



Spatial Data Infrastructures in Portugal: State of play Spring 2003

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

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Executive summary

Portugal is one of the first countries in the world with an operational NSDI: the SNIG (National Infrastructure for Geographical Information). Since 1995 it is accessible via the Internet:

There is a legal framework both for the SNIG and for the institution that is responsible for the coordination and development of SNIG : the National Centre for GI (CNIG).

The CNIG has funds, partly national and partly European, specifically directed towards building the infrastructure. Its mission is supporting data producers in making their data available through SNIG, rather than producing GI in its own right. CNIG is not a GI producing agency but an agency with a strong R&D orientation. It has developed strong networks with key decision-makers in government supporting its mission and has strong linkages with the academic sector.

Besides the metadata catalogues that allow users to find where is the information they want and how they can access it, SNIG also manages data (aerial photos, orthophotos, maps and alphanumeric data) that can be visualised or downloadable on-line. Some data is available free of charge and other is charged.

The on-line NSDI provides on-line services and acting as a one-stop shop for the data holdings of 117 agencies at national and regional level. It supports local authorities in developing and making accessible digital geographic information. The internet site <http://www.igeo.pt> was launched by CNIG in 1995. Harmonisation and standardisation of the geodatasets which are available through SNIG is not the responsibility of CNIG.

The citizen gateway to the Portuguese NSDI: GEOCID was launched by CNIG on the Internet, in 1999. GEOCID includes a subset of NSDI information plus links to other geo-information that might be relevant for the citizen. <http://snig.igeo.pt/>.

The assessment of user expectations on the NSDI is strongly considered as a relevant task by IGP. Since SNIG's creation several user-testing procedures were performed including the implementation of focus groups analysis, with users from the academic, private and public sectors and also with the citizens.

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Abbreviations and acronyms

CNIG	National Centre for Geographical Information
CT	Core Thematic Data
FIR	Further Investigation Required
GI	Geographical Information
GIS	Geographical Information System
GPS	Global Positioning System
IGP	Instituto Geográfico Português
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
IPCC	Portuguese National Geodetic, Mapping and Cadastre Agency
NSDI	National Spatial Data Infrastructures
PPP	Public-Private Partnerships
PROGIP	Support Program on Computer Management of Municipal Plans
PROSIG	Support Program for the Creation of Local Nodes of SNIG
PSI	Policy and legislation on access to public sector information
REF	Reference data
ROT	Earth Observation Network
SDI	Spatial Data Infrastructures
SNIG	Sistema Nacional de Informação Geográfica, National Infrastructure for Geographical Information

1 GENERAL INFORMATION

1.1 *Method*

This report is summarizing the review of SDI in Portugal, and reflects the degree to which the SDI situation in Portugal is similar to the ideas set out in the INSPIRE position papers¹.

The report is based on the analysis of various documents, project references and web sites readily accessible in Portuguese and - to some extent - in English (full list : see 3.2 List of references for Portugal). Most resources were gathered from the Internet. The search of the Internet was via publicly available search engines (e.g. Google and AltaVista). Initial search expressions were in Portuguese and English. The report has been completed by integration and consolidation of comments received from representatives of the Instituto Geográfico Português. The comments were provided in written form (e-mail).

1.2 *Overview of selected SDI-initiatives*

SNIG is the apparently non-challenged NSDI-initiative in Portugal. It is operational and covers 100% of the Portuguese territory.

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

2 Details of SNIG

2.1 General Information

The SNIG is coordinated by CNIG (National Centre for Geographic Information) and is the result of a coordination process involving the main national, regional and local geographical information producers.

SNIG (http://snig.igeo.pt/index_old.html) is the core of geospatial data distribution and accessibility in Portugal. In May 1995 -after 5 years of development- SNIG was officially launched on the internet and it was implemented as a fully distributed system where each node represents a producer of geospatial data. Via de SNIG-website, one has direct access to the webpages of each GI-producer. The institutes/agencies are of national, regional or local level according to the competence. The information on this website is the responsibility of each institute.

In the beginning the structuring and design of the system was mainly oriented to the professional user.

From 1998 the main developments were concerned with the creation of applications oriented to citizens, to allow them easy and clear access. SNIG thus is a website (http://snig.igeo.pt/index_old.html) that provides access to GI produced by national public agencies. The website describes the data sets that are available for free and the ones that are not. The information included in SNIG is catalogued to allow an easy and fast access to the data. Through these metadata catalogues the user can find where and what cartographic and alphanumeric data is available. Users can also find the latest innovations and organizations associated with geographic information. GEOCID is the citizen portal to the NSDI (http://geocid-snig.igeo.pt/index_old.html) where most of the free of charge geographic data sets are organized that are relevant to citizens.

Today, the on-line NSDI provides on-line services and is acting as a one-stop shop for the data holdings of 117 agencies at national and regional level. It supports local authorities in developing and making accessible digital geographic information.

Data collection for the NSDI remains the responsibility of the organizations in charge of the data production. No change in the legal mandate of the several institutions regarding data production was made in result of the creation of the NSDI.

CNIG is also responsible for the management of the Earth Observation Network (ROT) included in SNIG. This network intends to disseminate information on remotely sensed data that includes metadata on satellite images for earth observation, remote sensing projects, bibliography and related events (<http://snig.cnig.pt/ROT>).

CNIG has developed strong networks with key decision-makers in government supporting its mission and has strong linkages with the academic sector.

Within SNIG, since its creation in 1990, there was a major concern about rising the level of awareness and knowledge about GI and its supporting technologies. So, besides a specific section dedicated to educational issues in SNIG homepage, IGP (and CNIG in the past) is supporting several initiatives to promote the diffusion of information and knowledge on the subject in Portugal. These initiatives include:

- Organisation of Conferences and Seminars
- Development of GIS courses
- Training programmes for university students
- Participation of CNIG staff in educational activities
- Production of documentation to help the institutions develop their SNIG-nodes
- Production of GIS manuals and other publications.

2.2 Component 1: Legal framework and funding

2.2.1 Legal framework and organisational issues

The process of establishing SNIG (*Sistema Nacional de Informação Geográfica*) started in February 1986, with the publication of decision SEIC 2/86 of the Secretary of State for Research and Development. It created a task force -consisting of the representatives of the main actors in the GI area- whose mission was to study the creation of a national SDI and to propose to the Secretary of State the corresponding actions to be taken by the Government. As a result of the studies and activities carried out by this task force, the Portuguese SNIG was created in 1990 through Decree-Law no. 53/90. This law also established the CNIG (*Centro Nacional de Informação Geográfica*) as a governmental research centre with the mission of coordinating and implementing the SNIG (http://cnig.igeo.pt/index_old.html). CNIG is thus an agency from the public central administration. It is not an association of members. CNIG is supported by a number of other institutions helping with the implementation of the physical network and with the development of tools to access and explore the GI. The main mission of CNIG was thus the development of a network of geographical information producers. For the development of this network it provided material and technical support to each node of the system. To become a formal member of the network, each information provider has to sign an agreement with CNIG. CNIG is however not a data producer, which allows CNIG to focus on its main mission: the development of the Portuguese SDI.

In 2001 the Portuguese government -in order to improve the efficiency of the public administration- decided to create the *Instituto Geográfico Português* (IGP) by merging CNIG with IPCC (Portuguese National Geodetic, Mapping and Cadastre Agency). The IGP was created in January 2002 and its organic law published by the Decree-Law no. 53/2002. So, presently, there is a legal framework both for the SNIG (Decree-Law no. 53/90) and for the institution that is responsible for its coordination (Decree-Law no. 53/2002). The Portuguese government through the IGP assures the co-ordination of SNIG.

2.2.2 Public-private partnerships (PPP's)

No information available.

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

Article 268 of the Constitution determines that citizens shall enjoy the right to have access to administrative records and files, subject to the legal provisions with respect to internal and external security, investigation of crime and personal privacy. Law no. 65/93 (Lei de Acesso aos Documentos Administrativos) of 26 August 1993 (as amended by Law no. 8/95 of 29 March 1995 and by Law no. 94/99 of 16 July 1999) provides for this access to government records. The law is overseen by the Commission for Access to Administrative Documents (Comissão de Acesso aos Documentos Administrativos), an independent parliamentary agency. This Commission can examine complaints, give opinions on access, and decide on classification of systems (<http://www.cada.pt>).

The SNIG website (http://snig.igeo.pt/index_old.html) describes the data sets that are available for free and the ones that are not. The information included in SNIG is catalogued to allow an easy and fast access to the data. Through these metadata catalogues the user can find where and what cartographic and alphanumeric data is available. There are also databases of institutions and companies related with the GI market.

2.2.4 Legal protection of GI by intellectual property rights

The information market in Portugal is developing rapidly, but because it is young, there is a lack of case law that gives clear ideas on what the legal status is for GI.

The Portuguese Copyright Act (Code of Copyright and Related Rights no. 45/85) dates from 17 september 1985 and has been revised since. It practically lists the same works eligible for protection as the Berne Convention. This includes geographical maps and illustrations and works related to geography or other sciences.

The general description of the copyrighted material is: intellectual creations in the area of literature science and art. Collections of data are not specifically mentioned. The law only speaks of works such as anthologies and encyclopedias. It is however doubtful whether GI datasets fall within the scope of the copyright act, since they are a collection of facts and not a collection of works. For GI in the form of digital maps, it may be argued that since paper maps enjoy protection, the same should apply to digital maps.

Photographic work (e.g. aerial photograph) only qualifies for copyright protection if the selection of the object to be photographed and/or the way in which it is made, results in a

personal artistic creation. Photography that is the basis for map production will in general not meet these demands. This does not necessarily mean that the map that results from the photography is not protected.

The recent law on the production of products of cartography (Law no. 193/95 of 28 July 1995) states explicitly that copyright law applies to cartographic information. Notwithstanding copyright protection (for which originality is one of the requirements), article 14 sub 2 of this new law states that it is forbidden to use, supply to others, reproduce, divulge or commercialize cartographic products or the corresponding technical data without permission of the entity of which it is the property. It is clear that this law aims to give producers of GI additional protection besides copyright.

The European commission had decided on 30 July 1999 to refer Portugal to the European Court of Justice for failure to implement Directive 96/9/EC on the legal protection of databases. Thereupon Portuguese Law 1/2000 of 16 March 2000 was introduced which permits the government to transpose into internal law the EU Directive 96/9/EC. By Decree Law 122/2000 of 4 July 2000 this EU Directive was effectively implemented into Portuguese law.

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

The system for access to personal information is highly regulated by both the Constitution (articles 37, 48 and 268 of the Constitution) and the law. Law no. 67/98 on the Protection of Personal Data of 26 October 1998 implements Directive 95/46/EC of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. The supervisory authority is the National Data Protection Commission (*Comissão Nacional de Protecção de Dados* - <http://www.cnpd.pt>). The applicability of the above privacy legislation to the processing of GI depends largely on the interpretation of the concept of “personal data

2.2.6 Licencing framework

No information found.

2.2.7 Funding model for SDI and pricing policy

Funding

The Portuguese government mainly provides the funding for the NSDI coordination and development through :

- (1) the annual budget of the Portuguese Public Administration, which covers personnel and current expenses,
- (2) the Central Administration Investment Plan, which covers investment projects for developing the NSDI and

(3) R&D contracts awarded through competitive invitations to tender, namely from the Directorates-General, EUROSTAT, EEA, the Portuguese Foundation for Science and Technology and others.

CNIG -being a public administration research agency- thus has an annual budget from the State budget. It however also gets revenues out of the services it performs and the R&D projects it carries out.

The Portuguese government established two special programs in February 1994: PROGIP (Support Program on Computer Management of Municipal Plans) and PROSIG (Support Program for the Creation of Local Nodes of SNIG). Later that same year, in December, these received sponsoring from the Regional Funds of the European Commission. This was a major factor that helped the fast development of SNIG since 1995.

Pricing

The access to GI is provided through the SNIG homepage (http://snig.igeo.pt/English/index_e.html), which is mainly intended for institutional and technical users, and through the GEOCID homepage (http://geocid-snig.igeo.pt/index_old.html), which aims to make relevant GI easily available to citizens.

Each GI producer defines the way GI users can access their respective GI. Within SNIG some information is hence available free of any costs (e.g. Corine Land Cover), whereas for other information a fee should be paid. CNIG has always tried to promote the access to GI at low cost or even free of costs, but it nevertheless always depends on what the accessibility policy of each GI producer is.

No general rulings concerning the commercialisation of information held by public authorities exist and authorities are thus free to manage their own GI as they choose. Being a distributed network, the policy for accessing to the data varies among the data providers. The NGII has no mandate on the pricing policies followed by each data provider. The state nevertheless recognises a public service role in the provision of access to information.

2.3 Component 2: Reference data and core thematic data

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

The supported scale levels are :

- very large scale: 1:2 000,
- large scale 1:10 000,
- regional scale 1:50 000
- national scale: 1:100 000, 1:250 000

- European and global scales: 1:500 000, 1:1 000 000 , 1:2 500 000.

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

For some communes, very detailed maps (1/2.000, 1/10.000) are produced.

For the entire country and communes (from very large scale to small scale) :
Thematic data

- Economical activities
- Natural disasters
- Remote sensing
- Public infrastructure (Health, Tourism..)
- Financial
- Infrastructures (Telecommunication, Transport, Sewage...)
- Patrimonium (Archeology..)
- Natural resources/Environment (biotopes : Corine Land Cover)
- Socio-Economical
- Topograpy/Planimetria (Altimetry, Geodesia, Orthofotos, ..)

Regions :

- Protected Areas
- Concelhos
- Districts
- NUTS
- Agricultural regions
- Floristic regions
- Tourist regions

Raster data and vector data, orthofotos.

Geographical location	Type	Inspire priority	European	National	Regional	Local	Other (indicate scale) VERY SMALL
Geodetic reference system	REF	H		IGP			Alphanumeric data, Geodetic network points of several orders
Geographical names	REF	H		INE / IGEOE			Alphanumeric data
COMMENT : Geographical (place) names (for the various databases in the NSDI)				INE / IGEOE			Alphanumeric data , Each place name is associated to geographical coordinates
Nomenclature (all metadata codes & items)				INE / IGP	Alphanumeric data		
Administrative units				INE	Alphanumeric data		
Geographical grid	CT	H					
Administrative units							
Official administrative units	REF	H		INE			
Administrative boundaries				IA / IGEOE / IGP, 1:2 500 000 (r) 1:1 000 000 (r) 1:500 000 (r/v) => IGP 1:250 000 (v) => IA/ IGP	1: 50 000 (v) => IGP 1:25 000 (v) => IGEOE		
Blocks and census districts	REF	M		INE			
Properties, buildings and addresses							
Properties	REF	L					
Cadastral map				IGP		1:500 (r/v) 1:1000 (r/v) 1:2000 (r/v) 1:2500 (r/v) 1:5000 (r/v)	Available maps just cover half of the country
Buildings	REF	L					
Addresses	REF	H			Several private / Some municipalities / CTT		An entire coverage of the country is not available
Elevation							
Elevation	REF	H		IA / IGEOE / IGP 1:2 500 000 (r) => IGP 1:1 000 000 (r) => IGP 1:1 000 000 (v) =>IA 1:250 000 (v) => IGEOE 1:100 000 (r) => IGP	1:50 000 (r/v) => IGP 1:25 000 (r/v) => IGEOE	X	
DEM				IGEOE / IGP	1:25 000 (r) 8x8 m => IGEOE 1:10 000 (r) 5x5 m => IGP		
Bathymetry	REF	H		IH			

Coastline	REF	H		IA / IGEOE / IGP ,1:1 000 000 (v) =>IA 1:250 000 (v) => IGEOE	1:25 000 (v) => IGEOE		
Hydrography							
Hydrography, river, lake....	REF	H		1:1 000 000 (v) =>IA	1:25 000 (v) => IGEOE		
Water areas, basin, artificial shorelines, wide water courses, narrow water courses				1:1 000 000 (v) =>IA	1:25 000 (v) => IGEOE INAG		
Land surface							
Ortho-images	REF	H		IGEOE / IGP	1:10 000 (r) => IGP		
Unclassified satellite images	CT	M		IM / Several private			
Natural resource							
Water catchments	CT	H		INAG	1:25 000 (v)		
Groundwater bodies	CT	H		INAG			
Soil	CT	H		IA, 1:1 000 000 (v)			
Bedrock geology	CT	L		IGM/IA, 1:1 000 000 (v) =>IA 1: 500 000 (v) 1: 200 000 (v) =>IGM	1:25 000 (v) 1: 50 000 (v) =>IGM		
Climatic regions/data	CT	L		IA, 1:1 000 000 (v)			
Bio-ecological regions	CT	M		IA, 1:1 000 000 (v)			
Vegetation	CT	L					
Land Cover	CT	H		IGP, 1:100 000 (v)			Corine Land Cover
Mineral soil				IA / IHERA, 1:1 000 000 (v) => IA	1:25 000 (v) => IHERA		
Land cover & forest classification				IGP / DGF 1:1 000 000 (v) => DGF 1:100 000 (v) => IGP			DGF also has alphanumeric data about forest classification
Transport							
Transport networks	REF	H		IGP / IGEOE 1:250 000 (v) 1: 500 000 (v) => IGEOE 1: 500 000 (r) => IGP	1:25 000 (v) => IGEOE		Transport (lines, points, text)
Transport facilities	REF	L					Information not available but IEP is responsible for the national roads inventory
Facilities							
Location of facilities	CT	M					Several municipalities do also have this information, but it is not available for the entire

							country
Location of utilities	CT	M		INAG 1:1000000 (v)			Several municipalities do also have this information, but it is not available for the entire country
Land use regulation							
Protected areas	CT	H		ICN	1:25 000 (v)		
Nature conservation				ICN	1:50 000 (v)		
Land regulation/Land use plans	CT	H		DGOTDU 1:400 000 (v)	1:25 000 (v)		
Land use				DGF / IGP 1:1 000 000 (v) => DGF 1:100 000 (v) => IGP	1:25 000 (v) => IGP		
Demography							
Demographic attribute data	CT	H		INE			Alphanumeric data Census data associated to census units. Boundaries for census units are also available.

Data Producers:

IGEOE = INSTITUTO GEOGRÁFICO DO EXÉRCITO

IGP = INSTITUTO GEOGRÁFICO PORTUGUÊS

INE = INSTITUTO NACIONAL DE ESTATÍSTICA

IEP = INSTITUTO DAS ESTRADAS DE PORTUGAL

CTT = CORREIOS DE PORTUGAL

IA = INSTITUTO DO AMBIENTE

INAG = INSTITUTO DA ÁGUA

ICN = INSTITUTO DE CONSERVAÇÃO DA NATUREZA

DGOTDU = DIRECÇÃO GERAL DO ORDENAMENTO DO TERRITÓRIO E DESENVOLVIMENTO URBANO

DGF = DIRECÇÃO GERAL DAS FLORESTAS

IHERA = INSTITUTO DE HIDRÁULICA, ENGENHARIA RURAL E AMBIENTE (PRESENTLY, INSTITUTO DE DESENVOLVIMENTO RURAL E HIDRÁULICA)

IGM = INSTITUTO GEOLÓGICO E MINEIRO

2.3.3 Geodetic reference systems and projections

Spatial referencing is done by coordinates, but not according to ISO 19111.

Name and nature of the geodetic coordinate system

Reference System	Bessel-Puissant (1853-1904)	Bessel-Bonne	Hayford-Gauss Datum Lisboa (1890)	Hayford-Gauss Datum Lisboa (c1937)	Hayford-Gauss Datum Lisboa Militar (c1937)	Hayford-Gauss Datum 73																						
ID (EPSG)	-	-	-	20791	20790	27429																						
Datum	Castelo S. Jorge	Castelo S. Jorge	Castelo S. Jorge	Datum Lisboa	Datum Lisboa	Datum 73 (Melriça)																						
ID (Eurogeographics)	-	DLX(BES)	-	DLX(HAY)	DLX(HAY)	D73																						
ϕ	38°42'43.631"	38°42'43.631"	38°42'43.631"	38°42'43.631"	38°42'43.631"	39°41'37.300"																						
λ	-9°07'54.806"	-9°07'54.806"	-9°07'54.806"	-9°07'54.862"	-9°07'54.862"	-8°07'53.310"																						
Ellipsoid	Puissant	Bessel	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)																						
Projection	Bonne	Bonne	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)																						
ϕ	38°42'56.73"	39°40'00.000"	39°40'00.000"	39°40'00.000"	39°40'00.000"	39°40'00.000"																						
λ	-8°07'54.806"	-8°07'54.806"	-8°07'54.862"	-8°07'54.862"	-8°07'54.862"	-8°07'54.862"																						
Scale Factor	-	1	1	1	1	1																						
False M (Easting)	0 m	0 m	0 m	0 m	200 000 m	180.598m																						
False P (Northing)	0 m	0 m	0 m	0 m	300 000 m	-86.990m																						
Quadrant	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>II</td><td>III</td></tr><tr><td>I</td><td>IV</td></tr></table>	II	III	I	IV	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>II</td><td>III</td></tr><tr><td>I</td><td>IV</td></tr></table>	II	III	I	IV	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>IV</td><td>I</td></tr><tr><td>III</td><td>II</td></tr></table>	IV	I	III	II	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>IV</td><td>I</td></tr><tr><td>III</td><td>II</td></tr></table>	IV	I	III	II	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td colspan="2" style="text-align: center;">I</td></tr></table>	I		<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>IV</td><td>I</td></tr><tr><td>III</td><td>II</td></tr></table>	IV	I	III	II
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Observations: (Map Producers) Map Scales	Spatial coverage: Portugal Continental Historical maps 1:100 000 (IGP)	Spatial coverage: Portugal Continental 1:50 000 (IGP) 1:100 000 (IGP) CORINE Land Cover (IGP)	Spatial coverage: Portugal Continental Historical maps	Spatial coverage: Portugal Continental	Spatial coverage: Portugal Continental Orto-imagery 1:10 000 (IGP ex-CNIG) Maps 1:25 000 (IGeoE) 1:1 000 000 (IA – ATLAS Maps)	Spatial coverage: Portugal Continental Most recent maps produced by IGP Maps 1:10 000 (IGP) Orto-imagery 1:10 000 (IGP ex-IPCC)																						
ϕ (DD)	38.7157583	39.6666667	39.6666667	39.6666667	39.6666667	39.6666667																						
λ (DD)	-8.1318906	-8.1318906	-8.1319061	-8.1319061	-8.1319061	-8.1319061																						

Reference System	UTM 25N Açores Ocidental (1939)	UTM 26N Açores Central (1948)	UTM 26N Açores Oriental (1940)	UTM 28N Madeira (1936)	UTM 29N Datum 73	UTM 29N Datum Europeu	UTM 29N WGS84
ID (EPSG)	2188	2189	2190	2191	27429	23029	32629
Datum	Datum Ocidental (Obs. Astr. Flores)	Datum Ocidental (Graciosa Base SW)	Datum Oriental (Forte de S. Braz, na Ilha de S. Miguel)	Datum Madeira 1936 (Porto Santo)	Datum 73 (Melriça)	Datum Europeu (ED50, Postam)	World Geodetic System 1984
ID (Eurogeographics)	AZO_OCCI	AZO_CENT	AZO_ORIE	MAD	D73	?	?
ϕ	?	?	?	?	39°41'37.30"	52°22'51.4456"	- geocêntrico -
λ	?	?	?	?	-8°07'53.31"	13°03'58.9283"	- geocêntrico -
Ellipsoid	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)	Internacional 1924 (Hayford 1909)	WGS84
Projection	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)	Gauss-Krüger (Transversa Mercator)
ϕ	0°	0°	0°	0°	0°	0°	0°
λ	-33°	-27°	-27°	-15°	-9°	-9°	-9°
Scale Factor	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996
False M (Easting)	500 000 m	500 000 m	500 000 m	500 000 m	500 000 m	500 000 m	500 000 m
False P (Northing)	0 m	0 m	0 m	0 m	0 m	0 m	0 m
Quadrant	I	I	I	I	I	I	I
Observations: (Map Producers) Map Scales	Spatial coverage: Flores and Corvo islands 1:50 000 (IGP) 1:200 000 (IGP) 1:25 000 (IGeoE) -> the 2 nd edition of this map series uses WGS84 Ellipsoid	Spatial coverage: Pico, Faial, S.Jorge, Graciosa and Terceira islands 1:50 000 (IGP) 1:200 000 (IGP) 1:25 000 (IGeoE) -> the 2 nd edition of this map series uses WGS84 Ellipsoid	Spatial coverage: S. Miguel and Sta. Maria islands 1:50 000 (IGP) 1:200 000 (IGP) 1:25 000 (IGeoE) -> the 2 nd edition of this map series uses WGS84 Ellipsoid	Spatial coverage: Madeira and Porto Santo islands 1:50 000 (IGP) 1:200 000 (IGP)	Spatial coverage: Portugal Continental	Spatial coverage: Portugal Continental	Spatial coverage: Portugal Continental 1:250 000 (IGeoE) 1:500 000 (IGeoE)

2.3.4 Quality of the reference data & core thematic data

On the website, SNIG clearly announces that it does not carry any responsibility for the quality of the data that is being provided. Data quality is a matter of the 117 agencies at national, regional and local level which provide data through SNIG. The metadata system has provisions to document the various aspects of geographic data quality.

2.3.5 Interoperability

The dominating GIS-software used are the ESRI-product family and MicroStation. These softwares provide data converters.

Raster imagery are distributed in different formats among which TIFF and JPEG.

2.3.6 Language and culture

Metadata, documents are mainly provided in Portuguese and to some extent in English.

2.3.7 Data Content

A datadictionary is available related to urban planning mainly: PDM (Planos Directores Municipais Regulamentos) : Regulations at Municipal-level concerning definitions of urban planning (urban areas, industrial area...)

2.3.8 Geographical names

Geographical names are managed mainly in Portuguese

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

2.4.1 Availability of metadata

Exploration metadata are available for all of the reference and core thematic geodatasets.

Information is provided on

- General characteristics (Title, Label, Scale, Resolution, Themes, Résumé, Area covered, info consulted by (NUTS-level), period of reference)
- Distribution (format, operational system, software, restrictions, price)
- Access to information (on-line, import...)
- Other characteristics (map type, data model (raster, vector), reference points, equidistance, objective of information, state of development, frequency of

actualization, methods/processes used to produce the map, language, observations)

- Geographical Reference
- Projection-system (Planimetric Datum, Altimetry Datum, Ellipsoid, Rectangular coordinates (max, min), Altimetry coverage/vertical)
- Institutions and persons associated to the data (Contact for further information)

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

2.4.2 Metadata catalogues availability + standard

Within SNIG implementation, metadata standards became increasingly important for the exchange of and search for GI among institutions. Since 1996, due to CNIG's participation in the European Spatial Metadata Infrastructure (ESMI) project, the metadata structure is CEN/TC287 compliant, but it covers more information, namely metadata about remote sensing imagery. Now the metadata model is being converted into ISO compliant model (ISO/TC 211). The ISO 19915 implementation within SNIG consists in a partially distributed metadata catalogue solution. The support is provided by a web-based application that is able to store metadata in XML documents according with the Document Type Declaration (DTD).

Besides strict GI-catalogues, two other catalogues containing information relevant for the GI market such as data on the GI market actors and a description of the GIS software are maintained by SNIG.

2.4.3 Dublin core metadata standards for GI-discovery

Implementation is planned.

2.4.4 Metadata implementation

SNIG is only coordinating the dissemination of and access to metadata. Metadata are produced by the data producers.

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

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

The service of a centralized database that contains the metadata and the GI in digital format is available on the SNIG website (http://snig.igeo.pt/index_old.html) since 1995.

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

Besides the metadata catalogues that allow users to find where is the information they want and how they can access it, SNIG also includes data (aerial photos, orthophotos, maps and alphanumeric data) that can be visualised or downloadable on-line. Some data is available free of charge and other is charged.

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

No information was found.

2.5.4 OpenSource software and access services

No information was found on this issue.

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

The citizen gateway to the Portuguese NSDI : GEOCID was launched by CNIG on the Internet, in 1999. GEOCID includes a subset of NSDI information including different maps, satellite images, aerial photographs plus links to other geo-information that might be relevant for the citizen. <http://snig.igeo.pt/>. It allows for visualisation of some of the geodatasets.

2.5.6 Availability of catalogue services to regulate access

FIR

2.5.7 Availability of catalogue services that perform payment operations

FIR

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

FIR

2.5.9 SDI user applications

The citizen gateway to the Portuguese NSDI (GEOCID) can be regarded as a SDI-dependent user application for discovery, exploration (evaluation, ordering and downloading of (a subset of) geodatasets available through SNIG.

2.5.10 Availability of geo-processing services

Free access is provided to GI produced by a fixed GPS-station-network which can be used to correct data obtained by a mobile GPS-station.

2.6 Component 5: Standards

Incorporated in other components

2.7 Component 6: Thematic environmental data

The SNIG is also providing metadata about thematic environmental datasets produced and managed by the competent administrations.

Geographical location	Type	Inspire priority	Avai Labi lity	Organisation responsible for collection, production, management	Legal issues and funding	Ref.data characteristics	Metadata specifications	Standards	Update procedure
Monitoring sites	ENV	H		INAG+IM		Climate monitoring network			
Administrative units									
Sector management & reporting units	E/S	H							
Ocean and seas									
Sea regions	ENV	L							
Biota/biodiversity									
Habitats and biotopes	ENV	M		ICN					
Species distribution	ENV	M		ICN					
Natural resource									
Water resources	E/S	M		INAG					
Water Quality				INAG		Water quality monitoring network			
Economy									
Economic statistics/local statistics	E/S	H		INE					
Area regulation									
Sector regulation (env. sector/ other sector)	E/S	H							
Natural and technological risks									
Natural risk vulnerability zones	ENV	H							
Erosion risk zones	ENV			DISMED Project		4 maps characterizing the sensivity to erosion			
Coastal eroion	ENV								
Technological risk vulnerability zones	ENV	H							
Technological accidents/ natural disasters	ENV	L							
Polluted									

areas/areas under anthropogenic stress									
Local contaminated areas	ENV	H							
Diffuse contamination	ENV	M							
Noise zones	ENV	L							
Society									
Green urban areas	ENV	M							
Derelicted urban land	ENV	M							
Cultural heritage	ENV	L							
Natural amenities	ENV	L							

Data Producers:

INE = INSTITUTO NACIONAL DE ESTATÍSTICA

IA = INSTITUTO DO AMBIENTE

INAG = INSTITUTO DA ÁGUA

ICN = INSTITUTO DE CONSERVAÇÃO DA NATUREZA

DGOTDU = DIRECÇÃO GERAL DO ORDENAMENTO DO TERRITÓRIO E DESENVOLVIMENTO URBANO

DGF = DIRECÇÃO GERAL DAS FLORESTAS

HERA = INSTITUTO DE HIDRÁULICA, ENGENHARIA RURAL E AMBIENTE (PRESENTLY, INSTITUTO DE DESENVOLVIMENTO RURAL E HIDRÁULICA)

IGM = INSTITUTO GEOLÓGICO E MINEIRO

2.8 Use and efficiency of SDI

This SNIG is to be considered as the NSDI for Portugal: operational, up to date, efficient, not a GI producer agency, legally backed-up by legislation and financially by public funding. The provision of metadata is well structured and centrally co-ordinated by CNIG.

The assessment of user expectations on the NSDI is strongly considered as a relevant task by IGP. Since SNIG's creation several user-testing procedures were performed including the implementation of focus groups analysis, with users from the academic, private and public sectors and also with the citizens.

3 Annexes

3.1 List of SDI addresses / contacts for Portugal

Table: SDI contact list			
SDI Name (full)	Web address	Organisational mailing address	Over-all contact person: tel./fax/e-mail
National			
CNIG - Centro Nacional de Informação Geográfica	http://cnig.igeo.pt/index_old.html	TagusPark, Av. Jacques Delors, Ed. Inovação III, Sala 614 2780-920 Porto Salvo OEIRAS	E-mail: frias.santos@igeo.pt (Director de Departamento : Adelino Frias dos Santos) igeo@igeo.pt office : from Monday-Friday : 10u00 -18u00 Tel: 351 214219800 Fax: 351 214219856
IGP - INSTITUTO GEOGRÁFICO PORTUGUÊS	http://www.igeo.pt/index_old.html	Rua Artilharia Um, 107 1099-052 LISBOA Tel: (+351) 21.381.96.00; Fax: (+351) 21.381.96.99	Timo Tuhkanen, Director e-mail: keke@maanmittauslaitos.fi

3.2 List of references for Portugal

Table: list of references used to compile the Country Report	
Web sites:	
	www.sogi.ch/Profiles.pdf
	http://www.privacyinternational.org/survey/phr2002/phr2002-part3.pdf
	http://www.spatial.maine.edu/~onsrud/GSDI_surveys/portugal/portugal.htm
	http://www.igeo.pt
	http://snig.igeo.pt/
	http://geocid-snig.igeo.pt
	http://www.gsdi.org/pubs/cookbook/
	http://www.urisa.org/Journal/accepted/1PPGIS/crampvoets/world_status_of_national_spatial_data.htm
	http://codazzi4.igac.gov.co/gsdi5/documentos/Uta_Wehn_paper.pdf
	http://www.shef.ac.uk/~scgisa/MADAMENew/Defaultb1.htm
	http://www.shef.ac.uk/~scgisa/MADAMENew/Deliverables/d1a.htm
	www.sogi.ch/Profiles.pdf
	http://www.lmu.jrc.it/ginie/doc/SDI_final_en.pdf

Publications:	
	Uta When de Montalvo, 2001. Survey for SDI implementation : a survey of national experiences.
	GINIE: Geographic Information Network in Europe. <u>Spatial data infrastructures: Country Reports FINAL D 5.3.2(b)</u> . September 2002
Other sources:	
	Internet : Presentation of CNIG about SNIG : moving from CEN TC 287 to ISO/TC 211 – no date
	Article : Company Information about CNIG - 1999