

The Cadastre with Respect to the Integrated System of Real Estate Information

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Abstract. The strength of each country is determined by two factors, namely the economy and efficient administration. One of the instruments allowing the administration to perform its tasks is a fully operational system of real estate information, which meets the requirements commonly imposed on the systems of spatial information. This includes such prerequisites as: the reliability of up-to-date information issued from the system, easy access to this information, and ensuring the protection thereof. An effective real estate management system is largely determined by an efficiently operating Cadastre, an institution with a century-old tradition, to which the legislator has assigned specific tasks, and which provides the basis for specific decision-making actions associated, *inter alia*, with the real estate market.

The aim of the paper is to present the scope of work carried out in Poland as part of the development of the Integrated System of Real Estate Information (Polish: *Zintegrowany System Informacji o Nieruchomościach*, ZSIN), and the possibilities for the use of existing information systems with a particular emphasis on cadastral data. The paper defines the tasks, principles and functions of the Cadastre, as well as the indicated direction of changes allowing the Cadastre to be adjusted to the proper operation of the ZSIN.

Keywords: cadastre, Integrated System of Real Estate Information.

Conference topic: Technologies of geodesy and cadastre.

Introduction

All countries have to deal with the management of land and the people to land relationship. They have to deal with the four functions of land tenure, land value, land use, and land development in some way or another. In Western cultures it would be hard to imagine a society without property rights and land-use planning control as basic drivers for development and economic growth (Enemark, Williamson 2011).

Since 1989, real estate, and thus information on it, has become an important element of the economic development and functioning of the State. One can point to the significance of real estate to spatial management and proper spatial planning, the realisation of investments, the tax system, or the activities of government and local government administration. Sources of information on real estate include all kinds of public registers containing actual and legal data used in decision-making processes, necessary for taking measures related to both the optimal management of real estate and ensuring the safety of property transactions. The importance of information constantly increases. Nowadays, hassle-free access to complete, reliable, accurate, and integrated information within a short time is required. Therefore, it is necessary to introduce legal, organisational, and technical solutions in order to fulfil these aims. Such a solution is the development of the Integrated System of Real Estate Information (ZSIN) as an important element supporting the implementation of the strategy of the economic development of Poland, and building the information society. The system is intended to ensure the efficient collection, processing, mutual exchange and sharing of complete information on real estate.

Systems of real estate information in Poland

The rapid development of IT technologies observed in recent years has provided citizens with easier access to public information on the Internet. Information and the ability to process it ensures success in making decision concerning various areas (Konieczna 2011).

In the broadly understood process of real estate management owners and users as well as other entities participate, *inter alia*, banks, courts, notaries, appraisers, managers and intermediaries in property transactions, investors, construction supervision services, and architectural and construction administrative bodies, for which up-to-date, complete information on real estate is a prerequisite for taking appropriate decisions.

When classifying information on real estate in terms of the thematic scope, it can be divided into the following (Małkowska 2005):

- general information describing the type of property, owner or user, and the type of transaction;
- legal information concerning property rights, describing the owner, form of possession or use, and encumbrances of the property;
- technical information containing, *inter alia*, data on the size and shape of a parcel, the type of utilities, the use regime, soil valuation class, technical data concerning buildings, and the technical installation equipment;
- location information listing the location characteristics determining the attractiveness of the real estate, and data concerning the neighbourhood as well as the further environment, and their impact on the property;
- market information containing lists of transactional characteristics, basic information concerning the conducted transaction, rental rates for particular types of real property, and the income received from real property.

In the current legal environment many public registers operate, which contain data related, to a different extents and from various perspectives, to properties, and the entities having the right to these properties. The principal registers include: the Land and Property Register (the Cadastre), land and mortgage registers, and tax records. The basic functions assigned to the registers listed above can be characterised in general terms as follows:

- the Land and Property Register (the Cadastre) – which is maintained in order to provide information describing the location and physical condition of real estate,
- land and mortgage registers – which are maintained in order to determine the legal status of real estate,
- tax records – which are maintained in order to assess taxes and fees.

The above-mentioned systems, which are maintained using IT tools, operate independently based on specific regulations and at various levels of the administrative division of the country; they do not, however, meet the requirements of comprehensiveness, consistency and uniformity in their maintenance, and frequently duplicate the collected information.

Legal regulations concerning the Polish Cadastre are included in the Act of 17 May 1989 – Geodetic and Cartographic Law (Journal of Laws of 2015, Item 520) and in the Regulation of Minister of Regional Development and Construction of 29 March 2001 on land and property registers (Journal of Laws of 2015, Item 542 as amended). Pursuant to Article 2 (8) of the mentioned Act, the Land and Property Register (the Cadastre) is a “uniform for the country and regularly updated set of information on land, buildings and premises, their owners and other natural or legal persons holding this land, buildings and premises”. Keeping the Cadastre has been entrusted, as a task of the governmental administration, to ‘starosts’ and mayors of cities with county rights.

The Land and Property Register includes data on the following:

- land – its location, boundaries, surface area, the type of land use and soil valuation classes, and the designations of land and mortgage registers or sets of documents;
- buildings – their location, intended use, occupancy, and general technical data;
- premises – their location, occupancy, and floor space;
- property owners, and in the absence of documents based on which the owner can be determined, persons and other entities who hold this land on the principle of autonomous possession, and the place of permanent residence or the address of the entity’s registered office;
- an entry into the register of historical monuments;
- cadastral value of the property;
- information as to whether the area of the land distinguished in the Land and Property Register is covered, in whole or in part, by some form of environmental protection;
- contracts of lease if the acquisition of rights deriving from regulations on social insurance for farmers as well as from regulations on the development of rural areas depends on the demonstration of such information in the Land and Property Register.

The data included in the Land and Property Register provide a basis for economic planning, spatial planning, the assessment of taxes and benefits, designation of property in land and mortgage registers, public statistics, real estate management, and the register of agricultural farms.

A public register closely linked to the Land and Property Register is the land and mortgage registers, i.e. a system responsible for the registration of the legal status of property in terms of property rights and other rights, restrictions and claims, maintained in Poland by judicial authorities. The regulation governing the system of land and mortgage registry is the Act of 6 July 1982 on land and mortgage registers and mortgage system (Journal of Laws of 2013, Item 707, as amended). The principal function of land and mortgage registers is to determine the legal status of property, and land and mortgage registers act in this regard as a public, common, and transparent register of property rights, providing a basis for the security of legal transactions and mortgage loan collateral. Land and mortgage registers are maintained separately for each property. Until 2003, land and mortgage registers were maintained in the form of paper documents. At the end of 2003, the implementation of a new, electronic land and mortgage register system was initiated, and several million of the previous paper land and mortgage registers have been recorded in the Central Database of Land and Mortgage Registers since then. The electronic land and mortgage register is similar in its structure to the

register maintained in paper form as it is also divided into four sections including the following information: Section 1: designation of the property and a list of rights related to the ownership; Section 2: designation of the owner or perpetual lessee; Section 3: restricted property rights; and Section 4: the mortgage system.

The system of tax records for real property plays a special role in the communal/municipal information system. Currently in Poland, three types of taxes are paid: agricultural tax, forestry tax, and real estate tax. Therefore, the existing system of property taxation comprises three taxes with a very similar subject, i.e. broadly understood real property. In principle, the real estate tax has the widest material scope as it is put on land, buildings, structures, and premises. On the other hand, the subject of agricultural and forestry taxes only includes land. Currently, the basis for tax assessment is the criterion of surface area. For each property being the subject of taxation, tax authorities maintain a database containing information on the object of taxation (the owner, the perpetual lessee, the lease-holder) and the subject of taxation (the surface area of land, type of usage and soil valuation class, the floor area of buildings and premises). In accordance with the legislation in force, the basic criterion for determining the method of taxation is the data deriving from the Land and Property Register.

Another information system which is important from the perspective of proper real estate management is the local area development plan, i.e. the basic planning document (ordinance) in a municipality, drawn up in order to establish the intended use of land, and to determine the manner of land development and management. The area development plan serves a very important regulatory function in the market economy. It can be an efficient “brake or a driving force” for the real estate market, particularly in the case of land exempt from agricultural production, or charges for an increase in the value. The local plan is a publicly accessible document consisting of a drawing of the plan presented on the principal or cadastral map, and in formal and legal documentation. Currently, local area development plans are maintained in a numerical version, which facilitates access to descriptive and graphical information contained in the plan, quick preparation of extracts from the plan in the form of both text and drawings, the performance of spatial analyses, and preparation of balance sheets for land based on the plan data, e.g. searching for areas meeting specific conditions.

Each of the above-mentioned systems provides information on real estate in various thematic scopes: physical, legal, fiscal, or planning. Nowadays, obtaining complete, integrated, reliable, up-to-date, spatially imaged information within a short time is necessary. Therefore, it is required that legal and organisational solutions be introduced, which will ensure the proper fulfillment of these aims. Such a solution is undoubtedly the Integrated System of Real Estate Information, which will ensure the efficient collection, processing, mutual exchange and sharing of information on real estate. The ZSIN is intended to serve many users, and to ensure the cooperation and harmonization of numerous databases.

The development of the integral system of real estate information (ZSIN) in Poland

The legal basis for the development of the Integrated System of Real Estate Information (ZSIN) in Poland is the Act of 17 May 1989 – Geodetic and Cartographic Law (Journal of Laws of 2015, Item 520, as amended) and the Regulation of the Council of Ministers of 17 January 2013 on the Integrated System of Real Estate Information (Journal of Laws of 2013, Item 249), which specifies in detail the issues associated with the development of the system, *inter alia*:

- the manner, mode, and technical standards for the development and maintenance of the ZSIN,
- the content, form, and manner of transferring notifications on changes to data introduced into particular public registers, being of significance to other public registers integrated into the ZSIN.

The Integrated System of Real Estate Information is an ICT system integrating information on real estate originating from various public registers; for the establishment of the system, the Surveyor General of Poland has been obliged to cooperate with starosts, provincial governors, and provincial marshals as well as the Minister of Justice, the minister in charge of internal affairs, the minister in charge of public finance, the minister in charge of the environment, the President of the Central Statistical Office, and the President of the Agency for Restructuring and Modernisation of Agriculture (ARiMR).

The system, pursuant to the provision of Article 24b(1) of the Act on Geodetic and Cartographic Law, is intended in particular to enable the following:

1. maintaining the central list of copies of sets of data related to the Land and Property Register,
2. monitoring, at provincial and country levels, the consistency and quality of the sets of data related to the Land and Property Register,
3. exchange of data in the form of electronic documents between the Land and Property Register and other public registers, such as: the land and mortgage register, the National Register of Boundaries and Surfaces of the Territorial Division Units, the National Official Register of National Economy Entities, the National System of Producers’ Registration, the Register of Agricultural Farms, and the register of applications for payment, within the scope required for maintaining these public registers, and the transfer, in the form of electronic documents, of notifications of changes to data introduced into particular public registers, being of significance to other public registers incorporated into the Integrated System of Real Estate Information,

4. checks on the data indicated in the application and on the designation of property, including the Cadastre data, demonstrated in the land and mortgage register, performed by the courts maintaining land and mortgage registers,
5. verification of the consistency of the data related to the Land and Property Register against the data contained in land and mortgage registers, the Universal Electronic System for Registration of the Population (PESEL), the National Official Register of National Economy Entities (REGON), and the National Official Register of the Territorial Division of the Country (TERYT), as well as obtaining data contained in these registers for the needs of the Land and Property Register,
6. providing public administration authorities with integrated sets of data related to the Land and Property Register necessary for the performance of statutory public tasks by these authorities, in particular for the needs of economic planning, spatial planning, the environment, real estate tax records, maintaining the National Official Register of National Economy Entities, maintaining the National Official Register of the Territorial Division of the Country, taking censuses and the performance of statistical studies, State control, combating corruption, and internal security.
7. the performance of spatial analyses on sets of data related to the Land and Property Register, covering areas greater than one *powiat* (district).

In 2004, the Council of Ministers issued the Regulation on the establishment of the Representative for the Governmental Programme for the development of the Integrated System of Real Estate Information (Journal of Laws of 2004 No 264, Item 2631, as amended). The tasks of the Representative include, *inter alia*: the coordination of work on the implementation of the Governmental Programme for the development of the ZSIN, monitoring the implementation of the Programme, and taking measures in order to obtain funds from domestic and foreign sources.

The work on the implementation of the ZSIN project was divided into two stages. The period of the implementation of Stage 1 of the project was planned for the years 2013–2015. The project was co-funded by the EU from the Operational Programme “Innovative Economy” 2007–2013, under the 7th priority axis “Information society – establishment of electronic administration”. A beneficiary of the project is the Surveyor General of Poland.

The principal aim of Stage 1 of the ZSIN project is to improve the operation of public administration as regards the use of data on real estate, collected in various public registers, through the implementation of modern IT solutions. The principal aim was further clarified with detailed aims (Projekt ZSIN... 2015a):

- 1) providing citizens and enterprises with direct on-line access to data related to the Land and Property Register,
- 2) saving time and reduction in costs borne by businesses and public administration using cadastral data,
- 3) raising public awareness about the possibilities and benefits of the use of electronic channels,
- 4) the development of the sector of public services provided by electronic means,
- 5) ensuring communication between public administration systems.

The scope of Stage 1 of the ZSIN project includes measures taken in the following areas:

- the development and implementation of the ZSIN,
- the development and implementation of a data quality model,
- adaptation of the existing infrastructure to the needs of the ZSIN,
- modernisation of the Land and Property Register,
- data harmonization,
- the development and implementation of standards for the establishment and maintaining data consistency between public registers being part of the ZSIN,
- support for starosts as regards maintaining the Land and Property Register.

As part of Stage 1 of the ZSIN project, e-services will be made available primarily to judges and public administration. A citizen or an enterprise will only have an opportunity to view information on real estate, originating from the Land and Property Register, via the GEOPORTAL mechanism.

The project is continued as Stage 2 of the ZSIN project, and its implementation was planned for the years 2015–2018. It is funded from the Operational Programme “Digital Poland”, 2nd priority axis: E-administration and open government, measure 2.1. High accessibility and quality of public e-services.

Stage 2 includes measures relating to:

- improving access to information and data on real estate,
- increasing the quality and reliability of data related to the Land and Property Register resulting from the modernisation thereof (continuation),
- incorporation into the ZSIN of a portal for average transaction prices for land, developed land and premises, based on data from the register of property prices and values, sets of data of the Central Geospatial Database on Historical Monuments, the Central Register of Forms of Environmental Protection, and standardised local area development plans,
- implementation of e-services within the entire country, in particular: a service for the publication of information on average transaction prices, a service for the harmonization of public registers of significance to the ZSIN, a service for the assessment of the integrity and consistency of data related to the Land and Property Register, and

a service for transferring selected information originating from notarial deeds via standardised electronic documents to the registers incorporated into the ZSIN.

Final benefits of the Project – Stage 2 include (Projekt ZSIN... 2015b):

- improving processes of information exchange between public registers,
- an increase in the quality and reliability of data,
- enhancement of the efficiency of costly administration,
- an improvement in the image of public registers as a reliable source of data,
- an increase in public satisfaction with public services.

The role of the cadastre in the development of the ZSIN

The primary role in the integrated system of real estate information under implementation is played by the Cadastre. This results, *inter alia*, from the characteristics of the system:

- it is constantly updated, and covers the entire territory of the Republic of Poland,
- it is maintained by public administration authorities in accordance with uniform legislation,
- it is maintained in an electronic format,
- the data extracted from the system are of an official nature,
- it contains detailed data at the level of cadastral parcels, and serves the needs of the owner and the society for the support of the system of taxation of real estate, monitoring the real estate market, protection of land held in public ownership, reduction in disputes over boundaries and ownership, spatial planning and the development of infrastructure, environmental protection, and the production of statistical data.

Due to the particular significance of the Land and Property Register (the Cadastre) in the development of the ZSIN, measures are necessary to ensure the completeness and appropriate quality of the data contained in this Register, and their harmonisation with systems being part of the ZSIN.

The quality of the data demonstrated in the Land and Property Register has been contributed to by many factors. Historical determinants were of particular significance. The development of the cadastral system on Polish territory was influenced by the solutions adopted by invading states. The Land and Property Register was established based on source maps of the Prussian, Austrian, and Russian cadastres. The specificity of maintaining the variety of units of measurements and measurement methods, and the inappropriate quality of these materials determines the low quality of the current register. Another factor is the political transformations in Poland after 1989, and the approach to the right of ownership. When establishing the Land Register based on the Decree of 2 February 1955 on the land and property register, the ownership of property was treated marginally by demonstrating in the documentation of the possessor, and by establishing the boundaries of cadastral parcels according to the factual, peaceful possession status and not according to the legal status. A consequence of this procedure is the boundary litigations, frequently lasting until the present day, and ending in judicial delimitations.

Currently, the Polish Cadastre is in a period of change. Strengthening the right of ownership, a change to the principles of spatial management, and the development of spatial information systems are just some of the factors bringing about changes to the approach of the institution of the Cadastre. In recent years the Geodetic and Cartographic Service has been principally focused on the improvement of the quality of the data contained in the Land and Property Register through, *inter alia*:

- the conversion of analogue cadastral maps into numerical (vector) maps,
- supplementation of register documentation with data related to buildings and premises,
- regular data updating,
- bringing the cadastral data into consistency with standards.

Currently, sets of descriptive data related to the Land and Property Register cover the area of the entire country, and are 100% maintained in a digital form; however, the sets including descriptive data concerning land, buildings and premises cover 89% of the area of towns and cities, and 56% of rural areas. The coverage of the areas of towns and cities by the digital cadastral map amounts to 96% of their area, while for urban areas the coverage amounts to 80% of their area.

The entry into force of the Regulation on the Integrated System of Real Estate Information, and the role played by the Cadastre in the development of the system, provided the basis for the issue of the Regulation of the Minister of Administration and Digitization of 29 November 2013, amending the Regulation on the Land and Property Register (Journal of Laws of 2013, Item 1551). The aim of the amendment was to adapt the existing provisions of the Regulation of 2001 on the Land and Property Register to the newly issued legal provisions, to harmonise sets of data related to the Land and Property Register with other sets, and to introduce GML as a data format for the Land and Property Register. The implementation of the full functionality of the ZSIN requires further, broadly understood measures to modernize the Cadastre, and its harmonization with other databases. The target status of the data related to the Land and Property Register (the Cadastre) requires that measures be taken in order to:

- maintain an integrated base of descriptive and cartographic (vector) data in the information system,

- introduce data for all objects (building and premises) into the database,
- supplement the descriptive attributes of objects required by the Regulation,
- determine the coordinates of the boundary points of parcels with the required accuracy,
- harmonize the data related to the Land and Property Register with the legal status demonstrated in land and mortgage registers or other documents constituting the acquisition of property ownership.

In order to streamline the process of the modernization of the Land and Property Register, new technologies are currently used. The amended provisions concerning the Land and Property Register sanctioned, e.g. the application of the photogrammetric method for the determination of the course of boundaries. This is provided for in § 37(2) of the Regulation: “the determination of the course of boundaries of cadastral parcels, including the location of the boundary points setting them, may be performed based on either aerial or satellite imagery or an orthophotomap, provided that the imagery or the orthophotomap is characterised by a resolution ensuring the visualisation of situation details which may be of significance when determining the course of these boundaries”.

Land and mortgage registers have also been adjusted to the needs of the ZSIN by the establishment of a New Land and Mortgage Register in the electronic system. In accordance with the statutory provisions, the Central Information of Land and Mortgage Registers, referred to as Central Information, is intended to provide information from the central database of land and mortgage registers. Central Information via the ICT system allows everyone who knows the number of the land and mortgage register maintained in the information system to have free-of-charge access and view the register.

For the needs of the development of the ZSIN, tax authorities were also obliged to improve the operation of municipal registers of taxes and fees, and to adapt these registers to interoperate with the system of the land and property register.

Conclusions

The evolution of the cadastre has always been associated with adaptation to the current economic and social needs, while the method of implementation was dependent on available technology (Śliwiński 2012). The Cadastre, treated in Poland synonymously with the notion of the land and property register, is the basic information system providing data for the needs of proper real estate management. The evolution which is taking place in the system results from a series of factors, including:

- legal factors (possessing information as a basis for taking political and economic decisions);
- environmental factors (information from the cadastral system is helpful in the response to natural and anthropogenic hazards);
- technological factors (cadastral data as an important component in spatial analyses);
- socio-economic factors (linking the Cadastre with the financial market; the Cadastre is intended to provide information in order to safeguard the interests associated with real estate).

The current measures aimed at the modernisation of the Polish Cadastre are associated with the Development of the Integrated System of Real Estate Information, whose primary aim is to ensure access to complete, reliable, up-to-date, and integrated information on real estate, made available to the entire country via geoportal.gov.pl. The implementation of the full functionality of the ZSIN requires broadly understood measures to modernise the Cadastre, and its harmonization with other databases. The possibilities for the use by geodetic services of EU funds in the perspective of funding for the years 2016-2020 offer unique conditions for the improvement of the quality and reliability of the data generated in public registers maintained by the Geodetic Service.

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