

# Newsletter



## Spanish Web Service for HLand-Data Project

National Geographic Institute of Spain (IGN-CNIG), through its Land Cover and Land Use Service, is the National Reference Center on land cover and land use and spatial planning of Eionet, being the national responsible coordinator in the production of Corine Land Cover and SIOSE projects. IGN participates from time ago in different international initiatives and projects related with land observation, especially involved as partner in the HLANDATA project. IGN has been the leader of workpackage 1 (WP1) "Diagnostic of LC/LU information", collaborated actively in the workpackage 2 (WP2) "Harmonization methodology", IGN data are available in web services of workpackage 3 (WP3) "Pilots design and implementation" and community users of land cover and use led by IGN are validating pilots in the workpackage 4 (WP4) "Results assessment".

Within the works in WP3 and based on the results of WP2, a web service of land cover and land use (LC/LU) of Spain has been developed to be used with the Pilot 1 tool. This service is an important milestone in the communication of LC/LU information in Spain because of three main reasons:

- the publication on the net of such a large amount of data,
- the fact that this information is harmonized following the draft specifications of INSPIRE Thematic Working Groups on land cover and land use,
- this service fulfils the functionality requirements of the Pilot 1 tool of HLandData, giving the users a powerful tool for territorial analysis on land cover and land use.

None of the three goals were accomplished in Spain before HLandData developments.



## Publishing LC/LU big data by means of web services

To publish efficiently all the Spanish LC/LU reference data through web services was quite a technical challenge as there are two main databases for the whole country: Corine Land Cover, of 1:100.000 reference scale and a size of 400 MB (about 200.000 geometric entities); and SIOSE (Spanish LC/LU information system), with a reference scale of 1:25.000 and a size of around 6 GB (2.5 million land cover polygons); that adds a big volume of data from the perspective of real time on-line transactions.

SIOSE's data have been divided by regions in different service layers and its visualization range has been limited to scales higher than 1:150.000. With these constraints SIOSE's database information can still be used at scales for which it is more appropriate while Corine Land Cover database stands as the reference information for analysis at national scope.

## Data model coordinated with INSPIRE

Web service's data model accomplishes all technical specifications of HLandData project. Thanks to the regular coordination between the project and the work of INSPIRE land cover and land use Thematic Working Groups, the information served is also harmonised with INSPIRE data models.

This web service has been also used in the testing process of INSPIRE draft data specifications version 2.0, carried out during the summer of 2011 and has been useful for the final edition of both Inspire's land cover and land use data specifications version 3.0.

This coordination, developed from the first moment, with the European process of geographic information harmonization makes this services to be Inspire compliant automatically.

To make possible the thematic harmonization for land cover and land use in the issue of classification systems, nomenclature of Corine (for land cover polygons) and Hierarchical INSPIRE Land Use Classification System (for land use polygons) were chosen for data representation. Hereby, in the mentioned web services, SIOSE polygons are accessible according to Corine classes, depicting an innovated picture in the coordination of land cover information at different levels of scale.

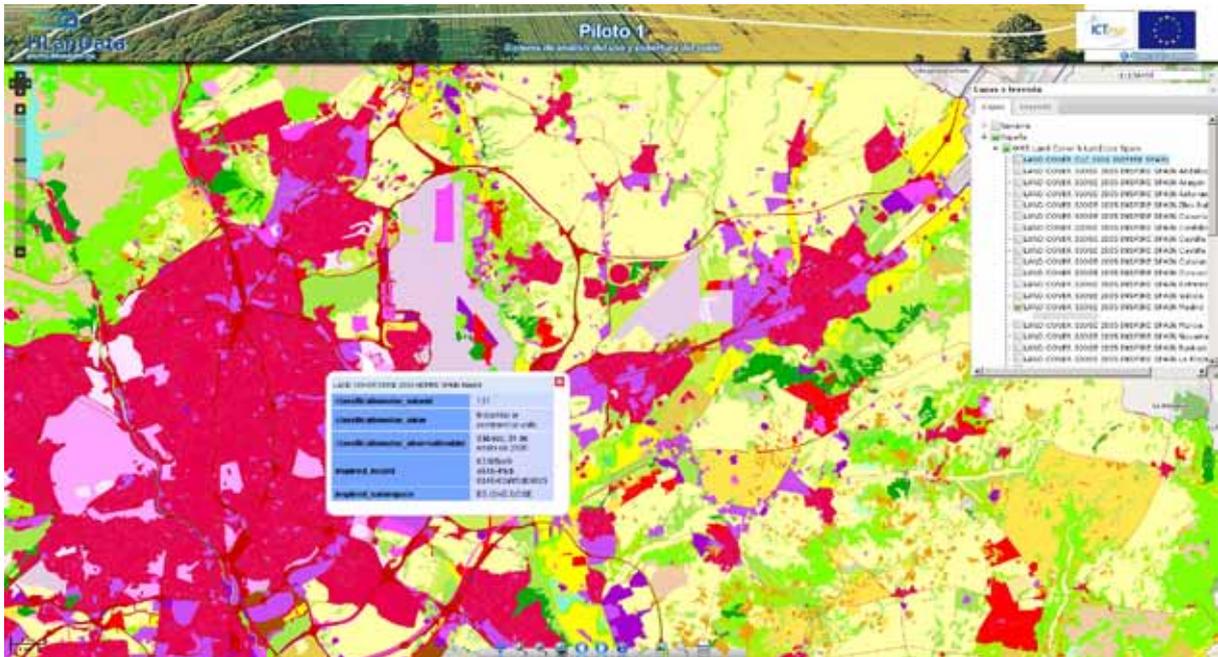


Figure: SIOSE web services in Pilot 1 client

### Functional requirements

The Pilot 1 tool of HlanData: LU/LC Data Analysis System for intermediate-level users, is a web client application that allows some advanced analysis on LC/LU information. At the same time, it is an easy-to-use and light client tool that only requires a web browser.

Making the web service fit to the functional requirements of the Pilot 1 means that data must include a rich set of information with territorial analysis potential and also must be usable and easy to understand for the users.

Furthermore, publishing this service in the LU/LC Data Analysis System for intermediate-level users of HlanData sets the milestone of being the first client application to serve on-line the complete SIOSE's database of the whole Spain.

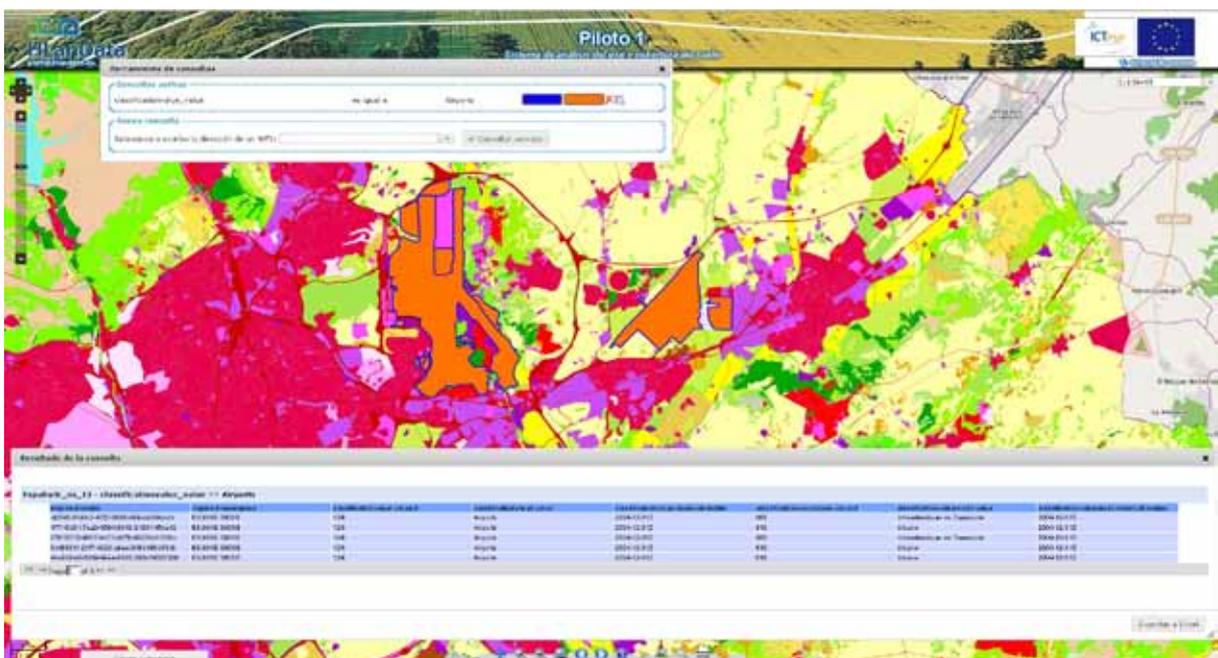


Figure: Pilot 1 query tool over SIOSE web services

## Resources and references

HLANDATA (<http://www.hlandata.eu/>)

Pilot 1 client application  
(<https://gisportal.tracasa.es/hlandata/viewer/>)

Web service of National Spanish data  
(<http://www2.ign.es/sioseinspire?service=wms&request=GetCapabilities>)

SIOSE project (<http://www.siose.es/>)

SIOSE web service  
(<http://www.ign.es/wms-inspire/siose?service=wms&request=getcapabilities&version=1.3.0>)

SIOSE data downloader  
(<http://centrodedescargas.cnig.es/CentroDescargas/buscadorCatalogo.do?codFamilia=SIOSE>)

IGN-CNIG, National Geographic Institute of Spain (<http://www.ign.es/>)

Iberpix, IGN land observation viewer  
(<http://www2.ign.es/iberpix/visoriberpix/visorign.html>)

## HLanData e-learning platform available now

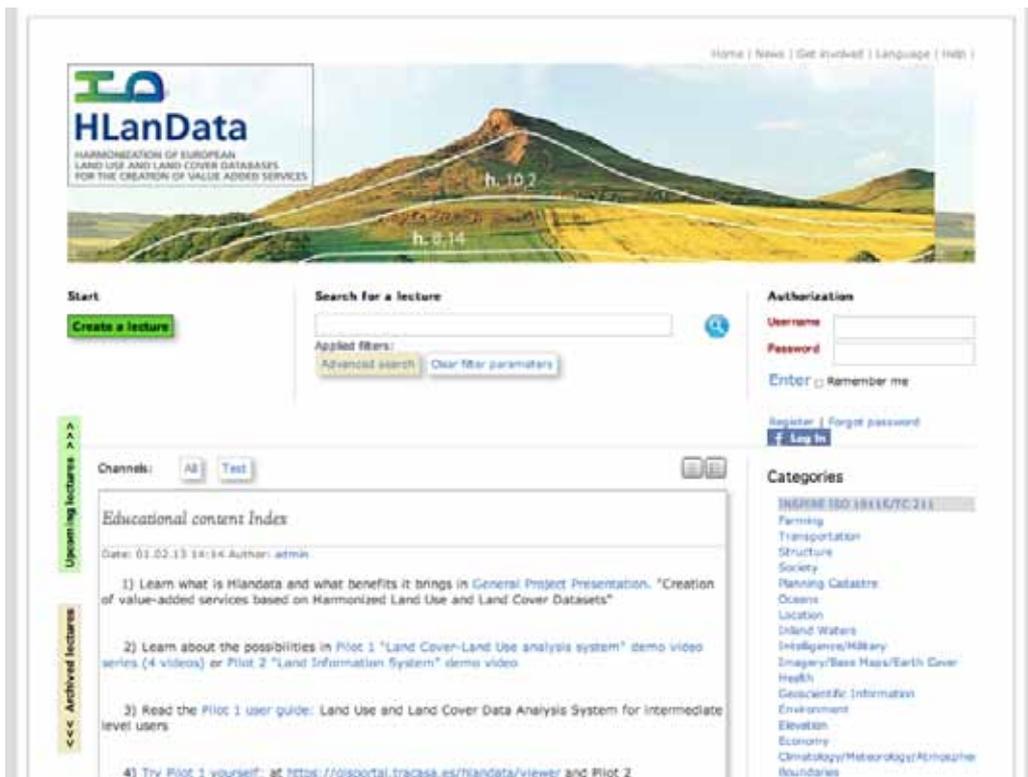
“Hlandata e-learning platform” is an open source web browser based e-conference, collaboration and learning tool which supports slide shows, web page demonstration, synchronous pre-recorded video display, chat and lecturers live narration using web camera provided video and audio.

Online demonstrated videos, screenshots, on line web pages and slides are synchronized with lecturers explanations and stored for later edu-

cational use. Educational contents are described using meta-data and stored in meta-data catalog to increase data information accessibility.

The tool has been developed at the Institute of Mathematics and Computer Science (IMCS) and used for other EU projects like SDI-EDU and NaturNet Plus(NN+) to support e-Learning about Geographic Information Systems and INSPIRE. Currently the development is also supported by Baltic Open Solution Centre and TDF.

The Web Address is: <http://hlandata.cloud-learning.net>



The screenshot shows the HLanData e-learning platform interface. At the top, there is a header with the HLanData logo and navigation links: Home | News | Get Involved | Language ( ENB ). Below the header is a search bar for lectures, a 'Start' section with a 'Create a lecture' button, and an 'Authorization' section with fields for Username and Password. The main content area displays 'Educational content Index' with a list of four items. A right sidebar contains a 'Categories' list including INSPIRE, Farming, Transportation, Structure, Society, Planning, Cadastre, Oceans, Location, Island Waters, Intelligence/Military, Imagery/Bare Mass/Earth Cover, Health, Geoscientific Information, Environment, Elevation, Economy, Climatology/Meteorology/Atmospheric Boundaries.

## Testing and validation of the Pilots – user feedback

HLANDATA is currently finalising its four pilot projects:

*Pilot 1: LC/LU Data Analysis System for intermediate-level users (<https://gisportal.tracasa.es/hlandata/viewer/>):* A system allowing users to make advanced analysis (viewing, overlay, spatial and temporal analysis, downloads, data maintenance etc.) of the Land Use and Land Cover datasets with information coming from different sources (Navarre region, Spain and Latvia) at a European level.

*Pilot 2: National land information systems (pilot 2.1: Czech Republic (<http://hlandata.gisat.cz/appv2/>) and pilot 2.2: Lithuania (<http://hlandata.agi.lt/>)):* The existence of reliable spatial information of LC/LU are the pre-condition for effective informed territorial management and spatial planning in general. There is a strong need for harmonization of both Core Mapping Services and Downstream (added-value services) activities so that the results on content and service level are comparable between the countries as well as at European level (in line with INSPIRE principles).

*Pilot 3: Stratification of waste dumps (<http://hlandata.sazp.sk/>):* In Slovakia long-term waste disposal on landfills is still the most frequent method of municipal waste handling (76 %) despite the efforts to decrease the number of official landfills with regard to national and European law. The main objective of this pilot is the stratification and control of waste dumps in Slovakia through an interactive mapping service including the following geographic information layers: land use and land cover, settlements, population and waste production.

After internal testing by the partners, final versions of the Pilots have been documented, deployed and published for users for external testing and validation, in order to guarantee that these pilots fulfil users' expectations, run smoothly and are user-friendly. To support testing and validation, dedicated presentations / meetings have been held to assure user understanding of pilots' functionalities and contents.

Users' feedback has been gathered in supportive standard documentation prepared by the leader of Work Package 3 ("Pilot project design and implementation). These Checklist/Questionnaire contents were implemented via Google Docs for online submission.



WP3 D3.4: VALIDATION OF THE PILOT PROJECT 1 (TESTING BY END USERS)

This form is used for end users of HLANDATA pilot project prototype to provide an adequate feedback on the result of the prototype 1 - LU/LC Data Analysis System for intermediate-level users (ES, LV).  
\*Obligatorio

**User Description**

1) User name \*  
Please provide your firstname and surname

2) Organisation name \*  
Please provide name of your organisation/company

3) Organisation type \*

Figure: Online questionnaire for testing of Pilot 1

Consortium partners have involved so far over fifty actual external users on this testing and validation process. The feedback from the users will be taken into account to improve the pilots, and

users participating in the testing will be informed on how their feedback has been taken into account.

The validation of the Pilots will continue until the end of the project. The last part of the validation process (until February 2013) will be carried out closely working with WP4 (Results Assessment), a work package dedicated to the assessment of the results of the whole HLANDATA project, and

involving other high level experts (members of the Advisory Board, selected professionals of the field etc). Full validation will be an inherent part of Deliverables 3.4 (*Individual pilot results assessment*) and D4.1 (*Results assessment report*).



Figure: As example, the Pilot 2.1

## **HLanData Partner: UŽDAROJI AKCINĖ BENDROVĖ "AEROGEO-DEZIJOS INSTITUTAS" - INSTITUTE OF AERIAL GEODESY LTD.**



The currently existing Joint stock company "Institute of Aerial Geodesy" has been founded more than 50 years ago as western branch of all-Union enterprise "Aerial Photos for Agriculture". During its fifty years of development, the company evolved into an advanced production center of geoinformatics, digital cartography and remote sensing.

Initially the main objective of the company was production of aerial photos, as well as mapping, cadastre and inventory of farming lands. After restitution of Lithuania's independence in 1990, following the decree of Lithuanian Government, it became a National Institute of Aerial Photography and subordinated to National Service of Geodesy. The main role of the newly formed Institute was to perform the role of a National Mapping Center of Lithuania. In 1996 the Institute was reorganized into a joint stock company UAB "Aerogeodezijos institutas" (AGI), still functioning as National Mapping Center. After modernization of production lines and applying new technologies, AGI became one of the most advanced geoinformatics and cartography companies in Baltic States, its production well corresponding to the international standards and quality requirements.

In its current status, the UAB "Aerogeodezijos institutas" is registered as a Limited Liability

Company with 99.8% State ownership (administered by the Ministry of Agriculture). AGI is the only private GIS company in Lithuania holding an international ISO 9001:2000 certificate for the scope of activities "Services of surveying, photogrammetry, topography and cartography; geographic datasets production; remote sensing data processing and analysis".

Following the demands of evolving GMES market in Europe, an Applied Research Center (ARC) of AGI was established in 2007. A small group of the active young scientists focused on applied research in the fields of geo-informatics and remote sensing, aimed at development of innovative GMES products and services. During its short period of existence, AGI ARC joined several successful GMES/INSPIRE projects, such as "Geoland 2" (FP7), "NatureSDIplus" (eContentPlus) and HLandata (ICT-PSP). The Applied Research Center focuses mainly on testing the existing innovative technologies and development of original "downstream" EO applications, including marine and coastal oceanology, LU/LC mapping, environmental applications, etc.

The main fields of activity are related to production of georeferential and thematic GIS data, digital cartography and quality control of the topographic mapping products. A significant part

of the production work-flow is directly based or closely related to interpretation of various types of Earth observation data – ranging from orthophotogrammetry to high resolution satellite imagery (IRS6, SPOT4/5, LANDSAT, RapidEye, etc.).

**Digital cartography**

Digital cartography traditionally has been the main field of activity and professional experience at AGI. Over decades, the company implemented a series of baseline topographic mapping projects with regular updates. The major projects worth mentioning are listed further. Creation of cartographic databases and production of Lithuanian topographic maps at scales 1:10000, 1:50000, 1:200000 and 1:500000, as well as 1:20000 scale City Graphics, nautical charts of Eastern Baltic at scales 1:200000 and 1:225000. Production of reference database and 1:10000

orthophotomaps of Lithuania. Delimitation and demarcation of State borders of Lithuania-Russia, Lithuania-Latvia and Lithuania-Belarus.

**Remote Sensing**

Remote sensing is a relatively new area of experience at AGI, which traditionally has been working on very high resolution orthophotographic reference bases. Nevertheless, the company has successfully completed several national mapping projects, as well as one recent pan-European reference mapping project based on various sources of satellite imagery. Interpretation of SPOT data for creation of Lithuanian 1:50000 scale base map. Interpretation of LANDSAT data for creation of Lithuanian CORINE Land Cover database (1995). Automated processing of IMAGE2006 dataset and production of European GMES Hydrography Reference Layers at 1:100000 scale.

**HLanData at INSPIRE Conference in Istanbul 2012**

HLanData organized a Workshop during the INSPIRE Conference. For reports of the workshop please consult the HLanData Website.

**HLanData Final Conference approaching!**

The Final Conference is going to take place during the second week of February 2013 in Madrid. Please consult regularly the website for registration.

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