



INSPIRE
Infrastructure for Spatial Information in Europe

Report Member State: Romania, 2013

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1. Summary

INSPIRE Directive was transposed into the national legislation by Government Order No 4/2010 establishing the *National Infrastructure for Spatial Information [INIS] in Romania* and the preparation of the legal framework for the functioning of the INIS Council, the coordinating body of this process.

The purpose of INIS is to ensure a uniform framework for the sharing of spatial data from Romania and the public access to such information, as well as the necessary support for substantiating the national and EU policies. INIS also contributes to the improvement of quality and the reduction of the costs corresponding to geographic information. The INIS objectives promote the following principle: "single collection multiple use".

The Report contains information relating to the implementation and use of the Infrastructure for Spatial Information in Romania, Member State of the European Union, in accordance with Article 21(2) of Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). It is based on Commission Decision 2009/442/EC of 5 June 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting following the INSPIRE reporting model provided by the European Commission.

At the time of this Report, the national infrastructure for spatial data in Romania is in the implementation stage.

2. Abbreviations and acronyms

ANCPI	National Agency for Cadastre and Land Registration
APIA	Paying and Intervention Agency for Agriculture
CINIS	National Infrastructure Council for Spatial Information
CNADNR	Romanian National Company of Motorways and National Roads
CNC	National Mapping Centre
DTM	Military Topographic Directorate
e-Terra	Integrated Computer System for Cadastre and Land Registration
INSPIRE	DIRECTIVE 2007/2/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community
INIS	National Infrastructure for Spatial Information
ISO	International Organisation for Standardisation
LPIS	Land Parcel Information System
ROMPOS	Romanian Position Determination System
SDI	Spatial Data Infrastructure
TOPRO5	Topographic Reference Plan for Romania, scale 1 :5000
TAU	Territorial Administrative Unit

3. Introduction

Spatial information represents an important theme, both for producers and users. Such information is increasingly used by decision makers, resource managers, scientists and individuals. Romania owns a wide range of spatial information created by institutions from various areas.

The Report focuses on the current status of the Romanian spatial data infrastructure and describes the coordination activity, the tasks and objectives of the stakeholders.

This Report has been drawn up by the National Agency for Cadastre and Land Registration on the basis of the information provided by the INIS Council members and refers to their activity in the period 2010-2012, offering an overview of the INIS in Romania in the above mentioned period.

Government Order No 4/2010 lays down the legal framework for the establishment of the National Infrastructure Council for Spatial Information (CINIS) with a coordination role in the implementation of INSPIRE Directive and consisting in members of 21 central public authorities and associations.

The Monitoring Documentation and the Report on the implementation of INSPIRE at national level are the result of the cooperation of all members of the INIS Council.

This Report has been drawn up in accordance with the INSPIRE Directive and its implementing rules.

The Report is supplemented by an Excel file for the monitoring of the implementation in accordance with the model defined by the Commission. The file contains the spatial data sets and services owned by the CINIS members that are covered by the themes defined in the INSPIRE Annexes.

4. Coordination and quality assurance (Article 12)

Coordination represents one of the most important organisational aspects in developing an INIS as other countries' experience shows.

4.1 Coordination (Article 12.1.)

4.1.1 Contact point

Names and contact information

Member State Contact Point	
Name of the public authority	National Agency for Cadastre and Land Registration
Contact information:	
Address:	Splaiul Independenței nr. 202 A, etaj 1, sector 6, Bucharest
Telephone number	+40 21 313 56 72
Fax number	+40 21 316 52 24
Email address	inspire@ancpi.ro
Organisation's website	www.ancpi.ro
Contact person	Marius Arthur Ursu
Telephone number	+40 21 317 29 00
Email address	office@ancpi.ro
Contact person – substitute	Constantin Ene
Telephone number	+40 731 606 232
Email address	constantin.ene@ancpi.ro

Role and responsibilities

ANCPI represents the contact point and LMO (Legally Mandated Organisation) of Romania with the European Commission with respect to the INSPIRE Directive and, for this purpose, it shall have the following main duties:

- shall represent Romania's interests in the INSPIRE decision-making forums;
- shall submit reports on the deadlines set by the European Commission or whenever necessary;
- shall submit to the European Commission the national legislative acts adopted for the compliance with the provisions of the INSPIRE Directive;
- shall formulate proposals and observations to the draft European legislative acts subsequent to the INSPIRE Directive;
- shall participate to the meetings of the INSPIRE Committee;
- shall ensure the permanent connection with the national and European competent public institutions with respect to the INSPIRE Directive.

The INIS Council supports the National Agency for Cadastre and Land Registration in its activity.

4.1.2 Coordinating body

Names and contact information

Coordinating structure within the Contact Point of the Member State	
Name of the coordinating structure	National Infrastructure Council for Spatial Information (CINIS)
Contact information:	CINIS Secretariat
Address	Splaiul Independenței nr. 202 A, etaj 1, sector 6, Bucharest
Telephone number	+40 21 313 56 72
Fax number	+40 21 316 52 24
Organisation's website	www.ancpi.ro
Contact person	Gabriela Drăgan
Telephone number	+40 731 606 261
Email address	gabriela.dragan@ancpi.ro
Contact person – substitute	Simona Daniela Bunea
Telephone number	+40 731 606 212
Email address	simona.bunea@ancpi.ro
Date and period of the mandate	

Role and responsibilities

Government Order No 4/2010 *establishing the National Infrastructure for Spatial Information in Romania* sets out the general framework for the establishment of the INIS through which Romania contributes to the achievement of the *Infrastructure for Spatial Information* in the European Community provided for by Directive 2007/2/EC of 15 March 2007 of the European Parliament and of the Council.

In order to coordinate the creation and updating of INIS, the National Infrastructure Council for Spatial Information in Romania was established, hereinafter called the INIS Council.

The main duties of the INIS Council are:

- a) shall establish and submit the activity plan for the achievement and updating of INIS to the Government for approval;
- b) shall establish and approve the spatial data themes, other than those provided for in Annexes No 1 to 3 to Government Order No 4/2010;
- c) shall establish and approve the information to be contained by the metadata, other than those provided for in Regulation 1205/2010 implementing the INSPIRE Directive with respect to metadata;
- d) shall establish the responsibilities of public authorities and third parties, as the case may

- be, for the creation and updating of the spatial data sets, the related services and metadata for the INIS themes;
- e) shall decide with respect to the availability of the spatial data sets and related services as regards the public access;
 - f) shall decide with respect to the spatial data sets and related services to be subject to tariffs;
 - g) shall decide with respect to the spatial data sets and related services for which licences may be granted;
 - h) shall report the status of the implementation of the activities provided for in the activity plan for the achievement and updating of INIS to the Government of Romania half-yearly or whenever necessary;
 - i) shall adopt decisions with a view to achieving INIS;
 - j) shall approve the reports of the contact point for the INSPIRE Directive before submitting them to the European Commission;
 - k) shall coordinate the activity of the INIS Council members when performing their duties set out in the Activity Plan.

The presidency of the INIS Council is ensured by the National Agency for Cadastre and Land Registration (ANCPI) and the vice-presidency is ensured by the Ministry of Environment and Forestry (MMP). At the date of issue of Government Order No 4/2010, ANCPI was subordinated to the Ministry of Internal Affairs. As of November 2011, ANCPI was transferred to the Ministry of Regional Development and Tourism and as of May 2012, ANCPI has been subordinated to the Government of Romania.

The President of the INIS Council is the General Director of ANCPI and in this capacity, it shall fulfil the following duties:

- a) shall steer the work of the INIS Council;
- b) shall propose the agenda of the working meetings of the INIS Council;
- c) shall submit the Activity Plan and half-yearly reports on the achievement thereof to the Government for approval;
- d) shall request the INIS Council representatives the reports on the status of their duties of the Activity Plan;
- e) shall sign the INIS Council decisions;
- f) shall request reports on the status of implementation by the INIS Council members of the decisions;
- g) shall convene the Technical Group whenever necessary;
- h) shall submit to the leaders of the INIS Council members the report on the implementation of the activities provided for in the Activity Plan.

The Vice-president of the INIS Council is the representative of the Ministry of Environment and Forestry and shall have the following duties:

- shall ensure the presidency of the INIS Council in the absence of the president;
- shall chair the INIS Council Meetings in the absence of the president;
- shall coordinate the preparation of the Report on the implementation of the activities provided for in the Activity Plan.

The INIS Council Secretariat shall be ensured by ANCPI and shall have the following duties:

- a) shall convene the INIS Council members at its meetings;
- b) shall convene the Technical Group members by order of the President;
- c) shall draw up the minutes, shall archive the originals and communicate them in electronic format to the INIS Council members;
- d) shall draw up the minutes of the Technical Group meetings;
- e) shall keep records of the decisions adopted by the INIS Council;
- f) shall send the representatives, in electronic format, the materials that are necessary for discussions in the following meeting, 5 days before the meeting, as well as the INIS Council decisions;
- g) shall ensure the technical conditions for the INIS Council meetings;
- h) shall provide the President with the necessary documents for the preparation of the reports on the implementation of the activities provided for in the Activity Plan;

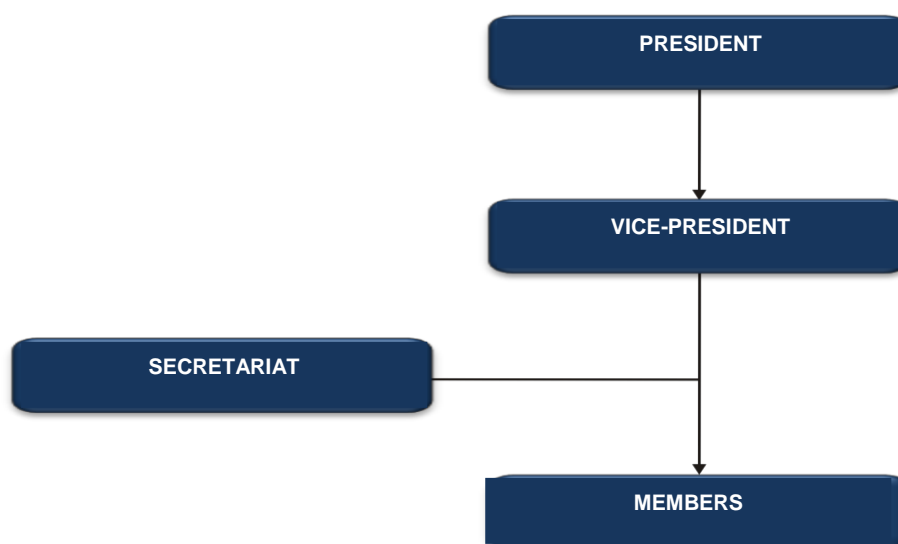
- i) shall keep records, by using special registries, of the reports of the INIS Council members and of those submitted to the Government, as well as the minutes of the Working Groups' meetings;
- j) any other duties set out by the INIS Council President.

In its activity, the INIS Council is assisted by a technical group consisting of experts appointed by the leaders of the member institutions of the INIS Council. The Technical Group ensures the specialised support to the INIS Council members and fulfils the duties set out by the INIS Council. The technical groups may be organised by any member of the INIS Council, in its field of activity.

ANCPI has established a functional department in its structure, at directorate level, with duties deriving from the provisions of Government Order No 4/2010: Directorate Geographic Information Systems.

With a view to fulfilling the duties lying with its members, the INIS Council issued Decision No 2 establishing the specialised departments/work groups comprising experts appointed by administrative act.

INIS Council Organisational Chart



Functional structure of CINIS

Relations with third parties

The relations with third parties are regulated by Government Decision No 493/2010 approving the Regulation for the Organisation and Functioning of the INIS Council.

In the performance of its duties, the INIS Council Members shall cooperate with the central and local public administration authorities, with other public institutions and with other Romanian or foreign legal persons governed by public or private law.

Overview of the working practices and procedures

The representatives of the member entities and the experts of the technical groups shall be appointed in the INIS Council on the basis of an administrative act by the leaders thereof and shall have the obligation to participate in all INIS Council meetings.

The INIS Council shall organise monthly meetings and whenever necessary, on the initiative of the President or upon the justified request of one third of the number of members of the INIS Council.

The INIS Council Decisions shall be supported by the expert groups that meet upon the request of the President of the INIS Council. The expert groups' activity shall be recorded in minutes drawn up for each meeting. Each member of the INIS Council may organise technical expert groups in the specific activity areas.

Other persons of the public institutions and associations provided for in Article 1(2), including persons of the institutions subordinated, coordinated or within the area covered by them, academics, private people, representatives of non-governmental associations and of other bodies may participate at the INIS Council meetings as guests with consultative role.

Following the meetings, the INIS Council Secretariat shall draw up the relevant minutes, shall archive the originals and shall communicate them in electronic format to the INIS Council members.

4.1.3 Comments on the reporting and monitoring process

In accordance with Government Decision No 493/2010, ANCPPI as President of the INIS Council requested the other INIS Council members reports on the implementation of the INSPIRE Directive and monitoring reports in order to identify the spatial data sets and services at national level.

As regards the reporting, the CINIS members were requested to contribute to the Country Report by following the model sent by the INSPIRE Team of the European Commission.

The monitoring of the spatial data sets and services is an annual process and consists in centralising the information from the INIS Council members.

The list of the data sets and spatial data services of the Monitoring Report is a dynamic document and represents a main source of spatial information for all areas. Thus, new data sets/services, which had not been identified in the previous monitoring, were added and spatial data sets, for example spatial data sets that are not updated or are copies of other spatial data sets, were eliminated. Moreover, the spatial data sets that have been modified were replaced. An example in this regard is the replacement of the data set *Reference Topographic Plan TOPRO5* covered by theme 1.3 *Geographic designations* with *Geographic designations (Reference Topographic Plan TOPRO5)* as in 2012, the data relating to the geographic designations of the Reference Topographic Plan TOPRO5 of the INSPIRE scheme were transformed.

Efforts are currently made to massively restructure certain spatial data sets (for example: data sets corresponding to theme 1.9 Protected areas by implementing the project "Creation of spatial data sets in accordance with the INSPIRE technical specifications for protected areas, including those of Natura 2000 sites, having regard to the optimisation of the administration facilities thereof"; such project shall be implemented in the period 2013-2015).

4.2 Quality assurance (Article 12.2.)

Each member of the INIS Council shall be responsible for the creation and updating of the spatial data sets and services owned and declared in the Monitoring Report, including for the metadata defined on Romania's INSPIRE Geo-portal.

Quality assurance mainly focuses on ensuring compliance with the implementing rules of the INSPIRE Directive.

4.2.1 Quality assurance procedures

Pursuant to Standard *ISO 19113:2002 (E)-Geographic information-Quality principles*, the data quality elements are:

- completeness of spatial data;
- logical consistency of spatial data;
- position/geometric precision;
- time precision;
- thematic precision.

For the purpose of complying with such elements, the expert groups established under Decision No 1 of the INIS Council shall prepare specifications and proposals for national standards that define the content, structure, form and quality of constituent spatial data necessary for the creation of spatial data in a common and interoperable format.

4.2.1.1 National Agency for Cadastre and Land Registration

The quality of the metadata documents relevant for the spatial data sets and services is ensured by the metadata document validation application, which is available on Romania's INSPIRE Geo-portal. The application is free of charge and accepts as source xml files according to the INSPIRE standards (Data, Services), FGDC, ISO 19115, Dublin Core, etc.

The metadata documents are automatically validated when the metadata editor on the geo-portal is in use or when a metadata document is uploaded by the users authorised to publish/administer the metadata.

ANCPI shall ensure the coordination and control of the implementation and compliance with the regulations in force in the areas of cadastre, land survey, topography, photogrammetry and mapping. For this purpose, the General Director of ANCPI issued Order No 108/29 March 2010 approving the Regulation for approval, verification and acceptance of the specialised works in the areas of cadastre, land survey, topography, photogrammetry and mapping, that establishes the general framework under which ANCPI ensures the approval, verification and acceptance of specialised works. This Regulation shall be binding for all natural and legal persons that have the right to execute specialised works in the areas of cadastre, land survey, topography, photogrammetry and mapping on the territory of Romania pursuant to the legal provisions in force.

The necessary cadastral documentation for the registration in the land registry of the legal acts and facts shall comply with the procedures and methods provided for in *ANCPI Regulation No 634/2006 on the contents, method of drawing up and accepting the cadastral documentation for the registration in the land registry*, as subsequently amended and supplemented.

The purpose of the acceptance of specialised works is to verify the compliance with the execution conditions required by the standards, methodologies and instructions prepared by ANCPI, with the technical standards in force and with the permits issued. The specialised works for which ANCPI issued a notice of initiation of works may only be accepted if they are accompanied by the internal quality control report.

In this period, the National Mapping Centre updated the Reference Topographic Plan in digital format at scale 1:5000 - TOPRO5 with a view to providing data and information for the creation of INIS in Romania.

Data were updated both in terms of geometry of the spatial objects contained in TopRo5 and in terms of populating the fields with attributes. Orthophotos resulted from the latest flights (years 2008, 2009 and 2010) were used for the updating.

The boundaries of the Territorial Administrative Units of TOPRO5 were obtained through the project RELUAT – Electronic Register of the Boundaries of the Territorial Administrative Units implemented by the National Agency for Cadastre and Land Registration. The Boundaries of the

Territorial Administrative Units were acknowledged and validated by the central and local public administration institutions responsible for the validation thereof. The National Mapping Centre administered the data management, performing updating operations pursuant to the minutes and graphical annexes. This process was carried out interactively and was implemented under Law No 133/2012 approving Government Emergency Order No 64/2010 amending and supplementing Cadastre and Land Registration Law No 7/1996.

4.2.1.2 Ministry of National Defence / Military Topographic Directorate

The Ministry of National Defence through the Military Topographic Directorate is one of the major producers and users of spatial data at national level. Therefore, it ensures the quality of geographic information pursuant to the NATO standards (e.g. STANAG 3809 - DTED, STANAG 2213 - Gazetteers) and shall perform the quality control through own specialised body.

The database of geographic designations owned by DTM [*Military Topographic Directorate*] was updated in compliance with the INSPIRE requirements. Subsequently, after integrating the geographic designations from the CINIS members holding such information, verification criteria of the elements taking account of the accuracy of spelling, positioning and periods in which they have been used shall be drafted.

The orthophotos taken by DTM, which are subject to the protocols concluded with the public institutions, were improved through verification and correction following the implementation of such protocols.

4.2.1.3 Ministry of Culture

With a view to protecting the national cultural real estate patrimony, the National Programme eGISpat has been initiated and its objectives aim at creating complex databases for keeping records of the real estate patrimony (archaeology and historical monuments). The quality assurance of the spatial data of the eGISpat Programme, i.e. the accuracy of the perimeters of historical buildings, followed the procedure for verification and updating thereof before publishing such data in the online application which is publicly available. All spatial objects are linked to the historical monument single code which they represent, as well as all other data completing the information in the form in which they were validated in the List of Historical Monuments. Both in the primary and final control stage, the verification of the geometric accuracy of perimeters, of the accuracy of the geographic location of the spatial objects and of the attribute data associated thereto was considered. Spatial data are regularly updated taking account of the dynamics of the upgrading/downgrading procedures operated in the List of Historical Monuments. Logic consistency and thematic precision are given by the structure of the List of Romanian Historic Monuments, which is periodically updated and published in the Romanian Official Journal.

4.2.1.4 Ministry of Transportation and Infrastructure

The Ministry of Transportation and Infrastructure is producer and user of spatial data through the specialised institutions subordinated to it (institutions in the railway, maritime, road, aviation areas, etc.).

Therefore, in the railway area, all data used are provided by agents authorised by ANCPI to perform measurements. Data shall be obtained, processed, archived and sent in accordance with the quality assurance requirements. We present below the main legislative acts regulating the activities in the railway area at national level:

1. Government Order No 43/1997, republished, on the regime of roads, as subsequently amended and supplemented;
2. Order No 43/1998 of the Minister of Transportation approving the rules on the classification of national roads into categories;
3. Order No 45/1998 of the Minister of Transportation approving the technical rules for road design, building and modernisation;
4. Order No 959/17 September 2009 of the Minister of Transportation, Constructions and

Tourism approving the Instructions for performing the registration of road traffic on public roads;

5. Regulations of the Technical and Economic Council of CNADNR on the approval of technical documentations.

In the aviation field, all data used in civil aviation are provided by aeronautic agents authorised by the Romanian Civil Aviation Authority to perform measurements in the areas with aviation easements. Data shall be obtained, processed, archived and sent in accordance with the quality assurance requirements indicated in the aviation regulations.

We present below the main regulations in the civil aviation area:

1. Civil Aviation Regulation – Authorisation of Civil Aeronautic Agents in the Airport Area, RACR – AACDA / 2006 ;
2. Civil Aviation Regulation, RAC – WGS 84, Measurement of the points of aviation interest in the World Geodetic System WGS 84 / 1995;
3. Civil Aviation Regulation, RACR – CADT, Conditions for approving technical documentations for objectives located in areas with aviation easements / 2003;
4. Civil Aviation Regulation, RACR – SACZ, Determination of the civil aviation easements and the areas with civil aviation easements / 2007;
5. Civil Aviation Regulation, RACR – AD – PETA, Design and technical use of airports / 2008.

4.2.2 Analysis of quality assurance problems

The authorities involved in the creation of INIS produce spatial data, primarily, to meet own needs and to comply with the legal requirements in force. Therefore, the aspects relating to the environmental protection or to sharing applications are not always integrated in the original spatial data sets and services. It can be estimated that significant results in the effective use of spatial data will occur if sufficient resources are allocated for such activity.

In order that the metadata of the spatial data sets and services are in compliance with the INSPIRE provisions, the metadata editor on Romania's INSPIRE Geo-portal was created, as well as a user's guide.

In December 2012, ANCPPI created spatial data sets compliant with INSPIRE by transforming the themes within own products, TOPRO5 and e-Terra, into INSPIRE format. 5 spatial data sets thus resulted, namely: *Geographic Designations, Territorial Administrative Units, Cadastral Parcels, Transportation Networks and Hydrography*. Such data sets were transformed in accordance with *Regulation No 1089/2010 on the interoperability of spatial data sets and services* and with *Regulation 102/2010 amending Regulation 1089/2010*.

In Romania, a large part of the spatial data was created on the basis of the old drawings and maps in analogue format. The updates of the spatial data sets on the basis of measurements were sporadic. Each institution prepared own specifications and procedures for quality assurance and control of spatial data. Such procedures are sometimes insufficiently documented and, in general, intended for projects carried out at a certain point within institutions.

A significant problem in assuring quality is the lack of instruments for verifying the compliance with the INSPIRE implementing rules.

4.2.3 Measures taken to improve quality assurance

The quality assurance measures shall focus on:

- the compliance with INSPIRE and the international standards *ISO 19113:2002 - Geographic information - Quality principles, ISO 19114:2003 - Geographic information - Quality evaluation procedures, ISO 19115:2003-Geographic information – Metadata*;
- the coverage of the entire country with reference data and updating thereof;
- the disclosure of spatial data sets and services via the search services within Romania's INSPIRE Geo-portal;

- the updating and improvement of the thematic geo-portals.

The INIS Council issued Decision No 3 pursuant to which the INIS Council members have the obligation to create new spatial data or to update the existing spatial data in accordance with the INSPIRE implementing rules.

4.2.4 Quality certification mechanisms

According to Certificate No 27921/09/R of 19 December 2012, ANCPI designed and implemented Quality Management System complying with the requirements of the European standard SR EN ISO 9001:2008, which is applied both in the main area of activity – cadastre and real estate registration – and in the related areas that significantly contribute to the achievement of the specific objectives.

The above mentioned certificate was granted by the certifying body RINA SIMTEX, IQNET partner, notified to the European Commission following an external audit, and the validity of the certificate is conditioned by the performance of the annual surveillance audits.

No other quality certification mechanisms of the data and spatial data services, except for those indicated in the INSPIRE Directive, have been so far identified.

5. Functioning and coordination of the infrastructure (Article 13)

5.1. General description of the spatial information infrastructure

In order to develop and implement INIS in Romania, *Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007* was transposed by establishing the legal framework through *Order No 4/2010 establishing the national infrastructure for spatial information in Romania* and by establishing the coordinating structure called the National Infrastructure Council for Spatial Information consisting in representatives of the public authorities and institutions.

INIS favours and coordinates the spatial information exchange and sharing between the parties involved in the spatial information community. The purpose is to provide relevant spatial information in order to support the decision makers with respect to regional, national and international policies and activities that also integrate environmental protection.

As in many complex evolutions, it is important to “Think big but adopt the small-step policy”. It is impossible to begin with all at once and to do all at the same time. Therefore, a set of rules that helps implementing INIS in Romania successfully must be defined. The geographic information must be collected only once for multiple use. In this regard, the steps below shall be followed:

- identifying the most important sets of geographic data;
- appointing the institution responsible for each reference data set;
- guaranteeing the data sets for a feasible period of time;
- identifying the public institutions using such data sets.

Public institutions shall make efforts to respond to the users’ needs as regards the use of geographic information.

A good cooperation between public authorities represents the basis of the effective use of spatial information. Overlapping in the production of spatial information is thus eliminated as such data become available for both public and private sector.

If in 2010, in Romania the infrastructure for spatial information was poorly developed, at present, it has extended in particular within the local administrations by creating infrastructures for certain specific themes.

5.2 INSPIRE stakeholders

For the purpose of creating and updating INIS, the INIS Council was established, the coordinating structure of INIS, consisting in representatives of:

- a) the Ministry of Internal Affairs;
- b) the Ministry of Environment and Forestry;
- c) the Ministry of National Defence;
- d) the Ministry of Public Finance;
- e) the Ministry of Agriculture and Rural Development;
- f) the Ministry of Regional Development and Tourism;
- g) the Ministry of Transportation and Infrastructure;
- h) the Ministry of Economy, Commerce and Business Environment;
- i) the Ministry of Education, Research, Youth and Sports;
- j) the Ministry of Health;
- k) the Ministry of Culture and National Patrimony;
- l) the Ministry of Communications and Information Society;
- m) the National Agency for Cadastre and Land Registration;
- n) the Romanian Academy;
- o) the National Statistics Institute;
- p) the National Agency for Mineral Resources;
- q) the Special Telecommunications Services;
- r) the Romanian Municipalities Association;
- s) the Romanian Cities Association;
- t) the Romanian Towns Association;
- u) the National Union of Romanian County Councils.

The changes occurred in December 2012 at the level of the Government of Romania also determined changes in the INIS Council structure. Starting from such changes, the aim is to amend and supplement, in 2013, the legislative act transposing the INSPIRE Directive into the national legislation.

The main producers of spatial data identified in the Monitoring Report are:

- the National Agency for Cadastre and Land Registration;
- the Ministry of National Defence through the Military Topographic Directorate;
- the Ministry of Environment and Forestry through the subordinated institutions (the National Administration "Romanian Waters", the National Meteorology Administration, the Danube Delta Biosphere Reservation Administration, the Institute of Research and Forestry Improvements, etc.);
- the Ministry of Agriculture and Rural Development through the Paying and Intervention Agency for Agriculture and the National Research and Development Institute for Soil Science, Agro-chemistry and Environmental Protection.

Most of the parties interests in spatial information worked independently and each of them created spatial data sets for own activities, being both producers and users.

5.3 Role of various stakeholders

The National Agency for Cadastre and Land Registration represents the contact point with the European Commission as regards the INSPIRE Directive and holds the presidency of the INIS Council while the vice-presidency is held by the Ministry of Environment and Forests.

With a view to establishing the INIS, the National Agency for Cadastre and Land Registration, as coordinating body, shall fulfil the following main duties:

- a) to develop and maintain the geo-portal;
- b) to make sure that the national geo-portal is compatible with the INSPIRE geo-portal of the European Union;
- c) to ensure the functionality of the e-commerce service;
- d) to provide the necessary material and human resources for the development and update of INIS,

- in compliance with the scope-related competencies;
- e) to monitor the implementation and use of INIS, to report to the European Commission and to publish the monitoring results;
 - f) to make available to public authorities or third parties any necessary information, including data, codes and technical classifications, for complying with implementing rules of the INSPIRE Directive, without restricting the use of such information exclusively for this purpose;
 - g) to organise groups of experts;
 - h) to develop, operate and maintain the search, viewer, download, transformation and call services as well as other services using the geo-portal
 - i) to provide access to services through the INSPIRE geo-portal of the European Commission and the national geo-portal;
 - j) to provide technical conditions to public authorities in order to be able to connect their spatial data sets and the related services to the service network;
 - k) to set the necessary technical framework for sharing spatial data sets and the related services by public authorities;
 - l) to provide access to all European institutions and bodies to spatial data sets and services, under the conditions harmonised with those of other Member States, in accordance with the implementing rules covering such conditions and issued by the European Commission;
 - m) to monitor the implementation and use of INIS and to permanently make accessible the results of such monitoring to the European Commission and the public.

Pursuant to Government Order No 4/2010, as subsequently amended and supplemented, public authorities and institutions, which are members of the INIS Council:

- shall be obliged to create and update the metadata for the spatial data sets and the service corresponding to the themes that they are in charge of, in accordance with INSPIRE provisions;
- shall take measure so as all newly created and massively restricted spatial data sets as well as the spatial data services corresponding thereto to be made available in accordance with the rules established by the European Commission;
- shall take measures in order to make available any information, including data, codes and technical classifications to all public authorities and third parties;
- shall be obliged to ensure identification, viewing and access, as applicable, to spatial data sets and geo-portal related services.

The coordinator and collaborator roles of public authorities and institutions managing the spatial data sets in accordance with the themes listed in the INSPIRE Directive shall be assigned as follows:

Thus, the Ministry of Environment and Forests shall coordinate 12 INSPIRE themes:

- I.8 Hydrography;
- I.9 Protected sites;
- II.2 Land cover;
- III.7 Environmental monitoring facilities;
- III.8 Production and industrial facilities;
- III.11 Management/restriction/regulation zones and reporting units;
- III.13 Atmospheric conditions;
- III.14 Meteorological geographical features;
- III.16 Sea regions;
- III.17 Bio-geographical regions;
- III.18 Habitats and biotopes;
- III.19 Species distribution.

The National Agency for Cadastre and Land Registration shall coordinate 8 INSPIRE themes:

- I.1 Coordinate reference systems;
- I.2 Geographical grid systems;
- I.4 Administrative and territorial units;
- I.5 Addresses;
- I.6 Cadastral parcels;
- II.3 Ortho-imagery;

- III.2 Buildings;
- III.6 Public utility services and other public services.

The Ministry of National Defence shall coordinate 2 INSPIRE themes:

- I.3 Geographical names;
- II.1 Altitude.

The Ministry of Agriculture and Rural Development shall coordinate 2 INSPIRE themes:

- III.3 Soils;
- III.9 Agricultural and aquaculture facilities.

The National Institute of Statistics shall coordinate 2 INSPIRE themes:

- III.1 Statistical units;
- III.10 Population distribution – demography.

The Ministry of Regional Development and Tourism shall coordinate 2 INSPIRE themes:

- III.4 Land use;
- III.12 Natural risk zones.

The coordinator of the themes:

- I.7 Transport networks shall be the Ministry of Transport and Infrastructure;
- II.4 Geology shall be the Ministry of Education, Research, Youth and Sports;
- III.5 Human health and Safety shall be the Ministry of Health;
- III.20 Energy resources shall be the Ministry of Economy, Trade and Business Environment;
- III.21 Mineral resources shall be the National Agency for Mineral Resources.

Each of these institutions shall play at least the role of collaborator in the development of spatial data sets corresponding to INSPIRE Annexes.

The communication services necessary for interconnecting the coordinating and collaborating public authorities' systems and the access to the national geo-portal shall be made available using their own Special Telecommunications Service infrastructure.

The Special Telecommunications Service (STS) shall be authorised to provide data communication services in public and private and security-related networks to all public institutions in Romania.

The STS shall provide internet services to public authorities as well as complementary services:

- broadband access in national and in international exchanges;
- IP resources (AS number, class IP) management;
- web, mail, ftp, video stream hosting;
- .eu domains registration.

5.4 Data sharing measures

An important step towards facilitating the sharing of data and spatial data services was the establishment of the INIS Council, which improved the communication between public authorities and institutions, which are spatial data holders and users as well as service providers.

The assessment of spatial data and services held by each public institution and authority, performed through the monitoring process, is used for the identification of both existing spatial information and the spatial data producers.

During the meetings held by the INIS Council, the sharing of data was recommended to be performed through the conclusion of agreements between authorities and institutions holding spatial data.

5.5 Cooperation between stakeholders

The INIS Council is organised and functions in accordance with Government Decision No

493/2010 approving the Regulation on the functioning and organisation of the INIS Council in Romania.

Within the period 2010 – 2012, with a view to operationalising the INIS Council, 13 working sessions of the INIS Council and several meetings of the technical groups were organised and aimed at establishing groups of experts, using the metadata editor within the INSPIRE geo-portal of Romania, analysing the activity plan and the budgetary projections and assessing the implementation stage of the INSPIRE Directive. During these meetings, proposals were made as regards the working method, the exchange of experience between partners and recommendations were issued for the sharing of data through the conclusion of agreements between the authorities and the institutions holding spatial data.

The INIS Council Secretary shall ensure communication with public institutions and authorities holding spatial data.

The communication and document transfer between the members of the INIS Council shall also be ensured through the FTP (file transfer protocol) public server at <http://195.138.192.11>.

With a view to fulfilling the duties provided for in Article 19 of Order No 4/2010 and Article 1(5) – (8) of Regulation on the organisation and functioning of the Council of the National Infrastructure for Spatial Information in Romania, the INIS Council issued Decision No 1 for the establishment of 4 groups of experts, which provide specialised support to members of the INIS Council. The duties of these groups of experts are specified in the Decision while the leadership thereof is ensured by each member of the INIS Council for a defined period of one year.

As leader of the *Data* group of experts, MApN, acting through DTM, organised two meetings with a view to developing the spatial data sets: I.3 – Geographical names, II.1 – Altitude and II.3 – Ortho-imagery. During these meetings, the working method was established as regards the exchange of necessary data for the completion of such spatial data sets.

INSPIRE geportal Standarde Accesibilitate Interoperabilitate Conformitate Habitate

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HOME SEARCH BROWSE

SEARCH

WELCOME TO ROMANIAN INSPIRE GEOPORTAL

In Europe a major recent development has been the entering in force of the INSPIRE Directive in May 2007, establishing an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment. INSPIRE is based on the infrastructures for spatial information established and operated by the 27 Member States of the European Union.

The Directive addresses 34 spatial data themes needed for environmental applications, with key components specified through technical implementing rules. This makes INSPIRE a unique example of a legislative "regional" approach...

In this context, **INSPIRE Geoportal** is ensuring interoperability and expanding the access to spatial data, metadata, web services and applications as part of the romanian national spatial infrastructure...[find out more.](#)

DISCOVERY **VIEWER** **METADATA EDITOR**

Maps [About](#) | [View](#)

Natura 2000 - Vizualizare Tema INSPIRE - Parcele Cad...

NEWS | EVENTS
Currently there is no news.

CALENDAR
May 2013

Mo	Tu	We	Th	Fr	Sa	Su
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

POLL
Currently, there is no survey.

SITE NAVIGATION
[About INSPIRE](#)
[Legislation](#)
[INSPIRE RoadMap](#)
[INSPIRE Geoportal](#)
[INIS Council](#)
[About GeoPortal](#)

FUNCTIONALITY
[Discovery](#)
[Viewer](#)
[Metadata Editor](#)
[Metadata Validation](#)

PARTICIPATE
We believe the active involvement of a people interested in NSDI helps enrich the portal and aggregate important national spatial data information. [How to get involved...](#)

SITE STATISTICS
Online users: 79
Registered users: 971

The Romanian INSPIRE Geo-portal

Having regard to its duties assigned pursuant to Government Order No 4/2010, ANCPI developed the Romanian INSPIRE Geo-portal. The development of the geo-portal was initiated in 2010. It provides the access to metadata and the spatial data sets and services held by the members of the INIS Council, may be accessed at: <http://geoportal.ancpi.ro/geoportal> and is connected to the European geo-portal.

The Romanian INSPIRE Geo-portal

The current version of the geo-portal supports the following standards:

- The metadata standards such as: ISO 19139/19115/19119, Inspire Profile, Dublin Core, FGDC;
- The interface standards for the integration with external mapping services such as: WMS, WFS, WCS, ArcGIS Server, GeoRSS, KML/KMZ;
- Interface standards: Z39.50, OAI, WAF, CSW;
- Communication interfaces such as: OGC CSW 2.0.2, REST, SOAP, Open Search.

The bilingual version (in Romanian and English language) of the Romanian INSPIRE Geo-portal offers the following functions:

- *the metadata publishing service*
 - metadata loading using the metadata editor of the geo-portal;
 - registration of external metadata;
 - metadata validation;
- *viewer services*:
 - metadata viewer;
 - online mapping services viewer: directly from metadata or using the geo-portal viewer application. The viewer application allows the user:
 - to navigate: (zoom/pan);
 - to identify and interrogate data;
 - to overlap multiple sets of visible spatial data;
 - to adjust the mapping service's properties (transparency, visibility etc.);
 - to add the mapping services found through the metadata searching form;
- *search services* – enables the discovery of spatial data sets and services based on the associated metadata and the external metadata provided on another geo-portal which is connected to the national geo-portal.

The search may be performed using:

- a key word;
- source type;
- data set category;
- area (spatial search);
- a combination of several criteria.

– *Downloading and transformation services* – in December 2012, these services were undergoing testing, the completion thereof being scheduled for 2013.

At present, the metadata may be discovered for the data sets held by ANCPI, the Ministry of Transport and Infrastructure, the Ministry of Environment and Forests, the Ministry of National Defence through the Military Topographic Directorate, the National Institute of Statistics, the Ministry of Agriculture and Rural Development. These metadata may also be discovered through the search service of the European geo-portal.

On the Romanian INSPIRE Geo-portal, the TOPRO5 data sets (version 2) and the orthoimages of 2005, 2008, 2009 and 2010 may be viewed; all such data do not comply with INSPIRE.

Furthermore, on the Romanian INSPIRE Geo-portal, the spatial data sets and services available on the geo-portals: *Lacuri Judeţul Neamţ [Lakes of Neamţ County]*, *Parcul Naţional Ceahlău [Ceahlău National Park]* and *Parcul Natural Lunca Mureşului [Lunca Mureşului National Park]* may be

discovered.

These spatial data sets and services, including the associated metadata are not developed in compliance with the INSPIRE specifications.

In **November 2011**, the search service at operational capacity was completed (in accordance with INSPIRE). Romania is one of the 19 Member States which technically complies with the INSPIRE requirements while the search service provided on the national geo-portal complies with the INSPIRE specifications.

One example of thematic geo-portal is the one held by the Paying and Intervention Agency for Agriculture which may be accessed at: <http://lpis.apia.org.ro> using the following user identification data: **lpisweb** and the password: **962vZ9HL**.

This portal serves the beneficiaries of area payments and the measures delegated under AXIS II and implemented by the Paying and Intervention Agency for Agriculture as well as potential beneficiaries and provides viewing functions of the physical blocks (delimitation of agricultural areas) and the related ortho-plans, displaying the most recent ortho-plans. Also, functions for searching physical blocks and territorial administrative units (TAU) are available.

The screenshot displays the APIA Geo-portal interface. On the left, a table provides details for physical block 13819-112:

Informații bloc fizic - 2010	
Nr. bloc fizic	13819-112
Județ	ARGES
Comună	ALBESȚII DE ARGES
Suprafață	1,30 ha
Categoria folosință primar	TA
Categoria folosință secundar	CP
Pantă medie	12,16 %
Data zbor	01.03.2004
TIP obiect	BA
TPA	NU
LN	NU

The main map area shows an aerial view of agricultural land with yellow outlines indicating block boundaries. The map includes a search bar at the top with the value '1 : 1352' and a scale indicator. The APIA logo and contact information are visible in the top right corner.

APIA Geo-portal

Legend: Ministry of Agriculture and Rural Development, Paying and Intervention Agency for Agriculture, Bd. Carol I nr. 17, sector 2, Bucharest

Information: Paying and Intervention Agency for Agriculture

Information on the physical block – 2010: Physical block no – 13819-112, County – ARGES, Municipality – ALBESȚII DE ARGES, Area – 1.30 ha, Main category of use – TA, Secondary category of use – CP, Average slope – 12.16 %, Date of flight - 1 March 2004, Object TYPE - BA, TPA – NO, LN – NO

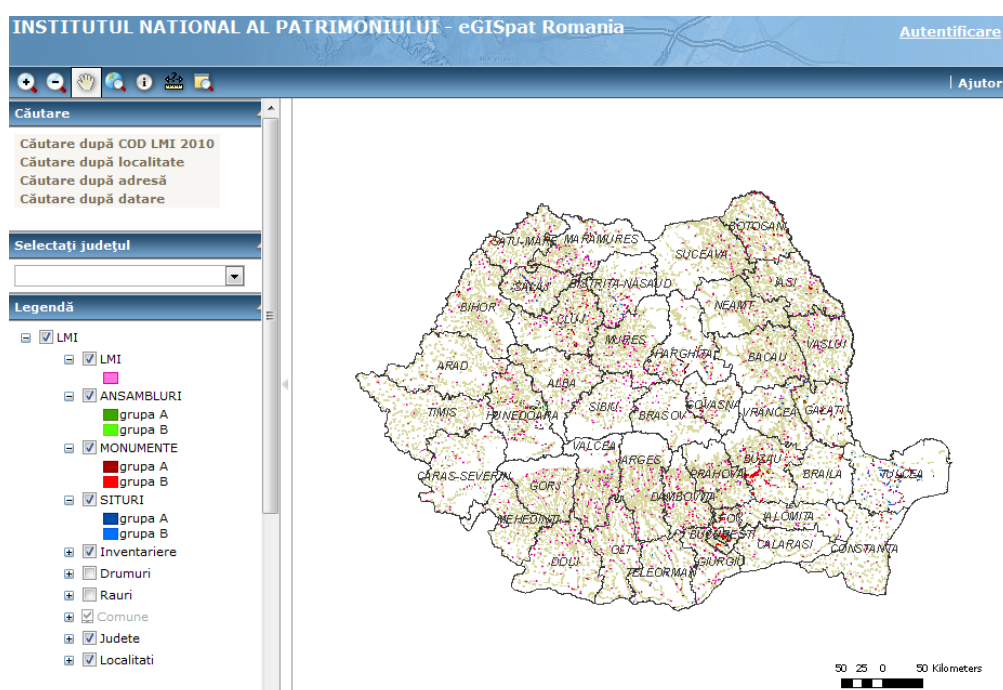
Print/Close

The National Institute for Heritage, subordinated to the Ministry of Culture, developed a thematic geo-portal in cooperation with the representatives of the private sector which may be accessed at: <http://egispat.inp.org.ro>.

The eGISpat National Programme was developed by Order No 2408/2005 of the Ministry of Culture and National Heritage with a view to creating a geographical information system (GIS) for the protection of the national real property cultural heritage (archaeology and historical monuments). The system offers sustainable and modern solutions for:

- the management of information complexity in the benefit of the Ministry of Culture;
- the optimisation of the data exchange with other state institutions;
- informing the population within the limits set by legal regulations.

1. **The public application**, which was intended to the general public in order to provide information on the list of historical monuments and their location on the map, may be viewed and used as an interactive online application, including the possibility to search an historical monument using the criteria: *code LMI 2010, locality, address, dating*, to select using the criterion *county* as well as to navigate and identify directly on the map, using specific instruments. Monuments, developments and historical sites are represented as vector polygon perimeters placed on geographical coordinates. The legend allows the loading and downloading, by ticking, the thematic layers which form the map: *LMI (warning that the locality in question comprises objectives registered in LMI), Developments, Monuments, Sites, Inventory, Roads, Rivers, Municipalities, Counties, Localities*, each being separately mapped.
2. **The expert application** is dedicated to specialised departments of the National Institute for Heritage and the Ministry of Culture, the Culture Directorate of Bucharest, which have the possibility to edit the spatial data base. Such functions are intended exclusively for authorised persons while the access is granted based on a user name and a password.



The eGISpat application

Legend: THE NATIONAL INSTITUTE FOR HERITAGE – eGISpat Romania – [Login](#), [Help](#)

Search: Search by LMI 2010 CODE, Search by locality, Search by address, Search by dating

Select the county

Legend: LMI; DEVELOPMENTS (group A, group B); MONUMENTS (group A, group B); SITES (group A, group B); Inventory; Roads; Rivers; Municipalities; Counties; Localities.

The map of historical monuments of Romania (eGISpat) is a complex real property heritage inventory database which stores, analyses and correlates multiple types of spatial, non-spatial, cartographic, photographic data etc., with a view to obtaining the necessary information for the substantiation of decisions taken as regards the management, restoration, preservation and development of the real property heritage.

The spatial data were collected by applying three methods: the on-site measurement of the historical monuments' limits using GPS equipment and download in GIS of the selected points, correction and conversion of such points in the Stereographic 1970 projection system, on the Krassowski ellipsoid, in the Black Sea 1975 reference system and the creation of the perimeters of such points, connected in a polygon shape and stored as shape file (.shp); the tracing of contour lines of historical monuments on a raster support of topographic plans (scale 1:2000, 1:5000) which are

digitized and geo-referenced in the Stereographic 1970 projection system and the Dealul Piscului 1970 geographical coordinate system and the introduction in GIS of coordinate sets that were already created in the graphical or substantiation documentation for town planning (General Urban Plan, Zonal Town Plan).

Before being loaded in the online application, spatial data were subject to the checking procedure in terms of location accuracy and delimitation thereof.

Monuments, developments and historical sites are displayed as vector polygon perimeters placed on their geographical coordinates.

A part of the spatial data existing in Romania is accessible through the thematic geo-portals of public institutions. Thus, the Romanian INSPIRE Geo-portal is connected, through search services, to several thematic geo-portals:

- Geo-portal Lakes <http://www.geoportal-mediu.ro/geoportalneamt/>
- Geo-portal Ceahlău National Park <http://www.geoportal-mediu.ro/geoportalceahlau/>
- Geo-portal Lunca Mureşului National Park <http://lm.geoportal-mediu.ro/geoportal/>

After monitoring, the following thematic geo-portals and data viewing applications were identified:

- <http://www.roenv-geoportal.ro/>
- http://portal.ddbra.ro/harti_delta_dunarii
- www.biodiversity.ro/n2000/
- <http://www.rowater.ro/default.aspx>
- <http://egispat.inp.org.ro/>
- <http://www.calitateaer.ro>
- <http://www.portofconstantza.com/apmc/portal/map.do?method=show>

The Ministry of National Defence through the Topographic Directorate (MApN/DTM) sought to purchase, install and configure the hardware equipment and the software applications necessary for the functioning of its own geo-portal.

5.6 Access to services through the INSPIRE Geo-portal

The metadata published on the Romanian INSPIRE Geo-portal offer information on how to access the Romanian spatial data sets and services. The services available on the geo-portal are specified in the previous chapter.

6 Use of the infrastructure for spatial information (Article 14)

6.1 Use of spatial data services of the Spatial Information Infrastructure

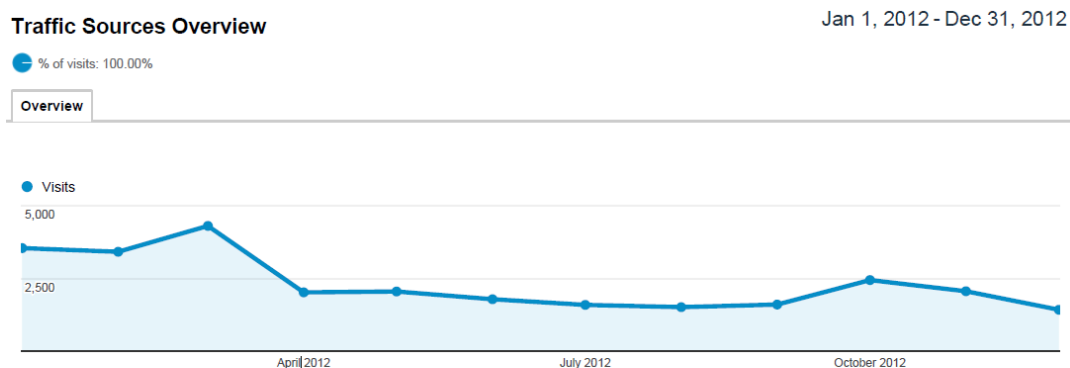
The indicators resulting from the monitoring of data and spatial data services during the period 2010 – 2012 are shown in the table below.

No	Indicator	Reference year		
		2010	2011	2012
1	Metadata available through the search services	5 %	14 %	33 %
2	Data sets which ensure compliance with data specifications implementing rules	0 %	0 %	2 %

3	Data sets accessible through the view service	16 %	17 %	16 %
4	Data sets accessible through the download service	5 %	5 %	5 %

The services are provided independently on the web sites of public institutions and authorities and are enlisted in the INSPIRE monitoring document.

We present below a statistic for 2012 on the number of the visitors of the Romanian INSPIRE Geo-portal.



27,767 people visited this site

6.2 Use of spatial data sets

The establishment of the INIS Council provides for encouragement of partnerships and cooperation between public institutions and authorities for the use of spatial data.

Thus, several public institutions provide spatial data and spatial data services to be used in other areas, such as:

- forecast of natural disasters;
- management of agricultural subventions;
- management of cultural resources;
- substantiation of territorial management strategies and policies;
- prevention and fight against crime;
- expropriations on grounds of public utility;
- identification of forest land areas.

6.3 Use of the spatial information infrastructure by the general public

In Romania, a small number of public institutions and authorities make available spatial data view and download services to the general public. Such public institutions and authorities are specified in Chapter 7.5 and contained in the monitoring report.

6.4 Cross border use

In the context of the last decades, cross border cooperation is a widely spread and necessary activity since frequent spatial data interoperability-related problems cannot be settled within the borders of a single state.

The National Agency for Cadastre and Land Registration participate in mixed border commissions with a view to controlling the border between Romania and the neighbouring countries.

Therefore, agreements were signed on the delimitation of the Romanian border with Serbia and Hungary while the agreement signed with Ukraine is under completion.

Furthermore, agreements were concluded with Moldova, Hungary and Ukraine on the exchange of data from the GNSS permanent stations and the agreement with Bulgaria is under completion.

As member of **EuroGeographics** (www.eurogeographics.org), the National Agency for Cadastre and Land Registration takes part in the development and update of the following products: **EuroGlobalMap** (topographic data set corresponding to scale 1:1000000), **EuroBoundaryMap** (administrative boundaries corresponding to scale 1:100000) and **EuroRegionalMap** (data set corresponding to scale 1:250000). Under these projects, the continuity of geographical elements corresponding to scales 1:250000 and 1:1000000 was ensured through the exchange of information with the technical correspondents of the neighbouring countries

The Ministry of Transport and Infrastructure performs aviation-related data exchanges in accordance with the requirements contained in Annex 15 of the International Civil Aviation Organisation.

All objectives contained in the List of Historical Monuments of Romania are geographically located within the country's borders; a special example of historical monument which generated cross border collaboration between the specialists in the area from Romania and Serbia is Podul lui Traian [*Traian's Bridge*] of Drobeta-Turnu Severin. Another collaboration under progress is the one between the countries which are crossed by the Roman limes, which takes place under the initiative of UNESCO to create a single position called *Frontiers of the Roman Empire*, on the World Heritage List and to which each country crossed by this frontier shall contribute with its corresponding data segment.

6.5 Use of transformation services

Within the National Agency for Cadastre and Land Registration, software applications were developed for the transformation of TransDatRO and ShapeTransDatRO coordinates with, a view to ensuring interoperability between national and Pan-European spatial data. Such applications may be downloaded by users free of charge from ANCPI's web site.

Based on planimetric and anomaly (for cvasigeoid) correction grids, these applications transform the coordinates from the ETRS89 European reference system into the Krasovski 1942 (S-42) national reference systems using the Stereographic 1970 projection system (for the entire Romanian territory), into Hayford 1910 using the Stereographic 1930 projection system (for Bucharest City) and into the Black Sea 1975 normal altitude system.

The transformation accuracy is of approximately 10 – 15 cm for planimetric coordinates and of approximately 15 – 30 cm for altitudes (depending on the cvasigeoid's accuracy in the area of the points to be transformed).

The coordinates may be transformed using ASCII source files or interactively, by transforming each point, for the TransDatRO application as well as the shapefile source files for the ShapeTransDatRO application.

Using the source code of the TransDatRO application, the coordinate transformation application from the national projection system, the Stereographic 1970 projection system, into the European ETRS89 reference system and vice versa was implemented on the Romanian INSPIRE Geo-portal. This application supports shapefile source files and is undergoing the testing stage.

In 2012, offline data transformation instruments from the data specific plan for administrative units, geographical names, transport networks and hydrography (of the data set *TOPRO5 Reference Topographic Plan*) into the INSPIRE application plans for the themes: *Administrative units*, *Geographical names*, *Transport networks* and *Hydrography* were developed. Furthermore, the instrument for the transformation of cadastral parcel-related data from the e-Terra application into the INSPIRE application plan for the theme *Cadastral parcels* was developed.

Following the use of such transformation instruments the data sets Administrative units, Geographical names, Transport networks, Hydrography were obtained through derivation from TOPRO5 as well as the data set Cadastral parcels through derivation from e-Terra, in compliance with the INSPIRE implementing rules.

7 Data sharing agreements (Article 15)

7.1 Data sharing agreements concluded between public authorities

One of the most important protocols concluded by ANCPI for the provision of spatial data we shall specify:

- ***Collaboration Protocol No 440666/13 December 2010 concluded between the Ministry of National Defence and the National Agency for Cadastre and Land Registration concerning the exchange of geospatial data and information and the collaboration in the gravimetry area during the period 2010-2020.*** Pursuant to this Protocol, the Ministry of National Defence acting through its Military Topographic Directorate shall be obliged to make available to the National Agency for Cadastre and Land Registration the orthoplans resulting from the execution of aerophotogrammetry services on Romanian territory, its own geospatial data and information with a view to establishing the national spatial information infrastructure using the Romanian INSPIRE Geo-portal, its own geo-portal or magnetic records while the National Agency for Cadastre and Land Registration shall be obliged to provide to the Military Topographic Directorate the access to ROMPOS services, its own geo-spatial data and information with a view to updating military geo-spatial information using the geo-portal;
- ***Collaboration Protocol No 1034782/31 March 2011 concluded between the National Agency for Cadastre and Land Registration and the General Inspectorate of Romanian Police concerning the supply of cartographic products,*** based on which the National Agency for Cadastre and Land Registration shall undertake to supply free of charge the orthoplan mosaic with a resolution of 0.5 – 10 m, to provide access to the reference topographic plan corresponding to scale 1/5000, in digital format (TOPRO5) using the WMS services;
- ***Collaboration Protocol No 1032229/22 February 2011 concluded between the National Agency for Cadastre and Land Registration and the General Directorate of Bucharest Police,*** based on which the National Agency for Cadastre and Land Registration shall supply free of charge the orthoplan mosaic with a resolution of 0.5 – 10 m for Bucharest City while the General Directorate of Bucharest Police shall be obliged to make available to the National Agency for Cadastre and Land Registration all street names and administrative numbers of buildings in Bucharest.

The Ministry of National Defence / Military Topographic Directorate concluded collaboration protocols with various public institutions with a view to making available free of charge the orthoplans drafted during the period 2010 – 2012. Following the implementation of these protocols, the spatial data sets were checked and corrected using the information obtained from various sources, thus resulting improved data sets in terms of quality.

7.2 Data sharing agreements concluded between public authorities and European institutions and bodies

The search service available on the geo-portal may be accessed free of charge by any user. Following the completion of spatial data view, download and transformation services provided by ANCPI, in accordance with the INSPIRE implementing rules, the method of accessing such services shall also be established.

The Ministry of Transport and Infrastructure – In the aviation area Decision of the Eurocontrol Permanent Commission on the establishment of the European AIS Aeronautic Database (EAD) and the Eurocontrol Temporary Committee on the transition and migration of states to EAD, which has become an obligatory objective, within the European Convergence and Implementation Plan. Romania fully meets the European objectives.

7.3 Obstacles to the sharing of data and measures taken for overcoming such obstacles

Obstacles:

- The legal framework is not sufficiently developed for the sharing of data between public institutions;
- Central public authorities do not have information on spatial data at local level;
- The institutional capacity is not sufficient in the GIS and IT areas in order to provide the coordination and management of spatial information; with a view to creating, maintaining and publishing spatial information, expertise and equipment is needed for the spatial data processing, management and operation;
- Lack of national standards on spatial information: the exchange of spatial information is widely affected by the lack of applicable standards. The collected data may be classified and organised in different ways, particularly where GIS databases with different structures are operated, depending on the needs and requirements of each organisation. Therefore, such data cannot be shared unless they comply with the interoperability requirements.

Measures taken:

- Several collaboration protocols were concluded for specific activity areas; such protocols also refer to the data sharing methods or regulate the collaboration in the spatial information area;
- The Romanian INSPIRE Geo-portal was developed, making available to users the services defined in the INSPIRE Directive;
- Orthoplans corresponding to scale 1:5000, editions 2005, 2008, 2009 and 2010, were made available to public authorities.
- Steps were taken for amending/updating the legal framework.

8 Costs and benefits (Article 16)

8.1 Costs resulted from the implementation of the INSPIRE Directive

A detailed list of INSPIRE-related costs for the period 2010 – 2012 does not exist and the costs were not broken down by each activity performed, personnel, hardware and software.

For the development of the Romanian INSPIRE Geo-portal, the hardware infrastructure within ANCPi was used. The geo-portal development generated a cost of EUR 24 800. This cost includes also the development of the metadata editor and validation, the view application and the search service.

Metadata have been created on the INIS Council's own merit. Metadata are created using the editor available on the Romanian INSPIRE Geo-portal, the application plan of which complies with the INSPIRE requirements on metadata. Metadata are maintained and managed by each data producer, without implying additional costs for the performance of such activities.

ANCPi developed spatial data sets by transforming the data from the specific plan for administrative units, geographical names, transport networks and hydrography (of the data set *TOPRO5 Reference Topographic Plan*) into the INSPIRE application plans for the themes: *Administrative units*, *Geographical names*, *Transport networks* and *Hydrography*. Also, the instrument for the transformation of cadastral parcel-related data from the e-Terra application into the INSPIRE application plan for the theme *Cadastral parcels* was developed.

The costs related to the development of these spatial data sets amounted to EUR 331 000. Such costs also include the maintenance for a period of two years of data referring to component update where the INSPIRE documentation is amended.

For a cost of EUR 265 000, ANCPi also developed viewing, download and transformation services for compliant spatial data to be fully integrated in the Romanian INSPIRE Geo-portal and in the infrastructure and security of the Enterprise GIS architecture within ANCPi, thus continuing to provide the scalability and interoperability of this architecture with national and European spatial

data infrastructures. Such services are in the testing stage.

The reporting and the monitoring were drafted by ANCPI and resulted from the collection and assessment of the information received from the members of the INIS Council.

The costs related to the restructuring of certain spatial data sets corresponding to theme I.9 Protected areas were approved and amount to approximately EUR 9 000 000. The project for the development of these spatial data sets, in accordance with the INSPIRE specifications, shall be implemented during the period 2013 – 2015 and shall be granted European funds through the SOP Environment Axis 4 “Implementation of adequate management systems for the protection of nature”.

With a view to meeting the obligations undertaken, M.Ap.N. established an INIS budget of EUR 80 000 for goods and services and of EUR 330 000 for capital expenditure for the period 2010 – 2012.

8.2 Benefits

Environmental management constitutes a major benefit for society since it creates new services for the public administration, citizens and business environment.

The avoidance of spatial data duplication is one of the most important benefits of an INIS and it cannot be achieved unless there is a good coordination and agreements concluded between public institutions.

INIS functions as storage of spatial data and spatial data services, facilitating the exchange of spatial data between the parties taking part in its development. The actual value of spatial data can be noticed only when global and local problems are being solved.

Among the benefits in the spatial data operation area, we may specify:

- improvement of the quality of information necessary for the spatial planning and implicitly of the collaboration with local authorities (at rural and urban level);
- increased interoperability within the information system necessary for the implementation of projects by central and local public authorities;
- reduction of spatial data development-related costs;
- increased awareness concerning the local and global environmental issues.

The main beneficiaries of spatial data are at the level of public administration (ministries), within the business environment (real estate investors, wind farm developers) and the general public.

9. Conclusions

INIS plays an essential role in making available spatial data. Public institutions must provide reference data which are important in the decision-making process.

In order to improve the implementing process for the provisions of Government Order No 4/2010 and to develop the spatial data national infrastructure, several measures shall be taken; the following measures may be considered as a priority:

- Clarification of INIS concepts and general architecture and specification of the methods applied by INIS participants with the view to integrating the components they developed in this infrastructure;
- Publication of reference data sets allowing the harmonisation of existing data with new data at least on the basis of spatial criteria;
- Conclusion of inter-institutional agreements on the exchange and shared operation of data with a view to developing INIS;
- Adoption at the beginning of each year of the activity plan of the INIS Council and the duties of the participating organisations, based on which they can also plan the necessary resources;

- Organisation of events having as subject the spatial data infrastructure, during which discussions may be held concerning several technical issues related to the development of INIS.

The spatial information value increases together with the sharing and use of such information. The time, effort and resources consumed for the collection of similar spatial information may be used for the collection of new information based on which future spatial data sets shall be developed.

The implementation of the INSPIRE Directive shall contribute to the improvement of the national spatial data infrastructure particularly in the area of data interoperability and spatial data services and shall constitute a joint cooperation effort for the technical implementation of the Directive.

Annexes

9.1 List of the INIS Council members – name and contact data

No	Name	Contact data
1.	NATIONAL AGENCY FOR CADASTRE AND LAND REGISTRATION	Arthur Marius URSU , Director General – President of INIS Council (004) 021.317.73.39 arthur.ursu@ancpi.ro Constantin Ene , Director of the Geographic Information Directorate (004) 021.317.29.00 constantin.ene@ancpi.ro www.ancpi.ro
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5.	MINISTRY OF PUBLIC FINANCE	Ion GHIZDEANU - President of the National Commission for Prognosis www.mfinante.ro Adrian POPESCU - Director General of the Information Technology General Directorate www.mfinante.ro
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13.	MINISTRY OF CULTURE	Daniel - Constantin BARBU Minister Mircea ANGELESCU - Director of the Directorate for Cultural Heritage (004) 021.224.44.21 mircea.angelescu@gmail.com www.cultura.ro
14.	ROMANIAN ACADEMY	Academician Dan BĂLTEANU – Director of the Institute of Geography of the Romanian Academy (004) 021.313.990 igar@geoinst.ro Prof. Dr. Mircea DUȚU www.acad.ro
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21.	NATIONAL UNION OF COUNTY COUNCILS OF ROMANIA	office@uncjr.ro www.uncjr.ro

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