government agencies, APA, AFN, IFAP, IGeoE, IGP and CCDR.
DGEG	Although there are currently none due to internal network limitations, this issue will shortly be resolved.
DGPA	Under the obligations assumed towards other EU Member States and under agreements to which Portugal is party.
DRIGOT Madeira	Various partnerships and agreements exist between the DRIGOT and other national, regional and local partners (described in point 2.3). Practical examples include: • Municipalities: definition by the DRIGOT of the Regional Data Model for the road axes, to be shared with the other partners in the IRIG project; • IH: sharing of spatial data under the responsibility of each body; • DRF: transfer of orthophoto maps and other database mapping by the DRIGOT, and transfer of the Forest Inventory by the DRF. Whenever mapping is updated, the DRF updates the Forest Inventory of the Autonomous Region of Madeira; • SRA: exchange of geographic information under the responsibility of each body; • DRT, CM, DRCIE, DRAC: transfer of geographical application for updating the POIs of the Autonomous Region of Madeira; • PNM: sharing of basic geographic information, delimitation of protected areas and location of species; • Portuguese Geographic Institute: whenever basic geographic information is produced, this is transferred to the IGP; • LNEG: sharing of reference data with each of the authorities, and also the historical mapping of the Autonomous Region of Madeira; • SRPC: transfer of tools and GI to help locate fire hydrants and wells. In the future, this information will be transferred to the DRIGOT.
ICNB	Listed below is a series of agreements, established by the ICNB with other bodies, which cover the sharing of spatial data: • Agreement on the use of orthophoto maps – agreement concluded with the Agriculture and Fisheries Financing Institute (IFAP); • Agreement on monitoring the impact of power lines on avifauna – agreement concluded with the Portuguese Society for the Study of Birds (SPEA), Quercus and EDP Distribuição; • Agreement concluded within the LIFE-Natureza project for the conservation of tree-nesting populations of Bonelli's Eagle in Portugal – agreement concluded with the Study Centre for Iberian Avifauna(CEAI); • POEM – Maritime Area Organisation Plan; • MARBIS – Marine Biodiversity Information System; • B&B – Business & Biodiversity Initiative. The main objective of this European Union initiative is to increase the links between business and biodiversity, allowing a significant contribution to be made to the

Authorities	Data-Sharing Arrangements
	protection of biodiversity and to the achievement of the 2010 target in order to halt the loss of biodiversity at local, regional, national and global levels. Within this initiative, geographic information is shared between the ICNB and member businesses.
IFAP	Data-sharing arrangements via Web Services with the Vine and Wine Institute (IVV), with the Management Authority of the PRODER and with various insurers (harvest insurance).
IGeoE	Nothing to state, but generic collaboration arrangements do exist.
IGP	Unrestricted access via WFS and WMS to the national map series on a scale of 1:500 000 and to the CAOP. Access to geo-spatial information of various central government bodies via WMS (national map series, orthoimagery and CAOP) and WFS (national map series on a scale of 1:500 000 and CAOP).
IH	Nothing to state, but generic collaboration arrangements do exist.
IHRU	DGOTDU – Delimitation of Landscape Unit Groups and Landscape Units for Mainland Portugal; INE – exchanges on the BGRI theme through IGIC; Municipalities – collaboration arrangements for the transfer of inventory standards, training and technical and scientific monitoring, content production and exchange of alphanumeric, spatial and documentary data.
INAG	A collaboration agreement has been concluded between the INAG and the IGP to obtain digital aerial photography coverage of coastal areas, and to acquire services for the production of a digital altitude model, orthophotos and digital vector mapping on a scale of 1:2 000 for the coastal areas of mainland Portugal. An agreement has been concluded between the INAG and the AFN for geographic information sharing and access, in the format of spatial data or alphanumeric data sets. The INAG shortly expects to sign an agreement with the IFAP for geographic information sharing and access, in the format of spatial data or alphanumeric data sets or services.
INE	The INE has data-sharing arrangements, in order to access spatial data sets, with various public authorities. These arrangements particularly include collaboration agreements signed with the municipalities, the Geographic Institute of the Army and the Portuguese Geographic Institute. In addition, the INE has data-sharing arrangements covering access to spatial data sets referring to the Reference Geographic Database (BGRI) and respective reference mapping, through a series of 14 ArcIMS map services made available by the INE to the following authorities: • Directorate-General for Taxation; • Directorate-General for Health; • Directorate-General for Veterinary Medicine; • Security Coordination Council; • Portuguese Agency for Foreign Trade and Investment.
IVV	Data-sharing arrangements via Web Services with the Agriculture and Fisheries Financing Institute and the Regional Wine Commission for Green Wine. Data-sharing arrangements with the Regional Directorates for Agriculture and Fisheries and the Regional Wine Commissions. In terms of managing the wine-growing potential, the IVV works with the Regional Directorates for Agriculture and the Regional Wine Commissions.
LNEG	None.
SRCTE Azores	REPRAA – Various GNSS data-sharing and collaboration agreements have been concluded with the permanent offices. Data are sent via ftp to external servers, for example, and we also receive data that are sent directly to our servers. EDA – It was agreed that orthophotos of the region would be supplied for the EDA's internal work and, in exchange, we would receive the latter's survey of the medium-voltage power grid, which has proved useful in producing the vector mapping. Arrangements are in place with municipalities in the region, which have the following basic principles: costs of aerial survey flights and vector mapping production are shared (with specifications defined by the SRCTE) and everyone can use the end product.

Table 12.3.8 – Data-Sharing Arrangements with Community Institutions and Bodies

Authorities	Data-Sharing Arrangements
AFN	EFFIS (European Forest Fire Information System) – provision of statistical data.
ANPC	In 2009, the ANPC joined the Linker and SAFER initiatives (GMES).
DGADR	Within the framework of the New Decree-Law on the RAN (National Agricultural Reserve), there is an obligation to share land use capacity mapping with the Regional Directorates for Agriculture and Fisheries, and for the latter to share this with the independent government agencies under their jurisdiction. Transfer to independent government agencies and the CCDR of the boundaries of Hydro-agricultural Schemes and Vulnerable Areas, as a result of the application of the Nitrates Directive to the Regional Directorates for Agriculture and Fisheries (Council Directive 91/676/EEC of 12 December 1991, transposed into Portuguese law through Decree-Laws No 235/97 of 3 September 1997 and No 68/99 of 11 March 1999.
DGEG	No arrangements have been defined. The DGEG provides information as and when this is requested.
DGPA	European Commission, Community Fisheries Control Agency, Member States, third countries and Regional Fisheries Management Organisations, where national fishing vessels operate.
DRIGOT Madeira	Nothing to state.
ICNB	- Under Article 17 of the Habitats Directive, the ICNB sends SDS to the European Commission on the distribution and range of the species and natural and semi-natural habitats indicated in the Directive Annexes. - As the national reference centre for biodiversity in the EIONET (European Environment Information and Observation Network), the ICNB sends SDS to the European Commission on the boundaries of protected areas within the national territory (CDDA – Common Database on Designated Areas).
IFAP	Via Web Services.
IGeoE	Nothing to state.
IGP	Data-sharing arrangement with EuroGeographics within the EuroRegionalMap and EuroGlobalMap. Within the CAOP, collaboration with authorities and projects: Eurogeographics: EUROSTAT statistics database; Standing Committee on the Land Register(CPC); EuroBoundaryMap (EBM); EuroRegionalMap (ERM); Second Administrative Level Boundaries (SALB); European Spatial Agency – EMITS database; GIS4UE.
IH	Nothing to state.
INAG	In order to comply with the obligations imposed by various Community directives, the INAG sends reports to the European Commission containing geographic information, which is made available via WISE under the: Water Framework Directive (WFD), Urban Wastewater Treatment Directive (UWWT), Bathing Water Directive, Directive on Economically Significant Aquatic Species Protected Areas (Freshwater Fish), Nitrates Directive and Dangerous Substances Directive.
INE	Nothing to state.
LNEG	None.
SRCTE Azores	Nothing to state.

Table 12.3.9 – Barriers to Spatial Data Sharing

Authorities	Barriers to Spatial Data Sharing
AFN	Nothing to state.
ANPC	None.
DGADR	First, the costs of using the information, and second the failure by various authorities to supply their mapping in return, as agreed between these authorities. One of the main restrictions affecting the correct performance of our work in the area of mapping is the charge for access to the orthophoto series produced by the IGP.
DGEG	Limitations in the internal network, which will shortly be resolved.
DGPA	Data confidentiality.
DRIGOT Madeira	High costs of producing GI; Sharing 'vehicle': who, where, etc; Contact points; Non-existence of metadata.
ICNB	The supply of spatial data sets without metadata is a problem as it is often difficult to identify the author, date, accuracy and methodology associated with the spatial data. The national production of spatial data is extensive, but it is difficult to obtain this data duly certified.
IFAP	For example, structural and communication problems.
IGeoE	Nothing to state.
IH	Nothing to state.
IHRU	The lack of uniform coverage of the SDS for the whole of the national territory (scale, date, standards, etc.); The cost of acquiring GI; Difficulties associated with data ownership.
INAG	The high charges imposed to obtain geographic information, even between public authorities, are the main barrier to the use of data. In addition, the fact that spatial data are not shared and that work is often duplicated has an enormous impact on the country's economy and development. If there are no public authorities defining guidelines and organising and regulating the production and sharing of geographic information, it will be difficult to reduce the costs and increase the quality of the respective information.
INE	Lack of national SDS sharing and access policies.
IVV	Structural problems with spatial data.
LNEG	Non-existence of institutional data-sharing and access policies between the various national authorities.
SRCTE Açores	We have encountered barriers due to the non-transfer of information. There are authorities that receive data but do not make available their results or share these with other authorities.

Table 12.3.10 – Actions taken to overcome the barriers to Spatial Data Sharing

Authorities	Actions taken
AFN	Nothing to state.
ANPC	None.
DGADR	Attempt to conclude agreements with certain authorities on the exchange of mapping information between the various authorities. However, this does not work for the vast majority of official information.
DGEG	Replace existing network, etc.
DRIGOT Madeira	- Creation of a simplified model contract for data sharing. If information is used for a specific purpose, the other regional or local service has a responsibility to transfer the information once this is finalised. - Conference setting out examples of best practice in GI projects, as part of the technical conferences on the IRIG project, with reference to data sharing between various public and private bodies in the Autonomous Region of Madeira. - Technical monitoring by DRIGOT officials of various projects carried out by various bodies in the Autonomous Region of Madeira. In this way, by being part of these GI projects, we can disseminate them so that they become a project of the Autonomous Region of Madeira. For example, the DRIGOT's participation on the tender board for public contract tendering in relation to projects with a GI component organised by other regional services.
ICNB	Cross-referencing of information and checks to eliminate redundant information by various structures of the ICNB.
IFAP	Use of improved hardware and communications resources.
IGeoE	Nothing to state.
IH	Not applicable.
IHRU	Adoption of a uniform geographical coordinate system in the SIPA. Standards for completing alphanumeric information on architectural, urban and landscape heritage and digital publication of the Heritage Kit (guide to completing architectural heritage records, in collaboration with the IGESPAR, available online).
INAG	Conclusion of collaboration agreements for geographic information sharing, which guarantee access to the most up-to-date geographic information. Creation of internal working groups with the task of harmonising the production and sharing of geographic information.
INE	Conclusion of collaboration agreements.
LNEG	Participation in European initiatives, such as OneGeology, AEGOS, GeoSeas, EuroGeoSource and COMET, and also national implementation of the INSPIRE Directive.
SRCTE Azores	The main steps involve discussions and attempts to ensure understanding between the parties.

12.3.4 Costs and Benefits

Table 12.3.11 – Estimated costs associated with implementing the INSPIRE Directive

Authorities	Costs					
	Metadata	Data harmonisation	Network services	Monitoring and reporting	Coordination and cross-cutting measures	Observations
AFN						Cannot be estimated at this stage.
ANPC						Cannot be estimated at this stage.
DGADR	EUR 10 000	EUR 8 000	EUR 120 000	EUR 5 000	EUR 6 000	
DGEG						Cannot be estimated at this stage.
DGPA						The Directorate-General for Fisheries and Aquaculture (DGPA) does not have specific costs associated with implementing the INSPIRE Directive.
DRIGOT Madeira						IRIG project Hardware, Software and Networks: EUR 3 600 000 Basic Geographic Information: EUR 6 500 000
ICNB	EUR 200/year	SIPNAT	SIPNAT	Included in the ongoing 'SIPNAT Modernisation' project.	The most important GIS project is SIPNAT, for which the work team consists of more than 30 officials from	Cost estimated from the service provision contracts with various companies whose main activity is GIS.

Authorities	Costs					Observations
	Metadata	**Data harmonisation**	**Network services**	**Monitoring and reporting**	**Coordination and cross-cutting measures**	
					the various units and departments of this Institute.	
IFAP						Cannot be estimated at this stage. Only costs in terms of human resources are recorded.
IGeoE						Cannot be estimated at this stage.
IGP	EUR 34 000	EUR 10 000	EUR 42 000	EUR 45 000	EUR 10 000	These correspond to the costs associated with the INSPIRE Directive, both in terms of developing the SNIG and with regard to activities such as the INSPIRE MSCP.
IH						Cannot be estimated at this stage.
IHRU	At this stage, costs associated with human resources and adjustments to the IT platform in order to allow the incorporation of spatial data.	Costs associated with human resources and with the acquisition of technical support services for the development of applications to obtain geographical coordinates. Acquisition of GPS receivers.	No investment at this stage, but planned for the future.	At this stage, costs particularly associated with human resources.	No investment at this stage.	

Authorities	Costs					
	Metadata	**Data harmonisation**	**Network services**	**Monitoring and reporting**	**Coordination and cross-cutting measures**	**Observations**
INAG	EUR 30 410	EUR 218 315	EUR 40 800	EUR 1 500		Estimated costs associated with: - the process of harmonising the DGA's spatial data (2003-2007); - developing and implementing the InterSIG project (2006-2010); - maintaining the development of the InterSIG project (2009-2010).
INE						Cannot be estimated at this stage.
IVV						Cannot be estimated at this stage.
LNEG	EUR 28 500	EUR 4 000	EUR 19 500	EUR 4 000	EUR 12 500	
SRCTE Azores	EUR 200 000	EUR 60 000	EUR 75 000			Network services – creation of a portal encompassing the whole project.

Table 12.3.12 – Examples of positive effects on the preparation, implementation and evaluation of policies

Authorities	Examples
AFN	Geo-referenced information on desertification indexes and indicators has been made available free of charge on the Web Services of the National Action Programme to Combat Desertification (see http://www.afn.min-agricultura.pt/portal/pancd/projectos/internacionais).
DGADR	As regards the Spatial Data Infrastructure of this Directorate-General, the Directive's implementation will result in better organisation, structuring and cataloguing of all the information, with evident economies of scale in terms of the internal use of this information, and also in its supply to various users. However, we anticipate that, due to the lack of adequate organisation of the paper information, which must be converted from analogue to digital format in relation to the soil mapping and various existing thematic maps on Land Cover and Regional Planning, not all the requirements may be met in terms of exhaustively complying with all the obligations imposed by the Directive. In particular, the technology for performing the analogue-digital conversion is not equivalent to that indicated and existing on the date of publication and transposition of the Directive into Portuguese law.
DGEG	Not applicable.
DGPA	Contribution to better management and preservation of living marine resources, and also improved action and efficacy in inspection and control within the common fisheries policy.
DRIGOT Madeira	Effective data sharing between regional services; Use of basic geographic information unique to the Autonomous Region of Madeira; Synergy of efforts in the implementation of projects; Centralisation of GI within the IRIG network; Description of existing GI in the Autonomous Region of Madeira through metadata.
ICNB	Allows support to be allocated and internal procedures to be established in order to comply with this Directive.
IFAP	The creation of this infrastructure brings various benefits, as it allows users to access integrated spatial data services based on the existence of a database network, thus ensuring compatibility.
IGeoE	Nothing to state.
IH	Nothing to state.
IHRU	No positive effects at this stage.
INAG	The harmonisation of data at national and European levels, together with the obligation to provide metadata, ensures a deeper understanding of what exists, where it exists, who is responsible and how the information can be accessed, resulting in the use of geographic information being facilitated and promoted. The sharing of information via networked services ensures that producers are more closely associated with the data they produce and guarantees that users are able to access up-to-date information from the producer, which, combined with their own data, can help in decision-making. Having harmonised information that is shared in a network ensures that the authorities producing/using this geographic information specialise in the areas to which they feel most suited, resulting in a qualitative and quantitative improvement in the geographic information produced/used.
INE	This initiative can only help to link together the various public authorities responsible for producing and providing access to geographic information, with benefits in terms of the national policies guiding the production of and access to the spatial data that the country needs.
IVV	Creating an infrastructure of this nature will allow the various types of existing data to be easily and naturally combined, giving users access to high-quality spatial data.
LNEG	Contributes to the definition of data access policies; ensures policies that improve interoperability with other authorities; provides easy access to harmonised data; reduces duplication in the collection of spatial data; greater efficiency in geoenvironmental protection, monitoring and evaluation; quicker implementation of environmental legislation.

Table 12.3.13 – Examples of improved services to the citizen

Authorities	Examples
DGADR	There now seems to be more transparency in terms of accessing information and understanding the quality of basic information, which to a limited extent is preventing what can be termed progression of the cascade error. This is evident in the preparation of GIS projects, particularly in decision support. The development of official portals and the possibility of generalised access to information: a good example is access, within the framework of the INSPIRE Directive, to the series of orthophotos of the French IGN (National Geographic Institute).
DGEG	Not applicable.

DRIGOT Madeira	Public access to DRIGOT services, using the vectoring of the Geometric Land Register of Rural Property and printing the respective cadastral plans within an hour. Website (www.GeoCidMadeira.com) with the region's POI updated by the competent regional bodies. The GeoCid maps are directly linked to each of the Municipalities. Therefore, when residents access the websites of each of the region's Municipalities, they see a single page of maps for the Autonomous Region of Madeira.
	With the dissemination of the basic GI, there are various local, regional, national and international services making this accessible to citizens in various ways:
	    Wine Land Register;
	    IFAP;
	    Forest Inventory;
	    Issue of site and specific work plans for all the Municipalities (through the tool supplied by DRIGOT within the IRIG);
	    Location of PNM areas.
	Transfer of the right to use the base mapping and POIs to GoogleEarth, Sapo and VirtualEarth.

ICNB	Within this institute, improvements are expected only at the end of 2010.
IFAP	Not applicable at the moment, but it is expected that, in the future, an improvement will be seen in the services provided to farmers.
IGeoE	Nothing to state.
IGP	Catalogue of Geographic Information and National Register of Spatial Data.
IH	Nothing to state.
IHRU	At this stage no examples of improved services.
INAG	The Geo Web Services made available within the SNIG data infrastructure, particularly the CAOP service, are a good example of how any citizen can access up-to-date data free of charge. The SNIRH, in its Water Atlas component, already has a long tradition of providing free access to geographic information on water, and has been expanded with the creation of Geo Web Services. The InterSIG is a platform that, from the outset, has provided free access to the geographic information produced by the INAG. For a number of years, its design and implementation have allowed public or private bodies, as well as guest users, to view and use the geographic information. This is clearly encouraging to the INAG as the body responsible for maintaining this information.
IVV	Nothing to state.
LNEG	Easier access to existing harmonised data, by making available metadata such as those for the various existing digital geological maps, and also the creation of new products and services such as the Geological Map of Portugal and Iberia on a scale of 1:1 000 000.
SRCTE Azores	Development of harmonised desertification indicators for Portugal and Spain in the context of the Regional Action Programme to Combat Desertification in the Northern Mediterranean.

Table 12.3.14 – Examples of benefits in terms of cross-border cooperation

Authorities	Examples
DGADR	The possibility of using the same metadata structure and reference system, particularly between Portugal and Spain. In the case of Spain, the possibility of viewing, on the Spanish spatial data infrastructure (IDEE) website, the IDE-OTALEX-Spatial data infrastructure project, the 3D viewers, the spreadsheet converter for ETRS89 and the software, allowing the viewing of maps, the coordination of conversion and relief analysis, which are very useful within the PLEIADeS project (Participatory Multi-level EO assisted tools for irrigation water management and Agricultural Decision-support), with regard to geo-referencing and the common use between Portugal and Spain of the same multi-temporal series of satellite images.
DGEG	Not applicable.
DGPA	Contribution to better management and preservation of living marine resources, and also improved action and efficacy in inspection and control.
DRIGOT Madeira	At the moment the DRIGOT is involved in nine PCT-MAC community projects, in which the main partners are the Azores and the Canaries. The specific objectives, which will help to achieve the programme's strategic axes in line with the aforementioned overall objective, are as follows: 1. Promote R&D to ensure that these regions catch up with the mainland. 2. Increase the level of protection and improve the management of coastal areas and marine resources. 3. Improve the sustainable management of water resources, energy (particularly renewables) and waste. 4. Prevent seismic, volcanic, maritime and climatic risks and other natural disasters. 5. Encourage the development of third countries within the geographic area. 6. Reinforce the institutional capacity of public officials in the three regions and neighbouring third countries.
ICNB	This approach is premature.
IFAP	The benefits involve the fact that any user can identify and access geographic information from various sources, at various levels and for the most varied types of uses.
IGeoE	Nothing to state.
IGP	Link between the SNIG and the Spanish IDE.
IH	Nothing to state.
IHRU	Not yet any examples of benefits in terms of cross-border cooperation, while recognising the supreme importance of implementing the Directive.
INAG	Water is a vital resource for human beings, which is proving increasingly important and does not recognise borders. That is why it will have to be managed as a resource shared between the two countries forming the Iberian Peninsula. In this respect, in terms of water resources policy, it is vital for the neighbouring countries to cooperate as, in order to efficiently manage water, there will need to be collaboration and agreements between the countries. The Convention on Cooperation for the Protection and Sustainable Use of Water in Luso-Spanish Hydrographic Basins(CADC) establishes, among other measures, the systematic exchange of information on water, the evaluation of cross-border impacts and the preparation of joint projects, thereby forming a first step in the establishment of an appropriate working platform to implement the provisions of the WFD in Luso-Spanish hydrographic basins, and guaranteeing consistency in terms of implementing the Community directives in this region.
IVV	The fact that the geographic information of various countries is being harmonised makes it easier, among other aspects, for Portuguese companies to participate in European projects.
LNEG	Easier access to harmonised geological data (between Spain and Portugal); harmonisation of data and services at European level; development of incentives to carry out and cooperate in new European projects (e.g. OneGeology, GeoSeas, EuroGeoSource, COMET, etc.); better preparation, analysis, implementation and evaluation of pan-European policies.

Observations

ICNB
As regards the costs associated with the 'SIPNAT Modernisation' project, a figure of around EUR 1 000 000 should be cited for the whole project.

IGeoE
The Base Map of Portugal is the military map on a scale of 1:25 000 produced by the IGeoE. Series M888, M889 and P821, which cover the whole national territory, are used for a very wide range of projects at all levels of the administration. Therefore, at this stage of implementation of the INSPIRE Directive, the authorities have not yet adopted an effective position on the regulation, which requires further and more in-depth discussion, and also clarification of the responsibilities.

IH
The very early stage of implementation of the Directive, together with the fact that the IH is the only producer of nautical mapping in Portugal and also collects oceanographic data, does not currently allow for a detailed definition and a clear position on the questions raised.
It is considered that this issue should form the subject of discussions within the authority and with its counterparts.

IHRU
With regard to the GI produced in the national context, but referring to third countries and therefore not included in Annexes I, II and III, this should at least be mentioned in the search catalogues.
The costs inherent in amending and harmonising the SDS and Information Systems should receive Community financial support.

LNEG
There should be national/Community support for this issue, similar to what has happened with other types of Community obligation (e.g. Renewable Energies).