

# BETTER COLLABORATION AND DECISION-MAKING IN ROMANIA

PRIVATE AND PUBLIC SECTOR ORGANISATIONS IN ROMANIA HAVE WORKED TOGETHER TO BUILD THE COUNTRY'S ITS OWN NATIONAL SPATIAL DATA INFRASTRUCTURE. CRISTIAN VASILE AND CRISTINA OANA DISCUSS ITS CREATION AND SOME OF THE PROJECTS THAT HAVE BENEFITTED FROM THE NSDI

Romania has a long experience with geospatial information. The former Military Geographic Institute, now the Military Topographic Directorate (DTM), was established in 1859 and was the first of its kind in this part of Europe. Important investments in infrastructure and economy, starting between the two World Wars and continued in the post-war period, focused on the efficient use of spatial data. Standards for geographic information became more important and Romania was an active member in ISO/TC211 since its inception.

Since Romania started along the road to joining NATO and then preparing for admission to the European Union, which it achieved in 2007, many projects have involved the development of geospatial databases. Today, most GIS specialists are aware that problems of data heterogeneity, inconsistent standards and lack of a common spatial information repository can have the most serious consequences for the understanding of the spatial data content and hence for decision making. Information has to be accessible to all interested parties and closely integrated with other relevant sources of information. This article shows how Romania has addressed these challenges through a collaborative effort by both the public and private sectors when building its National Spatial Data Infrastructure (NSDI), which includes key geospatial datasets.

## INSPIRE

INSPIRE has been an important catalyst for establishing the Romanian NSDI. The transposition of the INSPIRE Directive 2007/2/EC into Roma-





to partner them and have them host the data as web services or have its data aggregated to the partner's infrastructure via real-time data replication services or periodic ETL (extract, transform, and load) processes.

### Cadastre

The National Center for Cartography (CNGC), part of ANCPI, is directly involved in data production nationally. During the past five years, an impressive effort was dedicated to data compilation and developing the national topographic database with an accuracy corresponding to 1:5,000 scale. This database, called TopRO5, includes buildings for all cities, Points of Interest (POIs) and postal addresses. TopRO5 is provided free of charge to all governmental agencies. Recently, a module for online payment was developed.

"We are continuing our efforts to develop and improve the geospatial database, as we do consider a good spatial Infrastructure to be essential for a modern country and improved governance. Our data will be used in different important projects, such as the recently launched Agricultural Cadastre project. This is another reason to agree and use spatial standard procedures and formats," says Dr Ileana Spiroiu, director of CNGC.

In a joint effort with ANCPI, Esri Romania implemented an important project related to INSPIRE-compliant services and fully integrated those services with the Romanian INSPIRE Geoportal that had been deployed in 2010. This project has already had two major subsequent releases. The Romanian INSPIRE Geoportal is making available the CSW service (fully compliant with INSPIRE technical specifications) and is leveraging INSPIRE view and download services for the following data themes: administrative units, cadastral parcels, geographical names, hydrography network and transportation network as well as fully INSPIRE-compliant coordinate transformation services.

From the technological point of view, the Romanian INSPIRE Geoportal and INSPIRE Directive national implementations are on time, according to the INSPIRE roadmap. In terms of future plans, Esri Romania is planning to keep the Romanian INSPIRE Geoportal up-to-date and compliant with the technical specifications that will emerge.

### Defence

The DTM has recently unveiled its geospatial portal, which includes two components: one for public access for unclassified data and another only for internal use. Standards used are both military and civilian.

"It was an effort of more than a year and is continuing. Technical and formal barriers have been overcome. DTM has a huge spatial database that allows for sharing information with organisations inside and outside the Ministry of Defense. Besides the very consistent Romanian contribution to MGCP for about six years, DTM provides complete coverage of orthophotos for the Payment Agency from the Ministry of Agriculture, contributing to the specific spatial database for agricultural subsidies," says Col (R) Marin Alnitei, former chief of DTM. Now DTM is taking a further step in backing up Romania's NSDI by deploying its own INSPIRE





Topographic Military Directorate – INSPIRE node



Overview of the Romanian INSPIRE Geoportal (http://geoportal.ancpi.ro)

nian legislation was approved in January 2010. In the context of INSPIRE, an open and transparent process for the national stakeholder participation has been set up. Stakeholders are part of the INIS Council which is under the coordination of the National Agency for Cadastre and Real Estate (ANCPI) as a legally mandated organisation in INSPIRE.

"We understand the role of correct and up-to-date geospatial information for a modern economy. At the same time, we must comply with EU policies, especially for crossborder projects," says Arthur Ursu, general director of ANCPI.

An important challenge is to maintain a high level of commitment by all stakeholders and their experts to contributing to the development of the NSDI. This requires a notable amount of expertise, money, time and commitment as well as resources to ensure a more effective implementation. At the local level, many public sector administrations still have limited knowledge of the INSPIRE Directive due to insufficient dissemination efforts.

Another challenge during the implementation of the Romanian INSPIRE Geoportal is the creation and hosting of geospatial web services and keeping them available with high performance and scalability 24 hours a day, as required by the directive. ANCPI is still in discussions with other government agencies







Overview of Bestepe Protected Sites Geoportal (http://bio.geoportal-mediu.ro/geoportalbestepe/)

node – a fully-fledged INSPIRE Geoportal built on the ArcGIS platform. This new node will be federated with the Romanian INSPIRE Geoportal developed by ANCPI and will add more content and functionality, as new INSPIRE data themes are added such as orthoimagery and elevation data.

### **Biodiversity**

Another important component of the NSDI is related to biodiversity. Starting 12 years ago with the delimitation of protected areas, the Ministry of Environment and Climate Change has had sustained activity in this area.

"It is not only our contribution to the INSPIRE-related databases, but also a possibility for biologists, urban and rural planners, environmentalists and NGOs, to access and use biodiversity data, as well as allowing them the possibility to contribute to data updating and correcting. Standardising spatial information and the collection of biodiversity data is essential, especially for complex investment projects where nature conservation plays an important role," says John Smaranda, INSPIRE coordinator in the Ministry of Environment and Climate Change.

As a response to the EU Directives regarding reporting on biodiversity conservation in all Member States Protected Areas (Article 6, Habitats Directive, 1992; Articles 9 and 12, Birds Directive, 2009), assessing the need for biodiversity information has also been addressed by scientists and managers of the National Parks and Protected Sites. A simple, efficient and cost-effective spatially enabled information system for the biodiversity management has been created, based on a threetier architecture framework. This can be successfully implemented at the local, regional and national levels. The methodology is focused on the development of a centralised standard tool to integrate the most efficient field methods, mobile applications and equipment, adequate data analysis methods, a biodiversity enterprise data model to store data, and a collaborative platform for sharing and disseminating the results through Geoportal applications. Using a nested hierarchy, it allows collecting information at different scales to report on gains and losses in biodiversity across different areas of responsibility. Each tier includes indicators, measures, and monitoring and reporting tools that are intended to operate at a range of scales.

A complete e-reporting system, called SIMSHAB (Information System for Species and Habitats Monitoring), available at www.simshab.ro, was implemented by a consortium for the National Institute of Biology. This national project has already made significant progress to support Romanian legal reporting obligations on the Habitats and Birds Directives as well as international environmental policies and legislation.

As a further focus, all these shared environmental information systems are tied to SIMSHAB in terms of shared environmentally-related data and information, and are consistent with INSPIRE requirements.

## Conclusion

Challenges must still be resolved, but a mature next release of the Romanian INSPIRE Geoportal will produce tremendous benefits for Romanian society and its NSDI implementation. The deployment of the next release will improve knowledge sharing, reduce duplication of efforts, direct people toward the best available data, and improve the overall quality of geospatial data and information of the NSDI.

Romania has a rich heritage of involvement in the geospatial domain. Today those earlier efforts are being brought together in its NSDI. It provides the technology platform for applying the power of geographic thinking to social, economic and environmental challenges. Most importantly, however, it provides a platform for better collaboration enabling people to work across organisations to solve problems of mutual concern.

# ROMANIA HAS A RICH HERITAGE OF INVOLVEMENT IN THE GEOSPATIAL DOMAIN. TODAY THOSE EARLIER EFFORTS ARE BEING BROUGHT TOGETHER IN ITS NSDI

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# **ENVIRONMENTAL GEOPORTAL APPLICATIONS**

Some of the environmental Geoportal Applications available online are:

Calimani National Park: http://bio.geoportal-mediu.ro/ geoportalcalimani

Siriu Protected Area: www.geoportal-mediu.ro/geoportal/

Protected Lakes of Neamt County – Pangarati, Cuejdel and Vaduri: www.geoportal-mediu.ro/geoportalneamt/

Ceahlau National Park: www.geoportal-mediu.ro/geoportalceahlau/

Lunca Muresului Natural Park: http://lm.geoportal-mediu.ro/geoportal/

Macin Mountains National Park: http://bio.geoportal-mediu.ro/ geoportalmacin

Balta Mica a Brailei Natural Park: http://bio.geoportal-mediu.ro/bmb

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