SDIGER: A CROSS-BORDER INTER-ADMINISTRATION SDI TO SUPPORT WFD INFORMATION ACCESS FOR ADOUR-GARONNE AND EBRO RIVER BASINS

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ABSTRACT

SDIGER is a pilot project on the implementation of the Infrastructure for Spatial Information in Europe (INSPIRE), funded by Statistical Office of The European Communities, that aims to demonstrate the feasibility and advantages of solutions for sharing spatial data and services proposed by the INSPIRE position papers and to estimate the costs of implementing interoperability-based solutions on the basis of real cases, together with the problems, obstacles which might be encountered during the subsequent large-scale implementation of INSPIRE. SDIGER consists in the development of a Spatial Data Infrastructure (SDI) to support access to geographic information resources concerned with the Water Framework Directive (WFD) within an inter-administration and cross-border scenario that involves: two countries, France and Spain; and, the two main river basin districts at both sides of the border, the Adour-Garonne basin district and the Ebro river basin district.

KEYWORDS: INSPIRE, SDI, Water Framework Directive, Metadata, Metadata profiles

INTRODUCTION

SDIGER is a pilot project on the implementation of the Infrastructure for Spatial Information in Europe (INSPIRE) [CEC, 2004]. This project is part of the "Call for Tender 2004/S 111-092104/EN" for the supply of informatics services in the various domains of the Community Statistical Programme. It is funded by the European Commission through the Statistical Office of the European Communities (Eurostat).

Eurostat's objectives for the project are to test and demonstrate the feasibility and advantages of solutions for sharing spatial data and services, observing the principles and standards proposed by the INSPIRE position papers in 2002 and their interoperability-based approach; to acquire experience in implementing interoperable solutions and develop processes able to be reused when INSPIRE is put into operation; and to estimate the costs of implementing interoperability-based solutions on the basis of real cases, together with the problems, obstacles which might be encountered during the subsequent large-scale implementation of INSPIRE.

The "call for tender" required the cross-border application to be focused on an environmental subject. The SDIGER project proposed consists in the development of a Spatial Data Infrastructure (SDI) to support access to geographic information resources concerned with the Water Framework Directive (WFD) [OJ, 2000] within an inter-administration and cross-border scenario that involves: two countries, France and Spain; and, the two main river basin districts at both sides of the border, the Adour-Garonne basin district, managed by the Water Agency for the Adour-Garonne River Basins (*L'Agence de l'Eau Adour-Garonne*) and the Ebro river basin district, managed by the Ebro River Basin Authority (*Confederación Hidrográfica del Ebro*).

However, although the specific thematic selected for this project is the data related to the requirements of the Water Framework Directive, this is not the first priority. As has been previously mentioned, the real priority of this project is to demonstrate the interoperability of spatial data according to the guidelines of the INSPIRE directive proposal [Smits, 2002]. Therefore, as INSPIRE principles must guide the objectives of this project, the main aims of the project will be the following:

- Data should be collected once and maintained at the level where this can be done most effectively.

- It should be possible to combine seamless spatial information from different sources across Europe and share it between many users and application.

- It should be possible for information collected at one level to be shared between all the different levels, detailed for detailed investigations, general for strategic purposes.

- Geographic information needed for good governance at all levels should be abundant under conditions that do not refrain its extensive use.

- It should be easy to discover which geographic information is available, fits the needs for a particular use and under which conditions it can be acquired and used.

- Geographic data should become easy to understand and interpret because it can be visualised within the appropriate context selected in a user-friendly way.

The paper is structured as follows: the SDIGER consortium members and collaborators are presented in the next section; a more detailed explanation of the objectives of the pilot project, organized by activities is presented in the section "Problems to solve"; the next two sections deal with the activities of the SDIGER project ended so far: application scenario and the metadata activity. Current state of the project and the next steps to be taken are defined in the "Conclusions" section.

CONSORTIUM

This project is being developed by a consortium consisting of the following entities:
- IGN France International (*Institut Géographique National France International*[1]),
- France National Geographic Institute (*Institut Géographique National*[2]),
- Spain National Geographic Information Centre (*Centro Nacional de Información Geográfica*[3]),
- University of Zaragoza (*Universidad de Zaragoza*[4]), together with experts from University Jaume I.

Additionally, this consortium counts on the help of the following collaboration entities:
- Spain National Geographic Institute (*Instituto Geográfico Nacional*[5]),
- Water Agency of Adour-Garonne (*Agence de l'Eau Adour Garonne*[6]),
- Ebro River Basin Authority (*Confederación Hidrográfica del Ebro*[7]),
- Regional Direction of the Ministry of Environment for the Midi-Pyrenees region, and
- GIS-ECOBAG association[8].

As it can be observed, these entities (most of them public institutions) are the main providers of the topographic data and hydrographic data in the cross-border area.

PROBLEMS TO SOLVE

SDIGER is a two-year project, divided by Eurostat in the "call for tender" in a set of activities orientated to face the problems that may arise in the large-scale implementation of INSPIRE. The activities are presented below and all of them, but the last one, correspond to the first year of the project:

- Definition of a cross-border scenario

    Application scenario use cases have to be developed. They must relate to the environmental domain, with at least two adjacent countries and at least two different languages. Section

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[1] http://www.ignfi.fr
[2] http://www.ign.fr
[3] http://www.cnig.es
[4] http://www.unizar.es
[5] http://www.ign.es
[6] http://www.eau-adour-garonne.fr
[7] http://www.chebro.es
[8] http://www.ecobag.org

"Application scenario" explains in a more detailed way what the chosen scenario is and what are the use cases that are going to be implemented within the project.

List and costs of licences and/or rights of access to data and services needed for the implementation of the application scenario, during the two years that the project will last.

- Metadata related activities

Development metadata profiles (metadata profile for geographical data mining, generic metadata profile for INSPIRE for assessing and using geographical data, metadata profile for the Water Framework Directive) with full technical documentation and user guides (see section "Metadata profiles").

Development of an open-source metadata management tool, supporting the aforementioned metadata profiles (see section "Metadata management tool").

- Multilingual access portal to data and services

Creation of a specific and multilingual portal, where services to access the spatial data configured according to the standards (OGC) described in the AST Position Paper in INSPIRE will be included.

- Multilingual aspects of the application

French and Spanish are the official languages of the two countries involved in the project. Besides offering data and services in these two languages, an English version of the geoportal will be also available to facilitate accessibility to users not familiar with these two first languages.

Therefore, multilingual resources like multilingual thesauri (GEMET [EEA, 2001], UNESCO [UNESCO, 2005], EUROVOC[9] and AGROVOC[10]) and multilingual gazetteers will be used to facilitate the creation of metadata and the development of ergonomic search interfaces for data and services catalogs [Nogueras-Iso et al.,2004].

- Creation of a common object-oriented data model for the data used in the application.

A common data model will be created, using UML, for the data involved in the application, mapping the available data to that model.

- Configuration of the servers for access to the data and services covered by the application according to the ISO and Open Geospatial standards.

- Internet application

Development of the applications proposed in the application scenario using the elements established in the previous activities.

- Business plan for implantation of INSPIRE at the European level

Report based on the previous activities to provide elements to identify problems, solutions and the costs of using configurations commensurate with the European scale of INSPIRE.

- Maintenance for the second year period

Maintenance of the network services and applications, ensuring that average up-time of all servers allows a correct use of the infrastructure.

APPLICATION SCENARIO

The SDIGER project consists in the development of a Spatial Data Infrastructure (SDI) (see Figure 1) to support access to geographic information resources concerned with the Water Framework Directive (WFD) within an inter-administration and cross-border scenario that involves: two countries, France and Spain; and, the two main river basin districts at both sides of the border, the Adour-Garonne basin district,

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[9] http://europa.eu.int/celex/eurovoc
[10] http://www.fao.org/agrovoc

managed by the Water Agency for the Adour-Garonne River Basins ("L'Agence de l'Eau Adour-Garonne") and the Ebro river basin district, managed by the Ebro River Basin Authority ("Confederación Hidrográfica del Ebro").
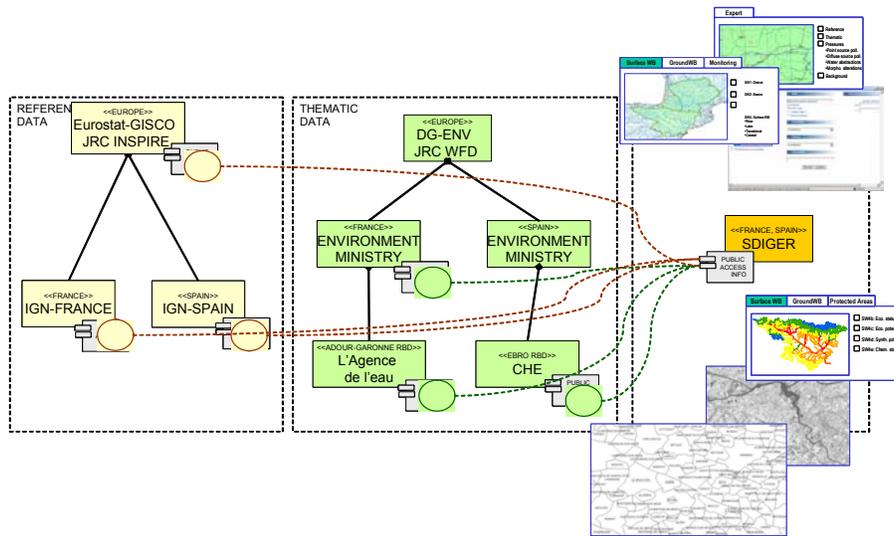

Figure 1. Architecture of the SDIGER SDI

The area covered (see Figure 2) by this SDI project is particularly interesting because although most of the Adour and Garonne river basins lay in French territory and Ebro river basin lay in Spanish territory, some streams and rivers headwaters are located in the other country territory. This is the case, for instance, of the Garonne river source, which is located at Spain and managed by the Ebro River Basin Authority, and of the Irati river headwaters, an Ebro river tributary which, on the contrary, is located at France and managed by the Water Agency for the Adour-Garonne River Basins. Cross-border information is, thus, of great importance for each of the Basin Authorities in order to assure that the Water Framework Directive requirements are fulfilled in each of the river basin districts. Additionally, this cross-border area includes several protected areas included within Natura 2000, the network of protected areas in the European Union.

Figure 2.Adour-Garonne and Ebro river basins districts location

Within this scenario, two applications are going to be developed following the INSPIRE principles and proposed architecture: a first one devoted to perform the reporting activities required by the WFD to the member states and a second one oriented to improve the administrative process performed by stakeholders to obtain a water abstraction authorization.

WFD Reporting

The WFD introduces a new approach to data and information collection and reporting. This use case proposes to use INSPIRE principles for fulfilling reporting requirements of the member states to the

Commission. In particular the subjects required by article 5 of the WFD are taken as an example to implement reporting in an INSPIRE compliant way, i.e. the required data and information can be directly accessed within a spatial data infrastructure.

The use case will provide the information described in the 2004 and 2005 Reporting Guidance documents. The 2004 reporting guidance [WFD CIS, 2004] contains a detailed description of the geographic features and additional "administrative" information, e.g. competent authorities. These elements constitute the base for the 2005 reporting that collects typology information for the different types of water bodies. The 2005 reporting guidance document [EC-DG Environment D.2, 2004] distinguishes between 28 reporting sheets of which a subset will be implemented. Target users will be the European Commission and the WFD Competent Authorities designed by the Member States.

The European Commission will be provided with a web application that will provide them with the necessary information according to the reporting requirements and with means of compliance checking for being able to asses the implementation of the WFD. The application will offer the possibility of choosing a report sheet and displaying the geographic features in a defined geographic extent (defined by a whole WFD river basin district or by the displayed area on a map or a gazetteer service) and fulfilling a set of restrictions defined by the user. Figure 3 shows a prototype of the web graphic user interface to get this input.
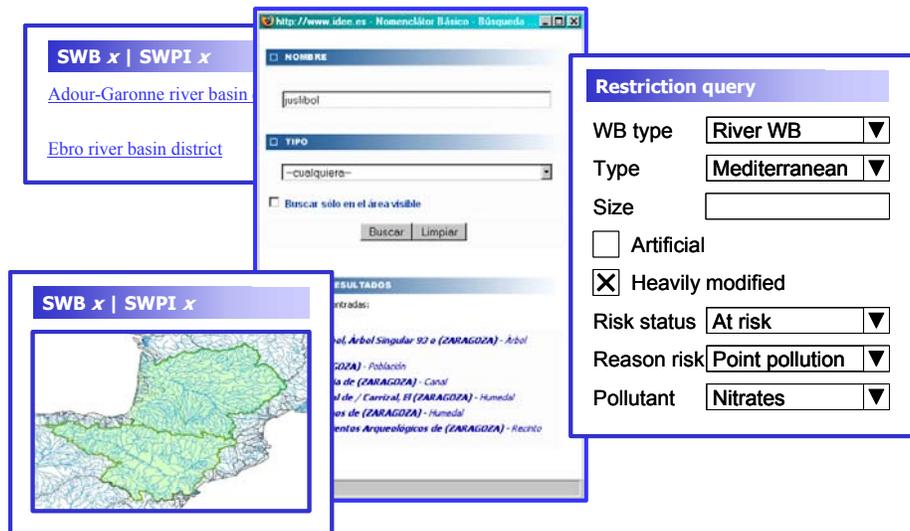
Figure 3. Web GUI prototype to provide input to a WFD report sheet.

In general, the web application will produce maps showing the different geographical features that are reported via the WFD as stated by the article 3 (river basins and sub-basins, river basin districts, rivers, lakes, ground waters, coastal waters) and a subset of those required by the article 5: typology (SWB1), identification of surface water bodies (SWB 2) (visualizing the complete geometry or only centroids), artificial and heavily modified surface water bodies (SWB 3), reference conditions (SWB 4), significant pressures summary (SWPI 1), surface water bodies at risk (SWPI 2), point source pollution (SWPI 3), diffuse source pollution (SWPI 4), water abstraction (SWPI 5), flow regulations and morphological alterations (SWPI 6), data gaps (SWPI 8) and recommendations for surveillance monitoring (SWPI 9). Each 2005 reporting sheet is structured in three sections: geographical data (that will be provided graphically in the form of an interactive map, together with their tabular data); aggregated data (that will be automatically calculated and displayed) and summary text provided as part of the reports (the appropriate ones will be presented). Figure 4 shows a draft prototype of the web graphic user interface presenting the report.
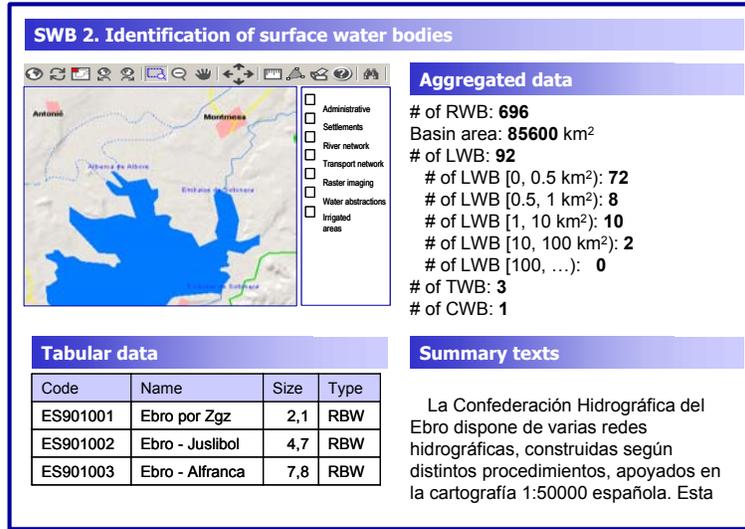
Figure 4. Web GUI prototype for a WFD report sheet.

Water abstraction request use case

Both in France and Spain, both surface and groundwaters are public. Their use for private purposes requires an authorisation given by an authority according to certain conditions. The administrative process for a water abstraction request requires for users to provide an application specifying the characteristics of the water abstraction point, water use and water discharge point. The concrete administrative process the request follows depends on characteristics such as water use, amount of water, water source (surface or groundwater) and geographical location. Among the requested information, a map showing the location of abstraction and discharge points, the demand unit (a polygon for an irrigated area, a point for any other demand unit: centre of population, farm …) and any other infrastructure irrigated area (if any) must be provided.

The objective of this use case is not really to replace any part of the administrative process, but to provide users with some guidance, data and documentation needed for it and improve some steps of the internal process. Stakeholders will be provided with a web application (Figure 5 shows a prototype of the web graphic user interface) that will enable them to specify:

- Water use: human supply, irrigation, industrial, aquiculture or other (recreational, navigation, …)

- Requested amount of water (volume in m^3/year)

- Water abstraction nature (surface or groundwater)

- Location of the geographical elements related to the request: water abstraction points, discharge points, demand unit (irrigated area as a polygon, centre of population, farm… as a point):

  Users will be able to locate the area of interest by means of gazetteer application where search for administrative features by name and/or by zooming in on an interactive map. They will be able to select for visualization the reference data that is more suitable to input the geographical information: administrative boundaries, settlements, river network, transport network… Provided the scales at that the work will be done, raster imaging and orthophotos will be needed as background in order to do it properly. Cadastre parcels will be included if possible.

  They will be able to point on the map the requested locations and to draw the perimeter of the irrigation area.
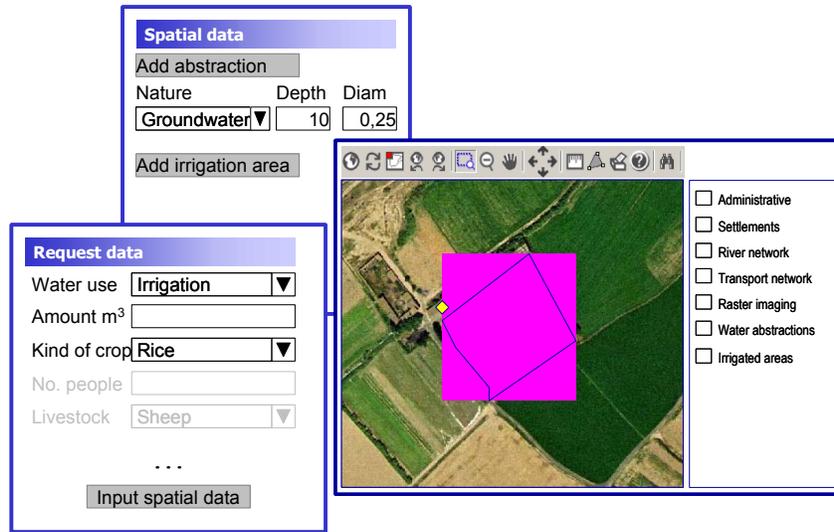
Figure 5. Web GUI prototype to provide input data in a water abstraction request.

Users will be presented a report indicating whether the request is possible, according to the legislation of the affected country and, if the request is possible (Figure 6 shows a prototype of these results):

- The kind of processing it will follow, depending on parameters such as nature, use, caudal and location.

- Tabular information that must be included in the application form and that depends on the spatial data provided by the user.

- A printed map with the spatial data provided by the user, completed with other available data to make it compatible with the application form specification.

- An orientative, not legally binding report about the request compliance with WFD criteria.
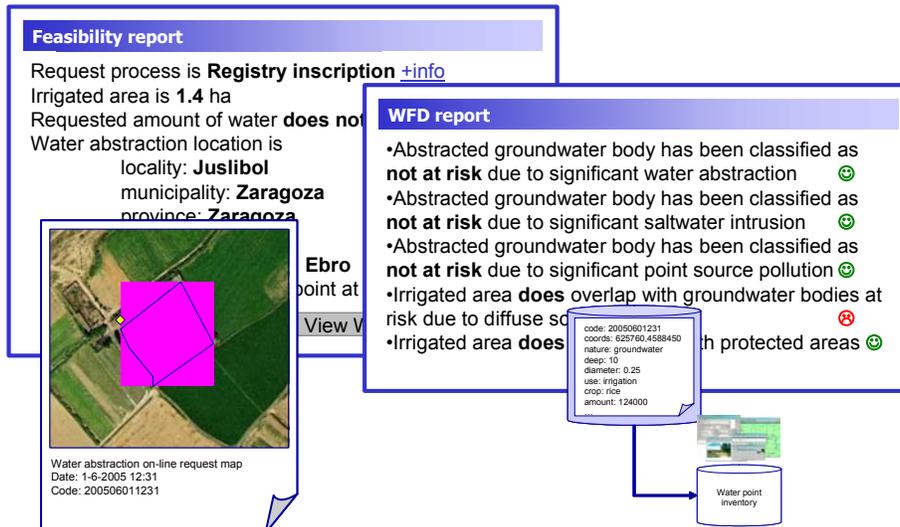
Figure 6. Prototype of the results provided by the application of water abstractions request.

Additionally, on the Spanish side, the geographic information provided by users, will be reused by the Ebro River Basin Authority by inserting it automatically in their information systems, rather than being inserted manually by the staff, as it is performed currently.

METADATA

Metadata profiles

Within the SDIGER project, three metadata profiles have been developed: a metadata profile for geographical data mining, a generic metadata profile for INSPIRE for assessing and using geographical data and a metadata profile for the Water Framework Directive. The standards ISO19115 [ISO 2003a] and Dublin Core [ISO 2003b] have been the basis for the development of the profiles.

In general, an application profile should have in their objectives to facilitate the metadata creation process by:

- providing an specification of the subset of the metadata standard terms, choosing the ones that are more relevant for a specific domain,

- offering guidelines for filling the fields of the metadata according with the specific domain,

- providing specific keyword controlled lists, thesaurus and ontologies for the context where the application profile is used.

For the development of these metadata profiles, several standards and initiatives in the context of spatial data infrastructures have been taken into account additionally:

- The proposal for the INSPIRE (Infrastructure for SPatial Information in Europe) [CEC, 2004]. Chapter II of the proposal makes explicit references to the information that metadata should contain to describe spatial resources.

- The Draft Technical Report on "Geographic Information – Metadata – European core metadata set" developed by the Working Group 5 (Spatial Data Infrastructures) of CEN/TC287 [CEN 2005].

- The draft spatial application profile of Dublin Core proposed by the European Standardization Committee (CEN) [Zarazaga-Soria et al., 2003].

- The guidelines for metadata included within the document "Guidance Document on Implementing the GIS Elements of the Water Framework Directive" [Vogt 2002]. The first application domain tackled by the INSPIRE proposal is environmental data and WFD related data is closely related with environmental aspects. Additionally, the WFD metadata profile should observe and take into consideration this guidance document.

- The core metadata recommendations for the Spanish Spatial Data Infrastructure [SGTNEM 2005].

From a conceptual point of view, the metadata profiles should be organised hierarchically putting Dublin Core in the top level because it is the most general metadata standard. This metadata could be specialised with the application profile that has been proposed within the scope of this project for geographical data mining. More details should be included in the INSPIRE application profile (it should take into account the effect of the multicultural and multilingual heterogeneities in the creation of metadata and provide guidelines to avoid this heterogeneity) and this one should be refined with the WFD application profile (specialised in water resources). See next figure:
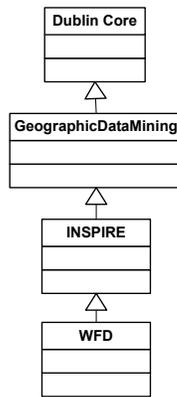
Figure 7: UML model for the metadata profiles hierarchy

The "Dublin Core Metadata Application Profile for geographical data mining" is based mainly in the Dublin Core Spatial Application Profile [Zarazaga-Soria et al. 2003], though several modifications have been done, such as including new elements (*provenance* and *rightsholder*), new refinements (*distance* and *equivalentScale.denominator* to the element *spatialResolution*) and changes in the encoding scheme (drop of TGN and inclusion of EUROVOC, AGROVOC and INSPIRE_SpatialThemes).

The "Generic metadata profile for INSPIRE for assessing and using geographical data" is based is an application profile of ISO19115 [ISO 2003a] with the objective of describe the resources spatial resources in accordance with the proposal for the INSPIRE directive, focusing on the Chapter II of the proposal for the INSPIRE (Infrastructure for SPatial Information in Europe) [CEC 2004], which makes explicit references to the information that metadata should contain to describe spatial resources.

The "Metadata profile for the Water Framework Directive" is an ISO19115 profile mainly based on the guidelines for metadata included within the document "Guidance Document on Implementing the GIS Elements of the Water Framework Directive" [Vogt 2002], making special emphasis on the description of data quality.

Metadata management tool

Within the SIDIGER project, an open source metadata management tool with support to the aforementioned metadata profiles has been provided. This application is based in the CatMDEdit tool [Zarazaga-Soria et al., 2004] that was previously developed by the authors. It includes:

- Support for edition and visualisation of metadata entries in a catalog (Figure 8);

- A thesaurus management tool, allowing the management of thesauri supported by a thesauri database. The main functions of this tool are: creation/deletion/modification of thesauri; edition/visualisation of terms in a hierarchical and alphabetical structure; and import/export from/to text files in different formats;

- An XML Import/Export tool, enabling the exchange of metadata records in XML format conforming to different standards such as CSDGM, ISO19115 and Dublin Core. Besides, the tool also facilitates more readable presentations of metadata records in HTML format. The import process has two possibilities: it can either create a new metadata record, or update the content of a metadata record previously selected from the metadata repository;

- A Metadata Generation tool, enabling the semi-automatic generation of metadata for several types of resources. For instance, this tool is able to obtain descriptive information from ESRI *shapefiles*. Additionally, the tool can also extract metadata corresponding to the relational structure of tabular sources (e.g. Excel, Access, Oracle…);

- A Collection Metadata Edition Tool, enabling the edition and visualization of metadata describing collections of datasets (later called units) that can be considered as a unique entity.

Some examples of such collections are spatial aggregations, like mosaics of aerial images or temporal series which aggregate geographic resources taken in similar conditions but at different instant times. The objective of this tool is to manage jointly the metadata at collection level (shared by the all the units in the collection) and the specific characteristics of each unit;

- A Metadata Validation Tool, facilitating the validation of metadata elements inserted by the user, i.e. checking the conditionality (optional, mandatory or mandatory-if-applicable) of metadata elements and reminding what mandatory elements have not been filled in;

- A Contact Management Tool, allowing reusing contact information (e.g. name, address, telephone…), which is needed in several metadata fields. Thanks to this tool, the contact information about a person is only inserted once and used whenever it is required;

- A User Control System that prevents users without the required permission from using the application.
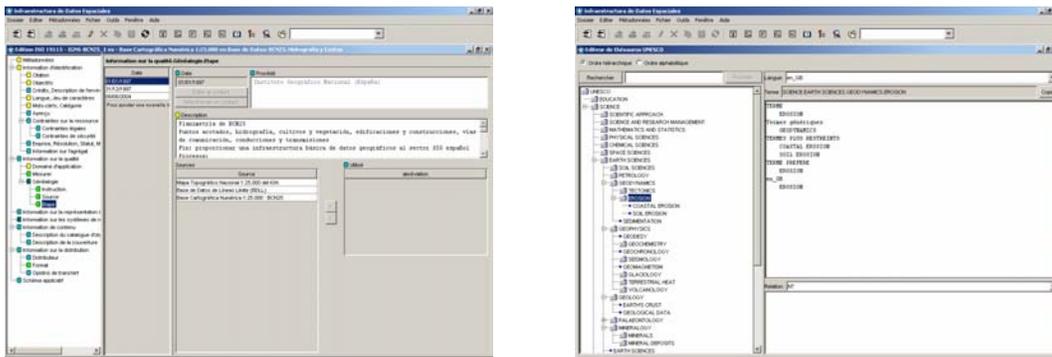
Figure 8. CatMDEdit tool interface in French (metadata edition on the left, thesauri tool on the right)

For the SDIGER project, multilingual support has been added, providing user interfaces in Spanish (original CatMDEdit tool), English and French. As has been previously mentioned, the tool has also been provided with support for the three metadata profiles developed for the SDIGER project, and new multilingual thesauri support (in Spanish, French and English) has been included (Figure 8):
- o UNESCO (about 5.000 terms)
- o AGROVOC (about 11.600 terms)
- o EUROVOC (about 7.200 terms)
- o GEMET (about 5.600 terms)

The tool will be Open Source available by the end of the project.

CONCLUSIONS

SDIGER is a two-year pilot project on the implementation of INSPIRE, funded by Eurostat, that aims to test, estimate the costs and identify the problems of applying the solutions for sharing spatial data and services proposed by the INSPIRE position papers in 2002. It consists in the development of a SDI to support access to geographic information resources concerned with the WFD in a cross-border scenario that involves the Adour-Garonne and Ebro river basin districts.

The definition of an application scenario, three metadata profiles and a metadata management tool have been finished. By the end of 2005, the rest of the activities of the SDIGER project would have been finished: development of a multilingual (Spanish, French, English) geoportal, temporary available at http://sdiger.unizar.es, including, catalogs, web map services, gazetteers, …); development of a common data model for the data used in the application; development of the web application tools defined in the application scenario; and a report identifying problems, solutions and costs. The services and web applications will be maintained during 2006 form demonstration purposes.

ACKNOWLEDGMENTS

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SDIGER: A cross-border inter-administration SDI to support WFD information access for Adour-Garonne and Ebro River Basins

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The project proposed for this "call for tender" consists in the development of a Spatial Data Infrastructure (SDI) to support access to geographic information resources concerned with the Water Framework Directive (WFD) [OJ, 2000; Vogt, 2002] within an inter-administration and cross-border scenario that involves: two countries, France and Spain; and, the two main river basin districts at both sides of the border, the Adour-Garonne basin district, managed by the Water Agency for the Adour-Garonne River Basins ("L'Agence de l'Eau Adour-Garonne"[1]) and the Ebro river basin district, managed by the Ebro River Basin Authority ("Confederación Hidrográfica del Ebro"[2]).

The area covered by this SDI project is particularly interesting because although most of the Adour and Garonne river basins lay in French territory and Ebro river basin lay in Spanish territory, some streams and rivers headwaters are located in the other country territory. This is the case, for instance, of the Garonne river source, which is located at Spain and managed by the Ebro River Basin Authority, and of the Irati river headwaters, an Ebro river tributary which, on the contrary, is located at France and managed by the Water Agency for the Adour-Garonne River Basins. Cross-border information is, thus, of great importance for each of the Basin Authorities in order to assure that the Water Framework Directive requirements are fulfilled in each of the river basin districts. Additionally, this cross-border area includes several protected areas included within Natura 2000, the network of protected areas in the European Union.

This project is going to be developed by a consortium consisting of the following entities: IGN France International ("Institut Géographique National France International"[3]), the National Geographic Institute of France ("Institut Géographique National"[4]), the National Geographic Information Centre of Spain ("Centro Nacional de Información Geográfica"[5]), and the University of Zaragoza ("Universidad de Zaragoza"[6]). Additionally, this consortium counts on the help of the following collaboration entities: the National Geographic Institute of Spain ("Instituto Geográfico Nacional"[7]), the Water Agency of Adour-Garonne ("L'Agence de l'Eau Adour Garonne"), the Ebro River Basin Authority ("Confederación Hidrográfica del Ebro"), the Regional Direction of the Ministry of Environment for the Midi-Pyrenees region, and the GIS-ECOBAG association[8]. As it can be observed, these entities (most of them public institutions) are the main providers of the topographic data and hydrographic data in the cross-border area.

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[1] http://www.eau-adour-garonne.fr
[2] http://www.chebro.es
[3] http://www.ignfi.fr
[4] http://www.ign.fr
[5] http://www.cnig.es
[6] http://www.unizar.es
[7] http://www.ign.es
[8] http://www.ecobag.org

Concerning the data served through the SDIGER infrastructure, it must be said that it will be served from different levels and that it can categorized as follows:

Basic topographic data. The National Mapping Agencies forming part of the SDIGER consortium will provide topographic data from national to regional level. Additionally, European data may be used for small scales and European overview maps.

Raster satellite imaging of the basins in the cross-border area. This satellite imaging will be provided either by the water agencies or by the IMAGE2000 project[9].

And specialized hydrological resources. The agencies responsible for the river basins in the cross-border area will provide the resources (water bodies, catchment areas and related information) being developed as a result of implementing the Water Framework Directive.

However, although the specific thematic selected for this project is the data related to the requirements of the Water Framework Directive, this is not the first priority. On one hand, some of the functionality concerned with WFD issues is subject to the availability of these data for the two river basin districts and the workload of the river basin competent authorities in charge of producing these data. And on the other hand, the real priority of this project is to demonstrate the interoperability of spatial data according to the guidelines of the INSPIRE directive proposal [Smits, 2002]. Therefore, as INSPIRE principles must guide the objectives of this project, the main aims of the project will be the following:

Data should be collected once and maintained at the level where this can be done most effectively.

It should be possible to combine seamless spatial information from different sources across Europe and share it between many users and application.

It should be possible for information collected at one level to be shared between all the different levels, detailed for detailed investigations, general for strategic purposes.

Geographic information needed for good governance at all levels should be abundant under conditions that do not refrain its extensive use.

It should be easy to discover which geographic information is available, fits the needs for a particular use and under which conditions it can be acquired and used.

Geographic data should become easy to understand and interpret because it can be visualised within the appropriate context selected in a user-friendly way.

As regards the users of the SDIGER, it is expected that the main users of the Spatial Data Infrastructure will be the staff of public administrations related with WFD issues at either at regional, national or European level. Nevertheless, the Spatial Data Infrastructure will be also open to every citizen who may be interested in browsing the availability and characteristics of the hydrographic resources in the cross-border area.

Another aspect of this scenario that must be mentioned in this overview is the multilingual requirements. French and Spanish are the official languages of the two countries involved in the project. Besides offering data and services in these two languages, an English version of the geoportal will be also available to facilitate accessibility to users not familiar with these two first languages. Therefore, multilingual resources like multilingual thesauri (GEMET [EEA, 2001], UNESCO [UNESCO, 2005], EUROVOC[10] and AGROVOC[11]) and multilingual gazetteers will be used to facilitate the creation of metadata and the development of ergonomic search interfaces for data and services catalogs [Nogueras-Iso et al.,2004].

Finally, with respect to data downloads, this project will focus mainly in the download of thematic data related with the WFD. Although part of the results of this project will be open to

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[9] http://image2000.jrc.it

[10] http://europa.eu.int/celex/eurovoc

[11] http://www.fao.org/agrovoc

the general public, the download of topographic data produced by National Mapping Agencies will be subject to the rights and licenses established by these institutions.

The final version of this paper will present the activities of this project and the distribution of nodes that will form part of the Spatial Data Infrastructure created for this project. Then, it will focus on the description of the functionality of this Spatial Data Infrastructure. This description will be mainly based on the functionalities that the Geoportal will offer.

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Abstracts

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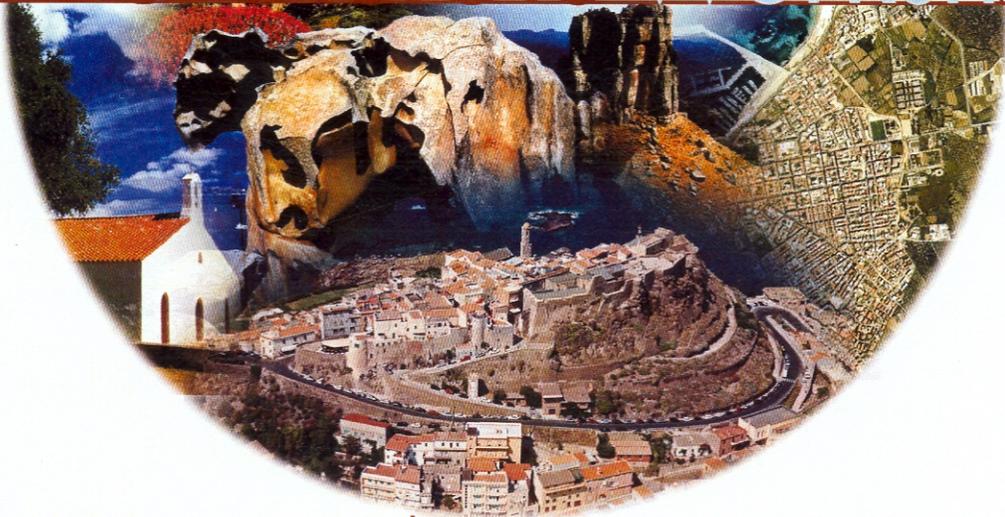
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