
Ninth Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM)

United Nations Headquarters, New York
5 - 9 August 2019

Country Report of Poland *

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GEOSPATIAL INFORMATION MANAGEMENT IN POLAND

REPORT 2019

**Ninth Session of the United Nations Committee of Experts on
Global Geospatial Information Management (UN-GGIM)**

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Introduction

Spatial data infrastructure is a basic component of information infrastructure of a modern state, a component indispensable for the functioning of administration at all levels, for sustainable development of the country, and for development of information society. The particular role of spatial information results from the universality of its application, the opulence of its content, the costs of acquiring and maintaining it, as well as the variety of aims which it serves.

The fast-growing needs concerning spatial information, coupled with the dynamic development of information and communication technologies (ICT) have been the reason for taking various initiatives in Poland, as well as government and self-government projects, which aimed at modernization of systems and developing spatial information infrastructures.

National tendencies and activities have been supported by the initiative of the European Union, concerning the establishment of the European infrastructure for spatial information, commonly known under the acronym of INSPIRE and developed presently in line with the EU directive having the same acronym.

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The Act on Spatial Data Infrastructure - SDI Act

The spatial data infrastructure is created in Poland on the basis of the Act of Polish Parliament of 4 March 2010 on spatial data infrastructure (SDI Act) and forms part of the spatial data infrastructure in the European Community.

It is also a direct transposition of the INSPIRE Directive of the European Parliament and the Council, imposing amendments to further national legal laws and existing regulations concerning broad scope of Nationally managed spatial data.

It not only establishes the national spatial data infrastructure as constituent of the European infrastructure, but it primarily aims at optimizing spatial data acquisition and maintenance by public administration units, as well as to improvement of availability of data and services to all users.

The goal of SDI is to ensure the availability of knowledge about natural and anthropogenic objects that are located in the space defined by the Polish borders, taking into account:

- sustainable development on a national, regional and local scale,
- a developing information society,
- European integration,
- public administration at all levels,
- scientific, technological and organizational progress in the field of geomatics and ICT,
- economic requirements, including the requirements of rational management of spatial information resources.

The Act on SDI affects the improvement of public administration activities through regulations concerning cooperation of administrative bodies within the infrastructure (co-creating it in accordance with the competences held, common free use of rich data resources) as well as digitization of the state and development of electronic administration.

In essence, accomplishing of the above-mentioned aims is the implements, , of interoperability principles, defined by the European Interoperability Framework for European Public Services in the domain of spatial information in all: legal, organizational, semantic, and technical manners.

The SDI Act defines the principles and manner of establishing and use of spatial data infrastructure, as well as authorities competent in that respect.

Most important, from the point of view of infrastructure users, are the provisions concerning access to spatial data. Access to spatial data, as well as use of such data take place via network services, by means of electronic communication, including also the services of discovery, view, downloading, and transforming of data. The SDI Act provides common and free of charge access to the two former types of services, namely discovery and view, which are most often used, and which enable access to the necessary information, as well as getting acquainted with such information. The use of other services is possible, observing the regulations referring to public registers containing the data made available. An exemption to that rule applied to mutual sharing of data between authorities.

SDI contains spatial data, i.e. data that:

- describe the objects, phenomena and processes of the natural environment and land use, including data on environmental protection and development of the economy, among others in the field of infrastructure and construction,
- are presented in two-dimensional or three-dimensional space, including time as the fourth dimension,
- they enable analysis, monitoring, planning, design and management using appropriately combined types of thematic information covered by the 34 main topics defined under the INSPIRE Directive but also potentially any other relevant, available spatial information.

Spatial data sets comprised in the infrastructure, as well as spatial data services, kept by administration agencies, are subject of providing access free of charge to other agencies of administration in the scope indispensable for performing public tasks by the latter. That provision is a consequence of other regulations binding in Poland, namely the Act of law on computerization of entities executing public tasks. This also led to consequent shift in approach to access and reuse of Public Data and initiated process of opening public resources by making it free and reusable to all users.

Access to spatial data sets and services does not apply to data, which due to the international agreements binding for the Republic of Poland, public safety, or other reasons stipulated in separate regulations, have been considered classified, or are subject to restrictions in providing access.

SDI contains internet services - in the basic scope free of charge - enabling universal use of spatial information resources collected in Poland by all users, including for the purposes of:

- administrative by public administration bodies at all levels,
- economic, including investment and marketing,
- social, relevant to civil society, eg. Regarding participation in planning decisions.
- educational at various levels of education,
- tourist and recreational.

SDI Organizational Framework

Administration bodies that keep public registers, which contain sets of spatial data related to – listed below – spatial data themes, make up and maintain the network of services pertaining to spatial data sets and services, and are responsible for establishing, updating, and making available the sets of metadata. The themes are formed into three groups corresponding to INSPIRE Directive three annexes.

first theme group

- coordinate reference systems
- geographical grid systems
- geographical names
- administrative units
- addresses
- registered parcels
- transport networks
- hydrography
- protected sites

second theme group

- elevation
- land cover
- orthoimagery
- geology

third theme group

- statistical units
- buildings
- soil
- land use
- human health and safety
- utility and governmental services
- environmental monitoring facilities
- production and industrial facilities
- agricultural and aquaculture facilities
- population distribution (demography)
- area management/restriction/regulation zones and reporting units
- natural risk zones
- atmospheric conditions
- meteorological
- geographical features
- oceanographic
- geographical features
- sea regions
- bio-geographical regions areas
- habitats and biotopes
- species distribution
- energy resources
- mineral resources

SDI Coordination

In regard to provisions of the SDI Act, the Minister for investment and development is responsible for establishment, maintenance and development of infrastructure as well as providing the European Commission with information and reports concerning the creation and operation of infrastructure.

These tasks are performed with the assistance of Surveyor General of Poland, who:

- draws up draft plans of the participation of administration bodies in the creation and operation of infrastructure, making the necessary arrangements with leading bodies to ensure the completeness of the infrastructure in terms of themes, area and variability in time, as well as preventing unnecessary collection of the same data by more than one administration body;
- monitors, in cooperation with the leading bodies, the progress of work on the creation and operation of infrastructure and its development;
- drafts the information and reports;
- organises undertakings and performs tasks supporting the development of infrastructure;
- cooperates with the European Commission in matters relating to infrastructure
- cooperates with voivodes and local self-government units in their actions concerning the establishment and operation of infrastructure;
- determines, under bilateral agreements, the scope and conditions of data exchange concerning facilities located at the border between the Republic of Poland and the neighboring countries and adjacent to these borders, in order to ensure consistency of data within the infrastructure for spatial information in Europe.

Surveyor General of Poland is also responsible for maintaining contacts with the European Commission regarding development and management of the Polish Spatial Data Infrastructure as an official, National INSPIRE Contact Point.

Council for Spatial Data Infrastructure

The infrastructure is established, maintained, and developed, as well as functions as a result of **cooperation** among subjects that make it up. In that context, as well as due to the necessity of providing uniform and efficient spatial data infrastructure, the SDI Act provides for the establishment of the Council for Spatial Data Infrastructure.

The Council for Spatial Data Infrastructure is an inter-ministerial committee, in which the leading bodies are represented, as well as other agencies of the state administration, local authorities, along with interested scientific institutions and NGOs.

The Council provides its opinion for the undertakings planned regarding the development of infrastructure, and shall initiate improving the efficiency of infrastructure, concerning organization and technical issues, as well as broadening its thematic scope, which will assure real influence of the ministries, organizations, institutions, and circles listed above upon the directions of its development.



Figure 1 Composition of SDI Council in Poland

Access to SDI

Public administration requires reliable access to relevant spatial data sets and services. Popularization of access to spatial data encourages verification of reference data and necessary corrective activities and updates to the system by the users themselves. Spatial data is a crucial piece of information in many fields, such as security, spatial planning, environment or local taxes. Effective government activity planning is not possible without reliable and accessible spatial data. In the long run, it assists and accelerates the decision-making process, making the administration more efficient and responsive to the needs of the nation and the citizens. The better the data quality, the more potential problems could be accurately diagnosed during the planning and project preparation stage. Practically it means lower investment costs, because decision making in later stages requires changes in elements already created, which aside from the financial cost can often be a significant burden on the environment.

Every citizen and business owner would like to complete most matters over the internet, without waiting in line at the appropriate governmental offices.

Infrastructure provides the background for the coherent implementation of electronic services. It not only boost data transfer between different platforms, electronic records and offices, but also provides a set of necessary services to facilitate the provision of public services over the Internet. Accessibility of Publicly maintained resources is essential for the competitiveness of the Polish economy in the European Union as well as the development of entrepreneurship.

The General Surveyor of Poland is responsible for development and maintenance of a publicly available access point to the national access point – the www.geoportal.gov.pl service.

The main task of the www.geoportal.gov.pl website is to make available in one place spatial information from various official registers, guaranteeing its validity and credibility. The service www.geoportal.gov.pl provides users with a range of functions, from the ability to manipulate the map view (zooming, moving, etc.) by adjusting the visibility of individual layers (turning on, off, adding layers from WMS services, changing the transparency level, etc.) and taking measurements on the map (distances, surface areas, etc.), ending with search capabilities (geographic objects, addresses, plots, geodetic control points, metadata).

The basic components of the www.geoportal.gov.pl system are:

Map application integrating data and browsing services published by various administration entities and allowing for basic spatial analyses,

Mobile application for iOS and Android platforms, standard browsing functionality extended with integration with location services,

Geoportal API allowing for the creation of own mapping applications using the underlying data provided by the Head Office of Geodesy and Cartography

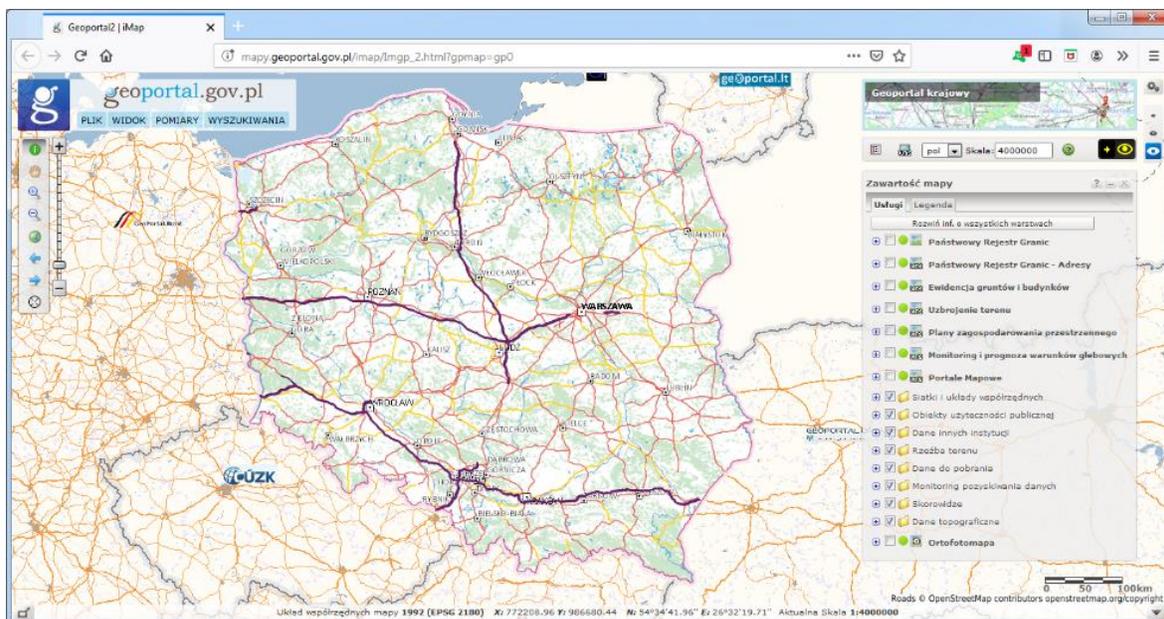


Figure 2 Geoportal map application

The main map service of the Geoportal can also be invoked in a personalised manner, so that immediately after the start the user will be able to visualize the area indicated in the request with the registration parcel or address point. The requests should then have one of the following forms:

- http://mapy.geoportal.gov.pl/imap/?identifyParcel=141201_1.0001.4769
- <http://mapy.geoportal.gov.pl/imap/?identifyAddress=Halinow,Spoldzielcza 1>

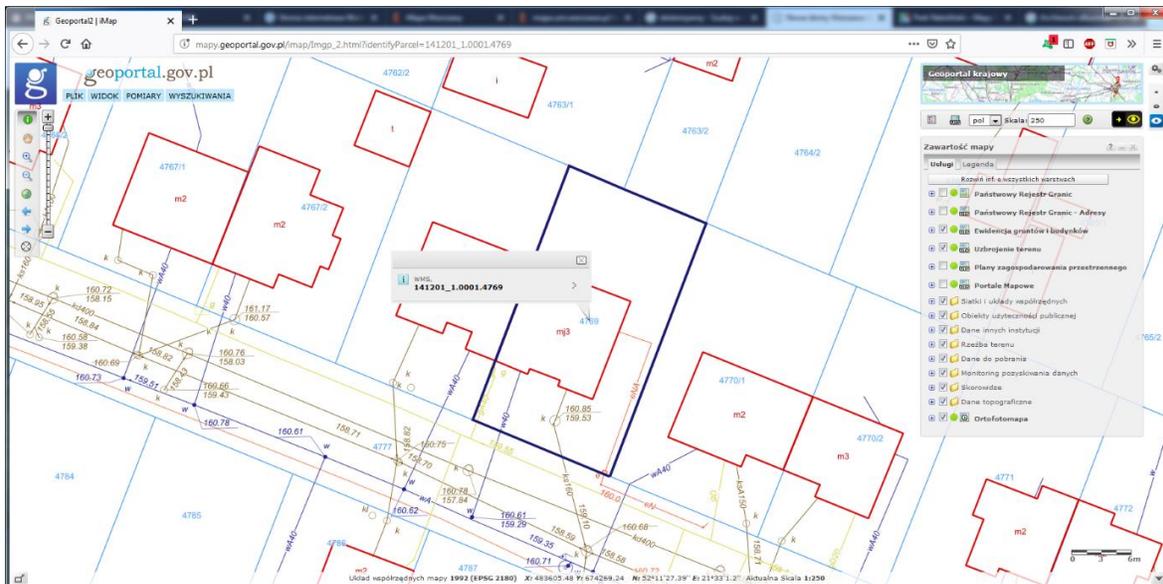


Figure 3 Geoportal map application invoked with plot identifier

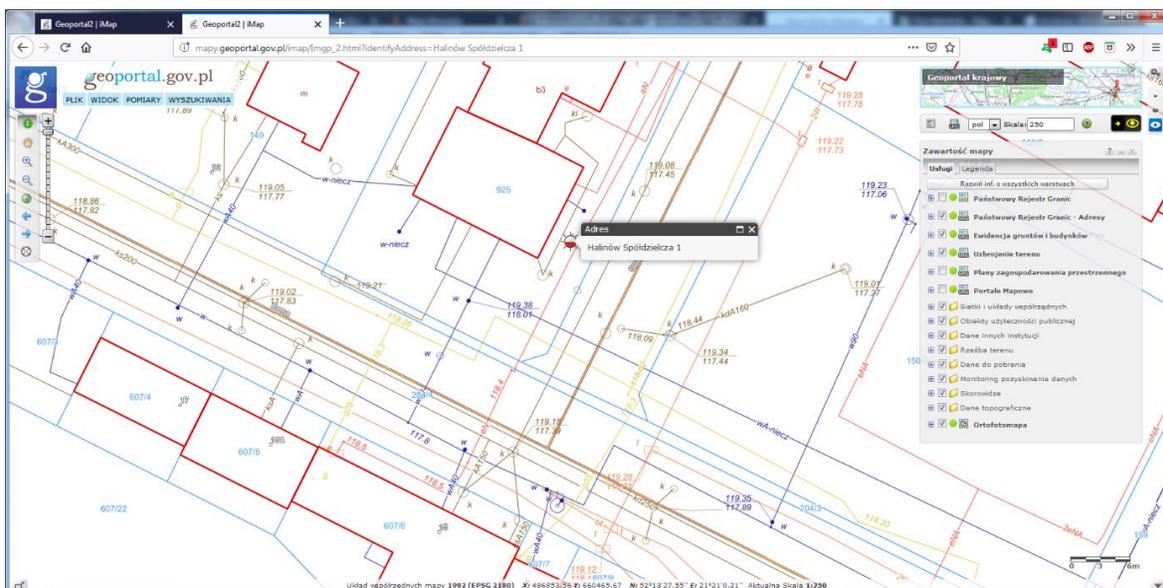


Figure 4 The Geoportal map application invoked with the address

Such a way of invoking is a useful tool for many IT systems in which addresses or parcel identifiers are stored, because the use of the described request makes it possible to easily visualize the place associated with these addresses or plots on the www.geoportal.gov.pl website.

A perfect example of the use of functionality related to the location of a record plot is the Electronic Land and Mortgage Register (EKW) system kept by the Ministry of Justice. In this system from November 2, 2018, a mechanism was introduced to visualize the plots being part of the property implemented by www.geoportal.gov.pl, as shown in Figure 4.

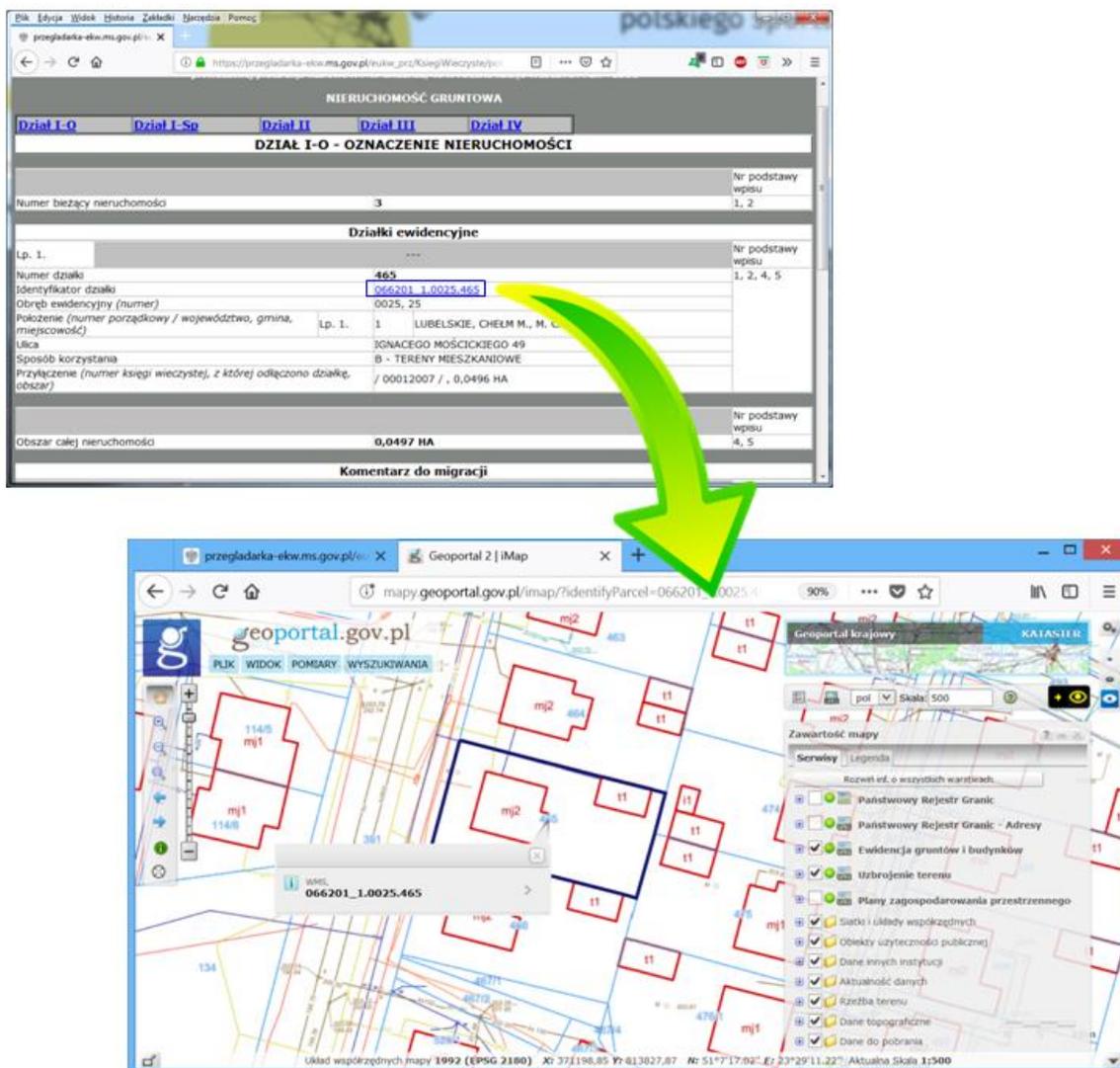


Figure 5 Geoportal map application called with the plot identifier from the EKW system

Another example of the use of this functionality are classified sites, in which the presentation possibilities offered for sale of real estate on the geoportal.gov.pl website are increasingly being made available.

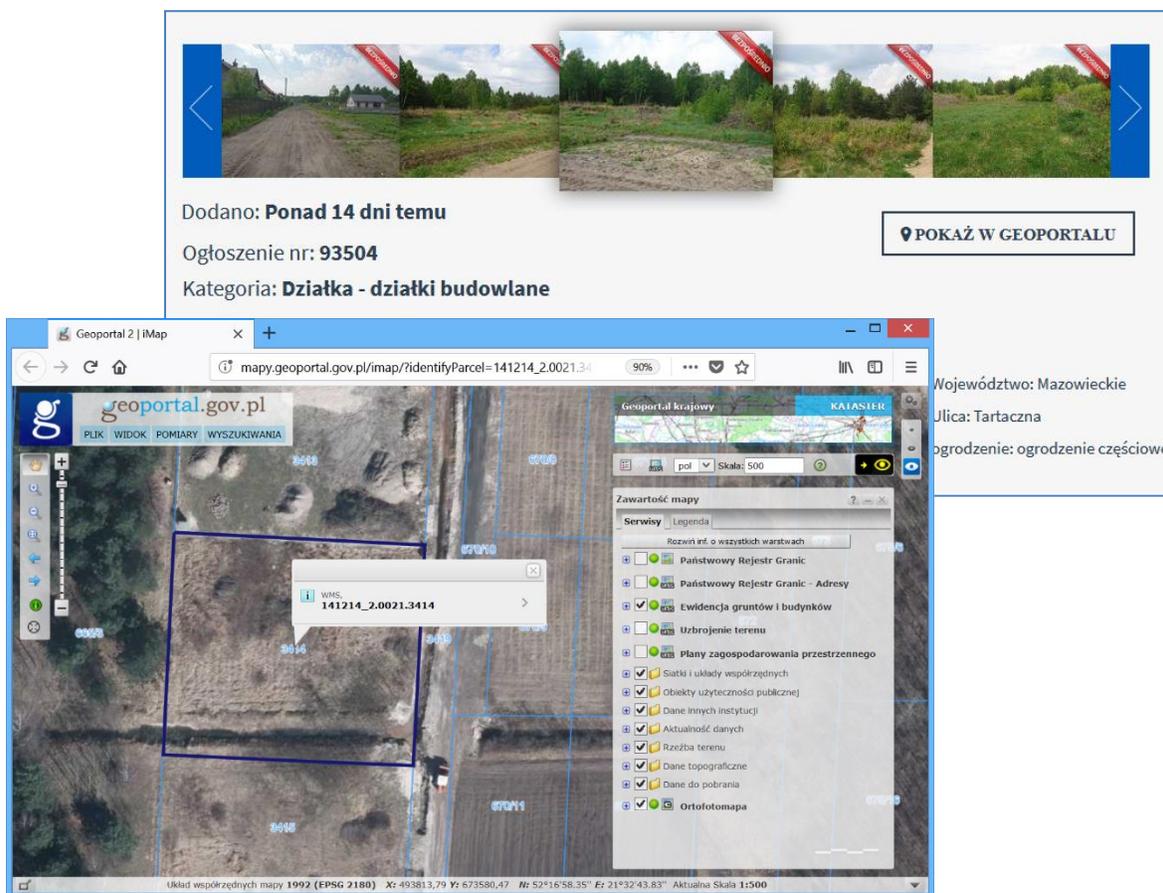


Figure 6 Use case example of the Geoportal service for the presentation of the plot for sale

Such mechanism of invoking the geoportal with the parcel's ID proves useful everywhere where the identifying parcels are entered for the parcels, because it is then possible to run the www.geoportal.gov.pl website with the visualization of the relevant parcel of land.

Center for Spatial Analysis of Public Administration (CAPAP)

Another important system facilitating access to spatial data is the Center for Spatial Analysis of Public Administration. It is a system supporting the publication of spatial data sets by public administration entities. This task is carried out by providing an intuitive application and simple services dedicated to use for people without advanced knowledge of spatial information. Using the CAPAP tools, the user can quickly create his map services based on the technical infrastructure, data and integrated tools provided by GUGiK. The system is available at <http://capap.gugik.gov.pl>. Below is an example of one of the services implemented with the use of CAPAP tools.

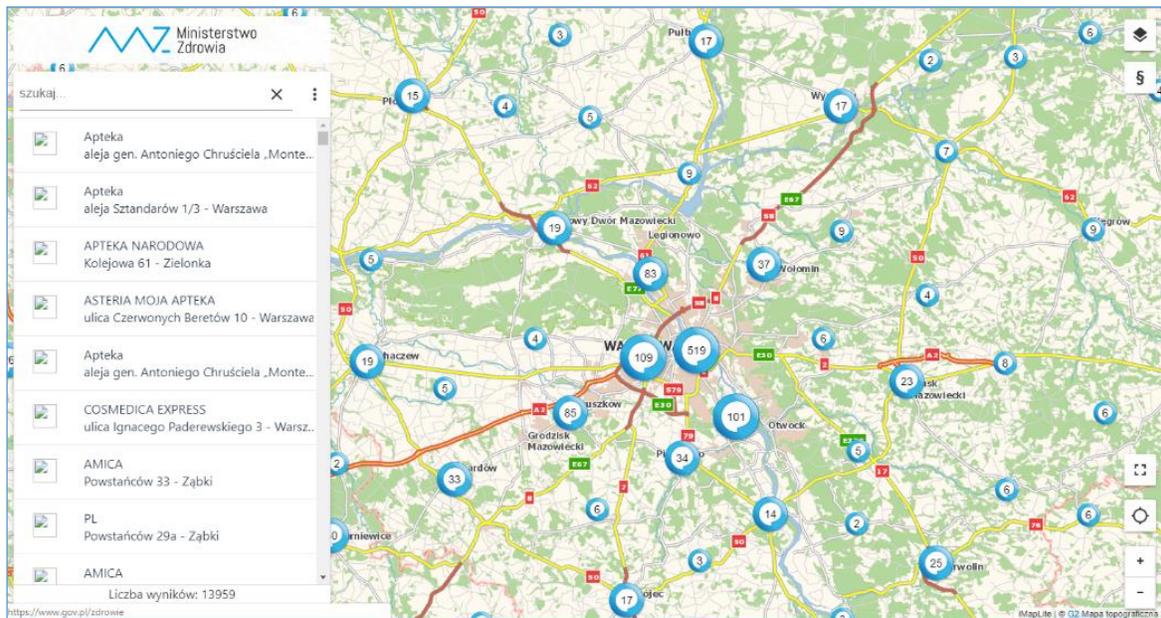


Figure 7 A dedicated CAPAP application depicting the implementation of the e-Prescription program

Examples of spatial data services

The Head Office of Geodesy and Cartography delivers a number of network services used by www.geoportal.gov.pl, which can be also used independently. In particular, this applies to data such as land and building records and land development, which are made available directly from poviats resources and data on local spatial development plans, delivered directly from communes. These solutions aim at providing universally available integrated network services that will enable the use of this data in the state's information systems as well as in systems created by commercial companies.

These services are:

- **KIEG - (National Integration of Land Records) service that provides the ability to generate a map of land and building registers for any area of the country.**
- **KIUT - (National Integration of Terrain Utilities) service that provides the ability to generate a map with utilities for any area of the country.**
- **KIMPZP - (National Integration of Local Spatial Plans) a service that provides the ability to generate a map with a local spatial development plan for any area of the country.**

All the above mentioned activities were triggered by the launch of the ULDK (Cadastral Localization Service) service, which is used to locate plots based on its identifier, the name of the area and plot number or on the basis of X, Y coordinates of any point inside it.

All technical details related to services can be found on the websites of these services, i.e. :

- <http://integracja.gugik.gov.pl/cgi-bin/KrajowaIntegracjaEwidencjiGruntow>
- <http://integracja.gugik.gov.pl/cgi-bin/KrajowaIntegracjaUzbrojeniaTerenu>
- <http://integracja.gugik.gov.pl/cgi-bin/KrajowaIntegracjaMiejscowychPalnowZagospodarowniaPrzestrzennego>
- <http://uldk.gugik.gov.pl>

Statistics show that the KIEG service exceeds 135 million calls in certain months and the monthly number of ULDK calls exceeds 10 million. The majority of service calls are the result of their use by the www.geoportal.gov.pl website, but increasingly also other state and commercial systems use these services intensively. As one of the last examples, one should mention the ISOK system (IT System of Country Protection against extraordinary threats), in which services are used, for example, to automate the creation of proposals in various matters related to water management, Fig. 7.

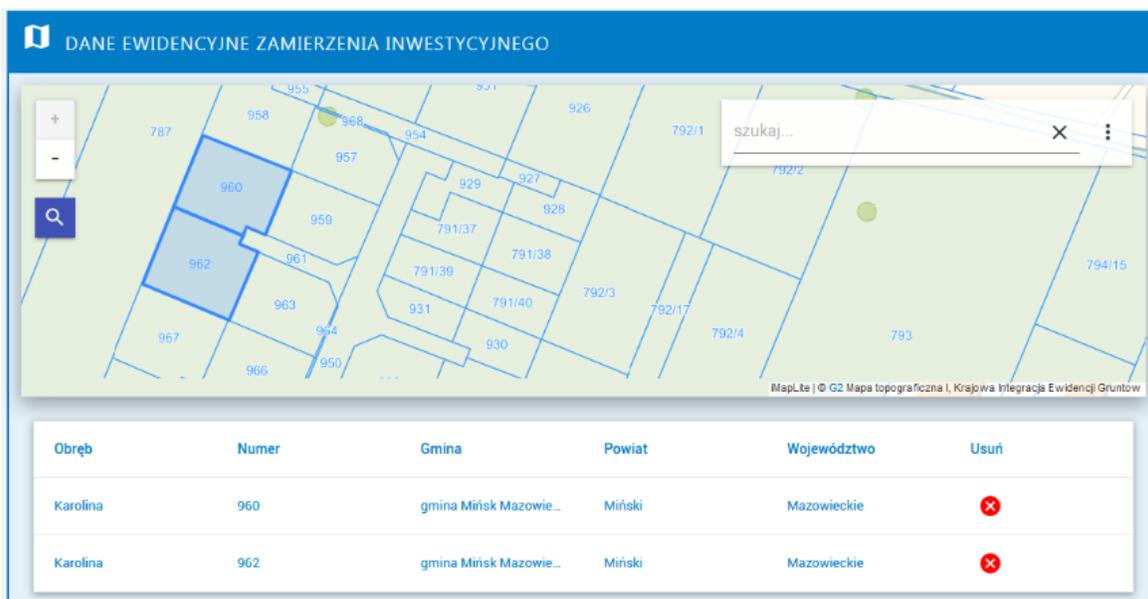


Figure 8 An example of using KIEG and ULDK services in the ISOK system

For the listed services that integrate data from poviats and communes, it is worth adding services related to the presentation of topographic maps and orthophotomaps. The topographic map presentation is available in the WMTS and WMS service at the following addresses:

- http://mapy.geoportal.gov.pl/wss/service/WMTS/guest/wmts/G2_MOBILE_500
- http://mapy.geoportal.gov.pl/wssumm/services/G2_PRGADUMM_WMS/MapServer/WMServer

The service in an accessible and visually attractive manner presents spatial data for the territory of Poland and is suitable for use as underlay maps for the presentation of spatial data of the user.

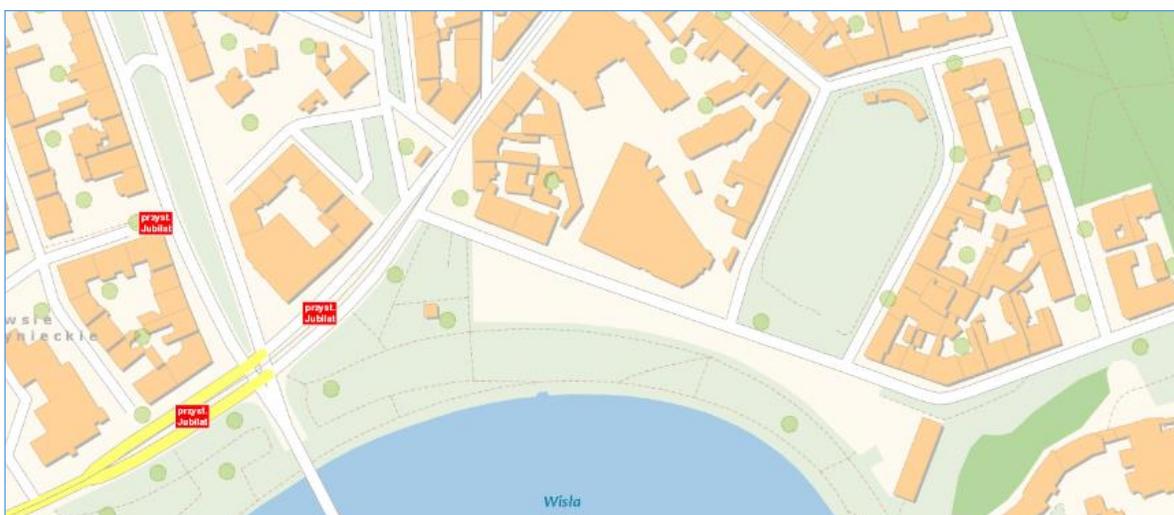


Figure 9 Example of visualization of the underlay map

Presentation of the orthophotomap, i.e. the raster image of the land surface resulting from the processing of aerial or satellite images, is available in two WMTS and WMS services at the following addresses:

- <http://mapy.geoportal.gov.pl/wss/service/WMTS/guest/wmts/ORTO>
- <http://mapy.geoportal.gov.pl/wss/service/img/guest/ORTO/MapServer/WMSServer>

Most of the Polish orthophotomap is made in the 25x25cm standard, and in the urban areas we meet more often pixels with dimensions 7x7cm but in some cases even 5x5cm resolution.

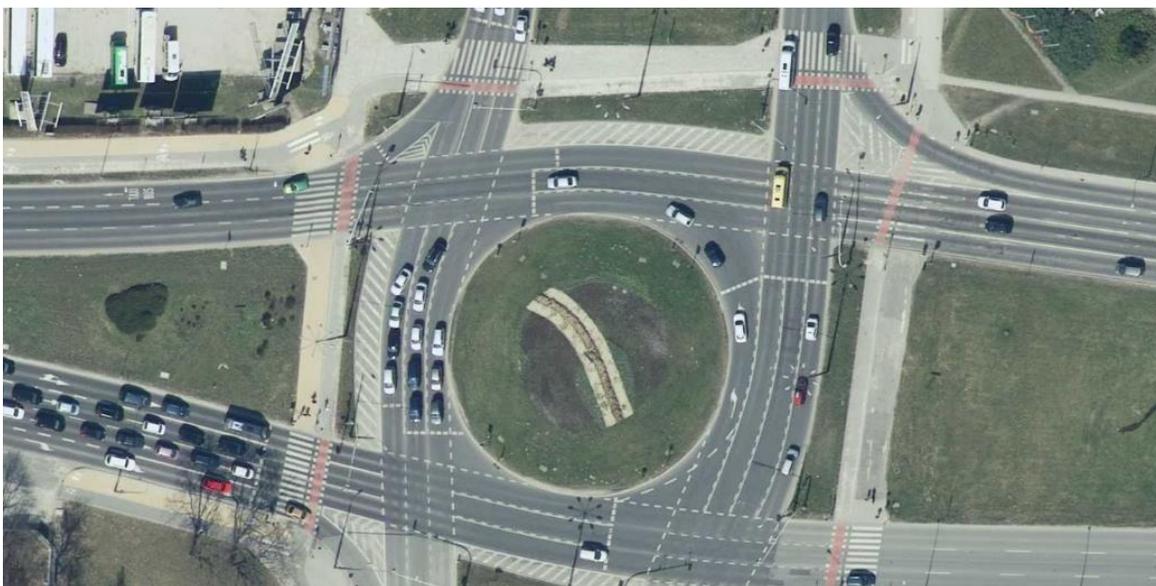


Figure 10 Examples of an orthophotomap obtained from the WMS service

The open interface of presentation services allows for their relatively easy integration with the majority of map applications.

The geoportal.gov.pl website is visited monthly by about 500,000 users and these numbers are systematically increased, because the information offered on the site is useful on both occasions both officials and citizens. The most important for what is important is that the geoportal collects information from many registers and offers them simple access in one place. In the offered very important access you can also get information from many sources, which are a part of the space of interest to the user. All offered services are available free of charge. It encourages all interested parties to use administration services as well as commercial applications.

SDI in Poland - contacts:

Head Office of Geodesy and Cartography

Web: www.gugik.gov.pl

National INSPIRE Contact Point

Web: www.gugik.gov.pl

Geoportal.gov.pl

Web: www.geoportal.gov.pl/en/

Council for Spatial Data Infrastructure

Web: <http://www.radaiip.gov.pl>

[email: gugik.swz@gugik.gov.pl](mailto:gugik.swz@gugik.gov.pl)