Spatial Data Infrastructures in *Malta:* State of play 2010
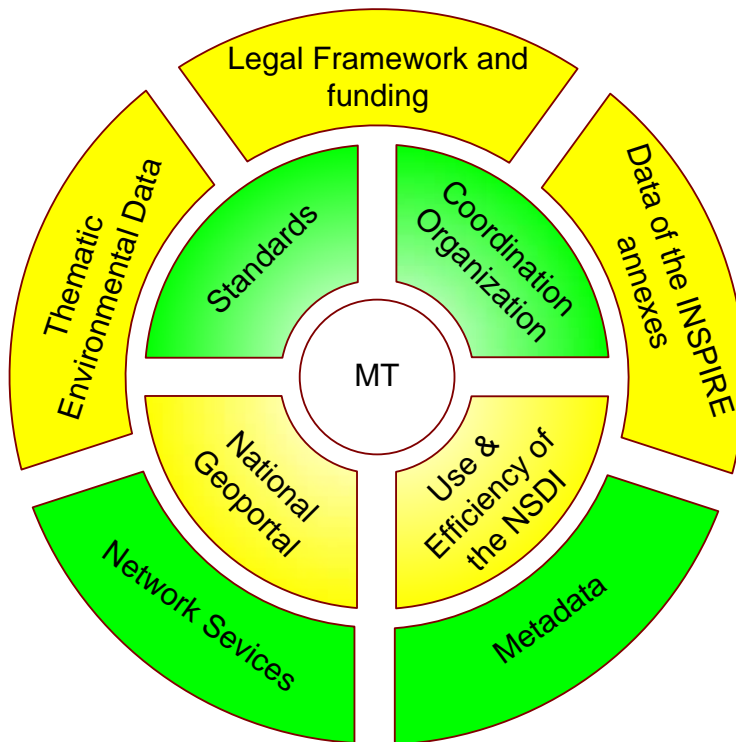
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11.0	2010-03-13	Dimitrios Biliouris (SADL)	Review of the 2009 update
11.1	2010-03-16	Katleen Janssen (ICRI)	Update of the 2009 legal framework and funding

Change matrix 2010 versus 2007

A concise graph is added to indicate changes of the various paragraphs compared to the previous report. Two colours are used: Green and Yellow indicating major and minimum changes respectively compared with the 2007 State of Play. This graph does not reflect the country situation. Merely it represents our findings/changes per section on our preparation of the desktop analysis

Executive summary

Based on limited information, we have found that in Malta, production, management and dissemination of (rather large scale) spatial reference and core thematic data is almost the exclusive responsibility of the Malta Environmental and Planning Authority (MEPA) in general and the subordinate National Mapping Agency (NMA) in particular. Other organizations which are producing spatial information and conducting spatial information system projects include the Land Registry, the National Statistics Office and the Local councils. The private sector seems to play an increasing role in data production, besides systems development and consultancies. Utilities are also increasingly looking at GIS as a means to develop and manage their business.

Although MEPA/NMA has no specific mandate to develop an NSDI, they conduct efforts which may provide the basis for a future NSDI:

- Have a legal role to provide mapping data and produce national datasets such as topographic data, thematic data, planning data, environmental protection data, marine habitats data, Posidonia data etc.

- Honour the Planning Mandate

- Honour the Environment Mandate

Participation in EU-funded and other international projects like CLC2000 has clearly contributed to raising awareness for SDI-issues. MEPA has also committed itself to participate in the EuroRegionalMap Project and to implement the ERM on a Geodatabase, a pan-European seamless topographic database at medium scale resolution.

Progress with respect to legal issues is mainly driven by obligations resulting from the Aarhus convention. Malta signed the Convention on Access to Information, Public Participation in Decision Making and Access to justice in Environmental Matters in December 1998 and ratified the convention in April 2002.

MEPA, apart from the INSPIRE, is also leading the implementation of various important projects and initiatives such as GMES, Aarhus Convention, EEA NFP, EIONET activities and also the setting up and implementation of SEIS. Furthermore, a number of services have been established such as an environmental portal, a mapserver and e-applications.

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Abbreviations and acronyms

CLC	Corine Land Cover
CT	Core Thematic Data
DITSL	Datatrak IT Services Limited
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EIONET	European Environment Information and Observation Network
ERM	EuroRegionalMap
EUMA	European Management Assistants
FIR	Further Investigation Required
GI	Geographical Information
GIS	Geographical Information System
GMES	Global Monitoring for Environment and Security
GML	Geography Markup Language
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
ISO	International Organization for Standardization
MEDICOZ	Mediterranean Integrated Coastal Zone Directory
MEPA	Maltese Environmental Planning Authority
MEYE	Ministry of Education, Youth and Employment
MHEC	Ministry of Health, the Elderly and Community Care
MSA	Malta Standards Authority
NFP	Natural Family Planning
NIA	No Information Available
NMA	National Mapping Agency
NSDI	National Spatial Data Infrastructures
PPP	Public-Private Partnerships
PSI	Policy and legislation on access to public sector information
REF	Reference data
SDI	Spatial Data Infrastructures
SEIS	Special Education Information System
UNECE	United Nations Economic Commission for Europe
WMS	Web Map Service

1   GENERAL INFORMATION

1.1   Method

This report aims at summarizing the state of play of SDI in Malta, and at reflecting the degree to which the SDI situation in Malta is similar to the ideas set out in the INSPIRE position papers[1] and the more recent INSPIRE scoping documents.

Since documents, project references could hardly be found, the report is based mainly on the study of the few web sites readily accessible in English (some sites with technical specifications or illustrations also in Maltese).

The report has been completed by integration and consolidation of comments received early 2003 from representatives of the National Statistics Office and the Malta Environment and Planning Authority (MEPA). Early 2004, more comments were received and taken into account, coming from Malta Environment and Planning Authority and from a private GI-company (Datatrak IT services). The comments were provided in written form (e-mail). The update of 2005 was based on input from Ms. Carol Valentino from MEPA. The update for 2006 was based on various sources, focusing on the legal and organisational elements of the SDI. For the update of 2007, no information regarding data sharing, data sets or services was received. Some information on licence fees could be found through other channels.

For the 2009 update, no information regarding the survey questionnaire was received and the main source of information was extracted from the 2009 ICT components for a Shared Environmental Information System State of Play report. In this version obsolete information was removed, while a conclusion paragraph regarding the status of each indicator was added for each component.

1.2   The Maltese GI-/SDI-scene

The main provider of GI in Malta is the National Mapping Agency that forms part of the Malta Environment and Planning Authority. Core data are available at small scale and for 50% of the territory at larger scales. Implementation of metadata by the NMA is planned.

Organizations which are developing spatial information systems include the Land Registry, the National Statistics Office and the Local councils. The utilities and the private sector are also increasingly looking at GIS as a support to or the subject of their business. DataTrack IT-services Ltd is a major company in the GI-sector dealing with digital and hard copy mapping, orthophoto production, land surveying, distribution and processing of satellite imagery, web-GIS-solutions etc. It offers data products covering the whole island and beyond.

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

No NSDI-policy framework is in place. Nevertheless mainly the planning agency is increasing the use of GIS across several areas.

Currently, access to digital information is not easy. In addition there is:

- A lack of updated reference data such as addresses and postcodes;

- Embryonic metadata and a lack of culture of data documentation, though this is now gaining ground;

- Non transparent practices such as data hoarding, high pricing limiting access and overprotection of some key datasets;

- Lack of resources to convert digital data.

There are plans to create a socio-economic and reference database and to provide data such as environmental data via the web to the public, including 3D mapping applications. This already exists in a full blown web-GIS developed for the MEPA through which users have access to an e-government site on all development planning applications.

[1]

Malta does not have a national GI association. At present Maltese GI-professionals are members of the Association for Geographic Information in the UK. The set up of a national GI association is however planned in 2005 and following points of attention have been mentioned (Wolfkamp, 2003):

- The setting-up of a spatial infrastructure around a Web-GIS, through which the benefits of GIS are highlighted for public participation. A system already exists as a mapserver application on the main website (http://www.mepa.org.mt/topics-planning) as developed by the MEPA (Malta Environment and Planning Authority) which covers the planning development database, and environmental and archaeology data, amongst others. Users can extract information from aerial imagery, base maps and print reports and data;

- The initiation of laws regarding information and access to the same information;

- The spreading of GI knowledge across major interested parties and development of GI in such areas as crime, cadastral layers, utilities and environmental areas;

- Involvement of the private sector, which is however restricted by the limitations of a very small market though this may develop into a Mediterranean-wide initiative.

Following initiatives are mentioned as they may provide a basis for initiation and development of a NSDI in Malta.

- The Maltese authorities were partners in the Mediterranean Integrated Coastal Zone Directory (MEDICOZ) project, where they assisted in the identification of national datasets; the setting-up of a metadata directory; provision of expertise on data manipulation and transfer to various GIS data formats and development and design of hard copy and digital maps at both national or Mediterranean levels, as well as providing expertise on web-mapping technology and development of Web-GIS interfaces and interactive systems.

[1]

- Via INTERREG III, Maltese Authorities are seeking cooperation with countries of the Western Mediterranean and Archimed transnational coordination programs to identify methods for the application for GIS and remote sensing for monitoring and preparing land use planning policies;

- Via EEA and EC Environmental data requirements, data is being compiled in a GIS format for eventual internet-dissemination purposes

[1]

The Malta Environment and Planning Authority, given its role and unique situation is not visualizing and planning the implementation of INSPIRE in isolation but rather as one of a number of initiatives that has to be undertaken in parallel and also feed into each other such as SEIS, Access to Information and monitoring and reporting activities. A number of components have already been developed and implemented. These include [11]:

- MEPA e-apps

- Ozone Web

- Corinne Land Cover

- Bathing Water real time reporting

- MEPA web services

- Environmental Portal – www.ambjent.org.mt

- EUMA

2 Details of NSDI-like activities of MEPA/NMA

2.1 General Information

Considering the Maltese GI/SDI-scene, it can be concluded that the two major (potential) public SDI players are the National Mapping Agency and the National Office of Statistics. Currently both are mainly in charge of building up and maintaining GI-databases.

[5], [9]

The National Mapping Agency is to be considered as the main potential driver for the implementation of GIS in Malta. The Agency forms part of the Malta Environment and Planning Authority, which has already enabled greater integration of GIS in different areas and applications, away from the purely physical and land-based issues into the socio-economic domain (population change, employment, crime mapping).

The MEPA is the authority charged with the implementation of the Environment Protection Act as well as Spatial Planning through the Development Planning Act (92).

[10]

2.2 Component 1: Coordination and organizational issues

Malta has a unique situation whereby Environmental Protection and Land Use are incorporated into one central structure. Nevertheless there are other organizations which are also responsible for data collection and management.

These are [11]:

- The Malta Resources Authority

- The Ministry for Resources and Rural Affairs

- The Rural Development Department

- The Department of Agriculture

- The National Statistics Office

- The Ministry of Finance

- The Department of Health

- The Fisheries Conservation & Control Division

- The Planning & Priorities Coordination Directorate

MEPA acts as the principal agency for land use planning and the environment, collecting and processing information from other bodies and entities for use in reporting, policy making, research and provision to the public. It has a series of agreements with other entities that outline the processes of data sharing.

2.2.1 Conclusions of Component 1

The Maltese SDI approach is truly national. SDI building blocks have reached a significant level of operationality. Malta has a unique situation whereby Environmental Protection and Land Use are incorporated into one central structure. The National Mapping Agency is to be considered as the main potential driver for the implementation of GIS in Malta. The Agency forms part of the Malta Environment and Planning Authority. Although MEPA/NMA has no specific mandate to develop an NSDI, they conduct efforts which may provide the basis for a future NSDI. Malta does not have a national GI association.

Based on these conclusions we score the indicators as follows:

- The approach and territorial coverage of the SDI is truly national

- One or more components of the SDI have reached a significant level of operationality (Partially)

- The officially recognised or de facto coordinating body of the SDI is a NDP, i.e. a NMA or a comparable organisation

- The officially recognised or de facto coordinating body for the SDI is an organisation controlled by data users (No)

- An organisation of the type 'national GI-association' is involved in the coordination of the SDI (No)

- Producers and users of spatial data are participating in the SDI (No)

- Only public sector actors are participating in the SDI

2.3 Component 2: Legal framework and funding

[3], [4]

2.3.1 Legal framework

The Malta Environment and Planning Authority is leading the implementation of several policies that are important for the development of the national SDI, such as the Aarhus Convention, INSPIRE and GMES.

[11]

Until those legal developments are completed the only legal instrument that can be mentioned is, the Development Planning Act, which specifies as one of the Authority's main activities, the maintenance of a National Mapbase to facilitate its operations. [10]

2.3.2 Public-private partnerships (PPP's)

No information has been found.

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

The Freedom of Information Act was adopted in 2008, but it has not entered into force yet. This is planned for August 2010. The Government of Malta published a notice in July 2009, giving all the public authorities one year to prepare their asset lists as required by the Freedom of Information Act. [12]

Directive 2003/4 on access to environmental information in the Freedom of Access to Information had already been transposed in the Freedom of Access to Information on the Environment Regulations of 2005. These entered into force in May 2005. There is also other sectoral legislation, e.g. for archives and registries. Directive 2003/98 on the re-use of PSI has been transposed into Maltese law by law nr. 20 in 2007.

2.3.4 Legal protection of GI by intellectual property rights

The 2000 Copyright Act "to make new provision in respect of copyright and neighbouring rights and certain "sui generis" intellectual property rights in substitution of the provisions of the Copyright Act, Cap. 196" was amended in 2001 and 2003. It explicitly protects maps, plans, diagrams and three-dimensional works relative to geography, science or topography.

Article 25 of the Copyright Act provides for a sui generis right in respect to databases.

Regarding the copyright works of government and international bodies, article 6 of the Copyright Act stipulates that copyright shall be conferred by this article on every work which is eligible for copyright and which is made by or under the direction or control of the Government of Malta and also such governments of other States, international bodies or other intergovernmental organisations as may be prescribed by the Minister responsible for the Industrial Property Office.

The 2001 Directive on copyright in the information society was included in the Copyright act by the amendments of 2003.

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

The Maltese Data Protection Act of 2001 came into force on 22 March 2002 and was amended in July 2003. It includes the rules prescribed by Directive 95/46 on the processing of personal data, and the 2002 Directive on privacy and electronic communications.

2.3.6 Licensing framework

Licenses are issued for certain data and services. In 2007, the National Mapping Agency has reviewed its licence fees within the Public Sector (the review was repeated in 2008 and 2009). This coincided with a shift towards a single contractual arrangement for each ministry, thus enabling a more cost effective, relationship for departments and entities within the respective Ministry's portfolio. To support this initiative, MEPA has detailed its digital mapping product sets, and associated licence fees, in a manner which provides for easier, centralised, contracting in close liaison with a Ministry's representative. Agreements with the Ministry of Health, the Elderly and Community Care (MHEC) and the Ministry of Education, Youth and Employment (MEYE) have already been signed. (http://www.mepa.org.mt/press/AnnReps/MEPA%20Annual%20Report%202007.pdf).

[13]

2.3.7 Funding model for SDI and pricing policy

With regard to topographic mapping, the MEPA maintains a partial cost recovery approach through which major users of map data are charged for use of the data. All minor distribution is charged at marginal cost levels. Government contributes additional funds to complete the costs recovered from sales and distribution. Production and maintenance of thematic datasets are largely funded directly from Government, particularly where national coverage is required.

A sustainable funding model remains a key challenge.

[10]

2.3.8 Conclusions of Component 2

The Malta Environment and Planning Authority is leading the implementation of several policies that are important for the development of the national SDI, such as the Aarhus Convention, INSPIRE and GMES. However INSPIRE is not yet implemented. No information on PPP was found. The Freedom of Information Act was adopted in 2008, but it has not entered into force yet. This was planned for August 2010. However this

could not be confirmed. The 2000 Copyright Act explicitly protects maps, plans, diagrams and three-dimensional works relative to geography, science or topography. At the same time a sustainable funding model remains a key challenge.

Based on these conclusions we score the indicators as follows:

- There is a legal instrument or framework determining the SDI-strategy or – development (No)

- There are true PPP's or other co-financing mechanisms between public and private sector bodies with respect to the development and operation of the SDI-related projects (No Information found)

- There is a freedom of information (FOI) act which contains specific FOI legislation for the GI-sector (In Preparation)

- GI can specifically be protected by copyright

- Privacy laws are actively being taken into account by the holders of GI (No Information found)

- There is a framework or policy for sharing GI between public institutions (In Preparation)

- There are simplified and standardised licences for personal use (No information found)

- The long-term financial security of the SDI-initiative is secured (No)

- There is a pricing framework for trading, using and/or commercialising GI (No Information found)

2.4 Component 3: Data for themes of the INSPIRE annexes

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

Data is available with the NMA at 1:25.000, 1:10.000, 1:2.500 and 1:1.000, i.e. the so-called local scale range. Given the small size of the island of Malta, smaller scales are not useful.

[2], [8]

The main reference datasets with coverage over all Malta comprise:

- Vertical and Horizontal Geodetic reference points;

- Large Scale Digital Topographic Mapping (1:2.500, 1:1.000);

- Colour Orthophotos at 0.15 m ground pixel;

- Medium Scale Digital Topographic Mapping (1:50.000, 1:25.000);

[10]

2.4.2 Data by resolution or scale range for the INSPIRE themes

Thematic datasets include

- Statutory protection zones under Planning and Environment Protection legislation;

- Habitats and land cover, generally focusing on natural habitats;

- Archaeology and other major cultural assets;

- Marine Posidonia Habitats ;

- EEA datasets.

Basically Data Thematic/Reference Data that are available locally is also available nationally. Administrative Boundaries are available at a European level, as part of the EuroRegionalMap project.

Regarding the three INSPIRE annexes addressing the 34 spatial data themes, Malta is providing discovery and view services for some of them in a number of scales and resolutions. A complete list will be presented in the updated report including the information provided by the country in 2010.

2.4.3 Geodetic reference systems and projections

Maps and geodatasets are produced according to ED50 and European Datum 50 and European ETRS89 at a European Level.

2.4.4 Quality of the data

Data is cross-checked. For CLC2000 cross-checking will be done with EEA.

2.4.5 Interoperability

Full interoperability is the target.

2.4.6 Language and culture

English and Maltese

2.4.7 Conclusions of Component 3

Regarding Malta's geodatasets, several themes exist (but not all) which provide a basis for contributing to the coverage of pan-Europe for the INSPIRE-selected data themes and components. At the same time the geodetic reference system and projection systems seems to be standardised and interconvertable but not clearly documented. The main language used is Maltese and English.

Based on these conclusions we score the indicators as follows:

- Geodatasets exist which provide a basis for contributing to the coverage of pan-Europe for the INSPIRE-selected data themes and components (Partially)

- The geodetic reference system and projection systems are standardised, documented and interconvertable (Partially)

- There is a documented data quality control procedure applied at the level of the SDI (No Information found)

- Concern for interoperability goes beyond conversion between different data formats (No Information found)

- The national language is the operational language of the SDI

- English is used as secondary language

2.5 Component 4: Metadata

2.5.1 Availability of metadata for the reference data

No evidence could be found regarding the availability of metadata at more or less significant basis. A culture of data documentation seems to be absent. However, a metadata service is planned by MEPA. Metadata development for INSPIRE is being undertaken in conjunction with the development of systems/servers supporting both the

Aarhus convention and SEIS. Therefore it is anticipated that the development of compliance mechanisms will not only involve special data but encompass all Environmental data. This is aimed for 2010.

[1], [11]

2.5.2 Metadata catalogues availability + standard

Such a catalogue could not be identified. However, in [11] it is stated that

MEPA's Information Resources Unit has recently began the process of creating metadata for its existing environmental spatial datasets, based on INSPIRE's approved implementing rules. Metadata are available for:

- Bathing Water Quality

- Bathing Sea Water

- Birds Directive

- Bird Sanctuaries

- CDDA

- Corinne Land Cover

- Designated Sensitive Areas

- Solid Waste Management

- Chloride content in WSC Pumping Stations

- Important Birds Areas (Marine)

2.5.3 Dublin core metadata standards for GI-discovery

Not applicable.

2.5.4 Conclusions of Component 4

Metadata are produced for a fraction of geodatasets of the themes of the INSPIRE annexes. MEPA's Information Resources Unit has recently began the process of creating metadata for its existing environmental spatial datasets, based on INSPIRE's approved implementing rules. No standardised metadata catalogues could be found. However, a

metadata service is planned by MEPA. Although MEPA takes the lead as coordinating metadata authority there is not yet any solid reference on metadata.

Based on these conclusions we score the indicators as follows:

- Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes (Partially)

- One or more standardised metadata catalogues are available covering more than one data producing agency (No)

- There is a coordinating authority for metadata implementation at the level of the SDI (No Information found)

2.6 Component 5: Network Services

MEPA's website www.mepa.org.mt acts as the portal for environmental information on various environmental domains of relevance to Malta.

Under the main website user can access:

- MEPA e-applications : www.mepa.gov.mt

- MEPA mapserver:

- http://mapserver.mepa.org.mt/malta_geoinfo/neapoljs.htm?Skin%3DneuSkin +Lang%3DENGLISH+Resolution%3Dbig+

- Environmental Portal: www.ambjent.org.mt

2.6.1 On-line access service for metadata: discovery services

No details could be found about the metadata service which is planned by MEPA.

2.6.2 On-line access service for data: download services

see 2.6.5.

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

Not applicable.

2.6.4 OpenSource software and access services

Not applicable.

2.6.5 Availability of viewing services

A development Web-GIS server is available at http://mapserver.mepa.org.mt/malta_geoinfo/neapoljs.htm?Skin%3DneuSkin+Lang%3D ENGLISH+Resolution%3Dbig . It provides mainly spatial information on planning issues.

The current Mapserver functionalities include viewing and downloading of a number of themes. These include:

- Viewing of various datasets both planning-related and environment (Marine, Terrestrial, Natura 2000)-related.

- Viewing of Orthophotos

- Identifying locations by searching criteria

- Downloading of site plans

- Measurement of distances

Also, in the project 'Mediterranean Integrated Coastal Zone Directory (MEDICOZ)' in which Malta participated, attention was paid to web-mapping technology and development of Web-GIS interfaces

2.6.6 Availability of catalogue services to regulate access

According to the private company DITSL, the Maltese government recently acquired an electronic registration and authentication system. It is however not clear whether this is in connection with spatial data services.

Via this Web-GIS server there is a possibility to purchase credit on line as described on their help menu:

"It is possible to purchase credit of LM10, LM25 and LM50 by following the Purchase Credit link located at the top right-hand corner of the MEPA Home page. A single transaction purchase of LM1 is also available"

2.6.7 Availability of catalogue services that perform payment operations

NIA.

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

NIA.

2.6.9 SDI user applications

NIA.

2.6.10 Availability of geo-processing services

NIA.

2.6.11 Conclusions of Component 5

A development Web-GIS server is available. It provides mainly spatial information on planning issues. The current Mapserver functionalities include viewing and downloading of a number of themes. However the download function is not operating.

Based on these conclusions we score the indicators as follows:

- There are one or more discovery services making it possible to search for data and services through metadata (No)

- There are one or more view services available for to visualise data from the themes of the INSPIRE annexes (Partially)

- There are one ore more on-line download services enabling (parts of) copies of datasets (No)

- There are one or more transformation services enabling spatial datasets to be transformed to achieve interoperability (No information found)

- There are middleware services allowing data services to be invoked (No information found)

2.7 Component 6: Thematic environmental data

MEPA (Maltese Environmental Planning Authority) presents on its website an Environmental Impact Assessment procedure and an overview of cases. Overview maps can be accessed by mouse click but not modified. Moreover the environmental Portal:

www.ambjent.org.mt was initiated and coordinated by the Malta Environment & Planning Authority under the Austrian – Maltese Twinning Project MT/06/IB/EN/01 "Further Institution Building in the Environment Sector". The project aims to support the Maltese Government in further improving public access to environmental information, public participation in environmental decision-making and access to justice in environmental matters (UNECE Aarhus Convention and related EU Directives). Currently the portal includes information on Air, Waste and Water.

All pending EIA applications can be accessed through the Active Maps button as well as through the GIS Maps Image-Mapping buttons. This is the result of an exercise aimed at integrating Geographical Information Systems (GIS) with the Internet medium enabling wider dissemination of environmental information.

[2]

2.7.1 Conclusions of Component 6

MEPA is focusing also on thematic environmental data. MEPA presents on its website an Environmental Impact Assessment procedure and an overview of cases, while maps can be accessed. Moreover the environmental Portal: www.ambjent.org.mt was initiated.

Based on the information provided on the previous paragraph we score the indicator as follows:

- Thematic environmental data are covered by the described SDI-initiative or there is an independent thematic environmental SDI (Partially)

2.8 Standards

With regard to data standardization, the general approach has been to adopt a simple data structure which can be adequately distributed to clients using simple industry formats, particularly:

- ESRI shapefiles and dbf;

- Mapinfo MIF/MID;

- Autodesk DXF.

MEPA is considering neutral formats such as GML but currently remain driven by what is most appropriate for their market. They have a prototype WMS site and are considering the migration to this technology.

A key challenge/development: Quick Win data and platform models for organisations coming together in a federated approach to the development of a SDI.

[10]

Furthermore, MSA Certification is a unit under the Standardization Directorate at the Malta Standards Authority (MSA). Currently, MSA Certification has adopted a number of ISO and CEN standards as Maltese standards:

- MSA EN ISO 19101:2005 Geographic information - Reference model (ISO 19101:2002) EN ISO 19101:2005

- MSA EN ISO 19105:2005 Geographic information - Conformance and testing (ISO 19105:2000) EN ISO 19105:2005

- MSA EN ISO 19107:2005 Geographic information - Spatial schema (ISO 19107:2003) EN ISO 19107:2005

- MSA EN ISO 19108:2005 Geographic information - Temporal schema (ISO 19108:2002) EN ISO 19108:2005

- MSA EN ISO 19111:2005 Geographic information - Spatial referencing by coordinates (ISO 19111:2003) EN ISO 19111:2005

- MSA EN ISO 19112:2005 Geographic information - Spatial referencing by geographic identifiers (ISO 19112:2003) EN ISO 19112:2005

- MSA EN ISO 19113:2005 Geographic information - Quality principles (ISO 19113:2002) EN ISO 19113:2005

- MSA EN ISO 19114:2005 Geographic information - Quality evaluation procedures (ISO 19114:2003) EN ISO 19114:2005

- MSA EN ISO 19115:2005 Geographic information - Metadata (ISO 19115:2003) EN ISO 19115:2005

(http://www.msa.org.mt/standards/CEN20050301.pdf)

Moreover it offers the following certification schemes.

MSA EN ISO 9001:2008 - Quality Management System Certification

MSA EN ISO 14001:2004 - Environmental Management System Certification

2.8.1 Conclusions of Component 7

Based on the information provided on the previous paragraph we score the indicator as follows:

- The SDI-initiative is devoting significant attention to standardisation issues

2.9 Use and efficiency of SDI

NIA

3 Annexes

3.1 List of SDI addresses / contacts for Malta

Table: SDI contact list			
SDI Name (full)	Web address	Organisational mailing address	Over-all contact person: tel./fax/e-mail
National Statistics office	http://www.gov.mt/frame.asp?l=2&url=http://www.nso.gov.mt/	Lascaris Valletta CMR02 MALTA	Mr Robert Mizzi Manager Information Services Library & Information Unit Telephone: (+356) 21223221-5 Fax: (+356) 21248483, (+356) 21249841 email: nso@gov.mt
National Mapping Agency Malta Planning Authority [9]	http://www.mepa.org.mt http://www.mepa.org.mt/index.htm	Mapping Unit, St Francis Ravelin, Floriana, PO Box 200, Valletta CMR 01	Tel: +356 240 976 Fax:+356 224 846 e-mail: mapserver@mepa.org.mt
The Malta Environment and Planning Authority	http://www.mepa.org.mt/	P.O. Box 200, Valletta CMR 01, Malta	Mr. Saviour Formosa Tel. +356 2290 1620 Ms. Carol Valentino Tel: +356 22901329 Mr Matthew Gatt
	http://www.datatrak.ws	F26 Mosta Technopark Mosta MST13 Malta	Dr. Elaine Tabone-Adami datatrak IT services ltd Tel: +356 233 18 500 Fax: +356 21 435 603 elaine.tabone.adami@datatrakit.com.mt

3.2 List of references for Malta

Table: list of references used to compile the Country Report	
Web sites:	http://www.eia-malta.org/index.htm [2] http://www.privireal.org/countries/malta.htm

	[3] http://justice.gov.mt/dir2-laws/toppage.asp [4] http://www.gov.mt/frame.asp?l=2&url=http://www.nso.gov.mt/ [5] http://www.mepa.org.mt [6] http://www.mepa.org.mt/index.htm [7] http://www.mepa.org.mt/Environment/index.htm [8] http://whc.unesco.org/map-agencies.htm [9] [12] http://www.epsiplus.net/news/news/malta_moves_on_foi_act_implementation
Publications:	M. Craglia and J. F. Dallemand: Geographic Information and the Enlargement of the European Union. EUROGI-European Commission Workshop. Brussels, 16-17/11/2000. Technical Report. EUR 19824 EN http://www.ec-gis.org:8080/wecgis/docs/F22346/IMPAGINATO.PDF [1] Wolfkamp A., (16 February 2003) Survey of National Geographic Information Associations in Europe, GINIE D3.1.1, Network in Europe, IST-2000-29493 Gatt Matthew, 'Malta : Overview of SDI (PowerPoint Presentation), PECO workshop 13,14 May 2004 JRC Ispra [10] [11] SADL K.U.Leuven report on SEIS National State of Play in Malta, May 2009. [13] MEPA, Annual report 2008, http://www.mepa.org.mt/AnnReps/MEPA%20ANNUAL%20REPORT2008.pdf.