HLANDATA – Harmonisation of Land Use and Land Cover Data Across Europe: Project Results

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1 ABSTRACT

The EU project HLanData aims to demonstrate the feasible European level harmonization of the Land Use and Land Cover datasets taking into account both the data categorization and the data models, for any of their possible uses and users through the development of user-oriented value-added services. This contribution presents the results of the project. These are harmonised land use and land cover data according to INSPIRE in European regions, and the development and implementeation of several geoportals that give access to the data and provide different viewing and analysis functions. For the demonstration of the results a video was created.

2 PROJECT DESCRIPTION

Digital information on Land Use and Land Cover has been managed on national, regional and/or local level which results in a suite of datasets that are not always compatible to each other. Anyway, in a context where environmental threats such as climate change, biodiversity loss, and food security become more and more global, there is a need for integration of various sources of information at different scales. This is why planning has great hopes in the past year's development of Spatial Data Infrastructures (SDI). SDI gives access to geographic data that is stored and maintained by different data providers in different sources on international, national, regional and local level, harmonised according to common standards, and shared across administrative and thematic borders. The past decade has been influenced by a change of paradigm regarding accessibility of geodata. Traditionally geographic data and information management has been characterised by semantic and structural heterogeneity, multiple storage, and lack of coordination which results in incompatible datasets. Today there are numerous European, national, regional and local initiatives that support the development from "information islands" to "information systems". INSPIRE – the European Directive for a Spatial Data Infrastructure – provides a robust framework.

The EU project HLANDATA contributed to the harmonisation process focusing on land use and land cover data across Europe and addressing several application areas such as the management of waste, and land monitoring through the implementation of various value-added services in European regions. The HLANDATA geoportal provides one central access to decentralised data using web service technology so that users can visualise data from different sources together in one map with one common legend.

Geographers, planners, GIS analysts, public administration, decision makers, researchers, the public and other stakeholders require access to adequate and comprehensive data to achieve interdisciplinary and holistic approaches, transparency and participation in decision-making, efficient integrated data management, comparison of data, and monitoring of changes for a sustainable development. SDI can be a supportive element for spatial planning processes as it provides more harmonised data input than ever and helps to better understand and steer urban and regional dynamics.

HLANDATA is a European project supported by the ICT Policy Support Programme (ICT PSP) between March 2010 and February 2013. ICT PSP aims at stimulating innovation and competitiveness through the wider uptake and best use of information and communication technologies by citizens, governments and businesses (ICT PSPS website). Involved are nine partners, i.e. public authorities, private companies and research institutes from six different European Union countries as well as one international planning organization. The partners are the Government of Navarre as lead partner, Tracasa, National Geographic Institute (all Spain), UAB "Aerogeodezijos institutas" (AGI) (Lithuania), GISAT (Czech Republic), Latvian society "Technology Development Forum" – TDF, Slovak Environmental Agency (SEA), CEIT ALANOVA (Austria), and ISOCARP.

3 PROMOTIONAL VIDEO

The results of the project are presented the HLanData promotional video. It was uploaded to YouTube (http://www.youtube.com/watch?v=XoCgNdN8XMY&feature=youtu.be). Links have been made already

from the HLanData website (http://www.hlandata.eu/). The promotional video was unveiled at the HLanData Habitats final conference on 14th February 2013 in Madrid.

"In the last years geographical information systems have developed at a great speed, supported by new technologies, but different organisms have worked independently. A large number of databases have been created but without taking into account their interoperability. We talk about the same thing, but in different languages.

The HLanData project was born in this context with the main objective to demonstrate the feasible European level harmonization of the Land Use and Land Cover datasets taking into account both the data categorization and the data models, for any of their possible uses and users, through the development of user-oriented value-added services, and fully aligned with the INSPIRE directive.
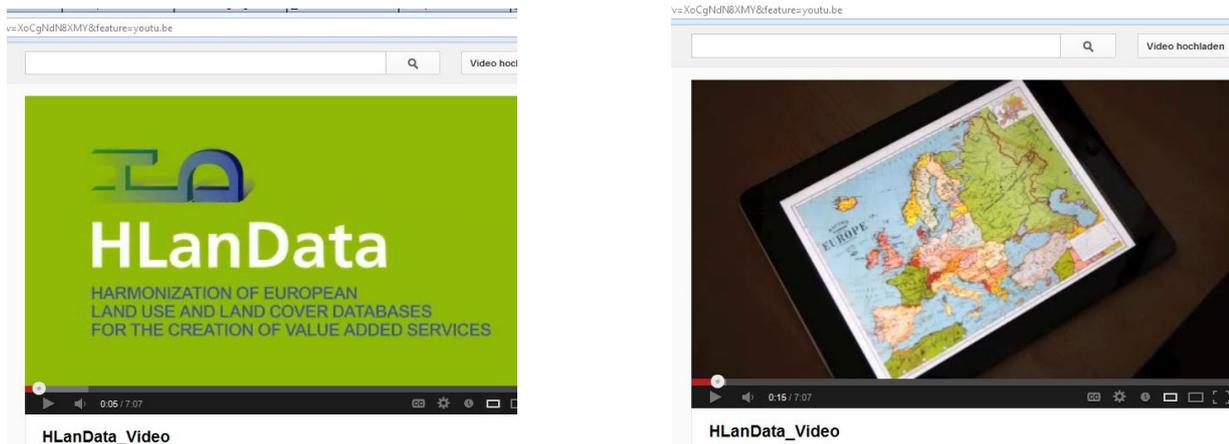

Fig. 1: Hlandata Promotion Video – Introduction (Source: URL 1)

The HLanData geoportal is the gateway to harmonized land use and land cover data stored and maintained in different sources across Europe. It provides a map viewer to overlay and compare spatial data, and a metadata catalogue that allows to search and to find available data. The HLanData geoportal follows the principle: one centralized access to decentralized data. Your benefit is that there is one common legend. Due to the harmonization of the data according to common standards on the HLanData geoportal you can easily view different land use or land cover data from Europe together in one map. Moreover, you can have a cross-border view. Harmonized data is a key input for integrated and holistic analysis for example in regard to environmental, mobility, economic, and social issues.
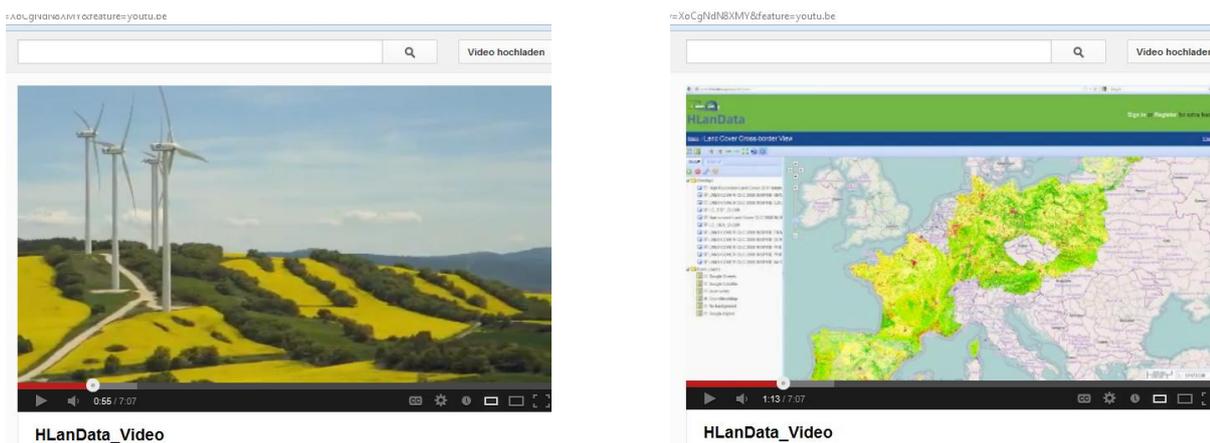

Fig. 2: HLanData Promotion Video – HlanData Geoportal (Source: URL 1)

Besides a geoportal, four pilots have been developed, offering guidance that will be of great help when searching for different type of information about the territory. The pilot developed in Spain and Latvia provides, amongst other things, information of what can be found in a point or an area and on where you can find a given type of land use or land cover. It also allows seeing the variations in each part of the territory as well as in which points it has varied similarly. The other pilots provide information on stock and flows land accounts, socio-economic data, development of spatial indicators, and detection of illegal waste dumps. In fact, the pilot implemented in Slovakia is an interactive specialized web-based map application focused on

waste management sector allowing selected operations as visualization, overlay and integration of different information from different sources. It integrates harmonized European datasets, national waste management data and national sources of spatial data intended for the additional functionalities and analyses as protected areas, geological maps, urban atlas and vector maps of Slovakia.

This work will be of great help to study and assess the territory. Thus, solutions are offered in different application fields taking into account the final users. The most important fields of action are territorial management and spatial planning on which dedicated pilots have been developed in the Czech Republic and in Lithuania, and the strategic environmental impact assessment for numerous emerging themes e. g. studies of the species, habitats and ecosystems and their potential to provide services including changes in their connectivity in relation to green infrastructure, calculations of CO_2 emissions, evolution of irrigated lands, preliminary calculations of soil erosion, study and assessment of the models of urban growth, waste management, but there can be many more.
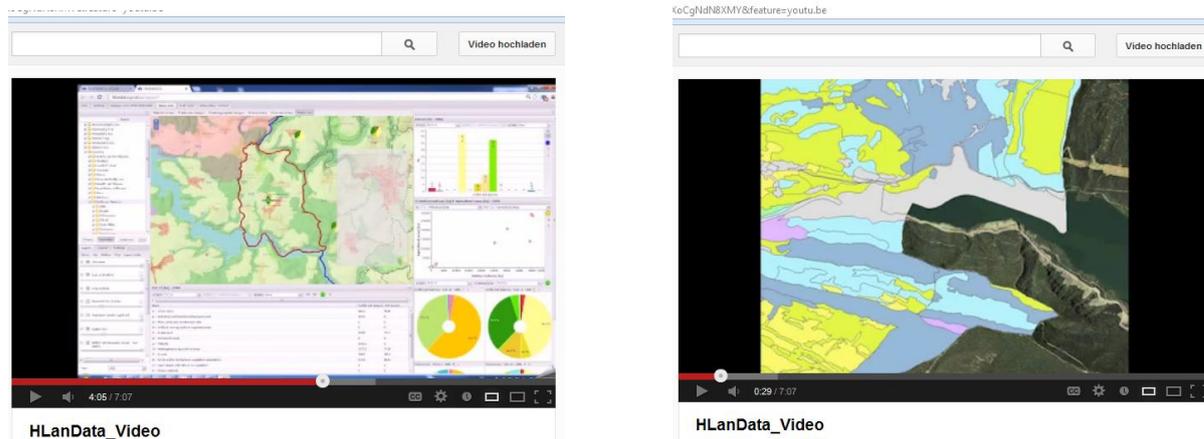

Fig. 3: HLanData Promotion Video – HlanData Pilots providing advances analysis functions (Source: URL 1)

All these applications will profit from sharing harmonised data and advanced, but easy to use tools for data exploration. The services that HLanData offers are addressed to any user of this type of information, particularly technicians of the public authorities; decision makers; private companies; researchers; NGOs; planners; GIS analysts; consultants; architects and engineers but also the general public. That is why we go for free and open technology via web, providing decision makers with information about land use and land cover.

We gathered the momentum of INSPIRE, which will oblige the member states to harmonize their geographic information data and we have closely cooperated with its thematic working groups of Land Use and Land Cover. We have also taken into account the directive related to the reuse of the public sector information. That is why the European Commission supports us and the European Environmental Agency and our tools are in line with Copernicus and GEO initiatives. Besides providing information to the users in the moment they require, this project also intends to increase participation and exchange of information.

HLanData has been possible thanks to the fruitful cooperation between nine partners from seven European countries, but our efforts would have been in vain without the active participation of the final users in testing the tools. Moreover, the different project phases have been supervised by a group of experts in an advisory board and by independent technical reviewers. HLanData has also involved other relevant experts in the several forums organized by the project. To all of them THANK YOU!"

4 REFERENCES

URL 1: Hlandata Promotion Video http://www.youtube.com/watch?v=XoCgNdN8XMY&feature=youtu.be
URL 2: Hlandata Website www.hlandata.eu
URL 3: Hlandata Geoportal portal.hlandata.eu
(accessed 5.3.2013)