

Paweł Hanus\*, Ryszard Hycner\*

## Surveying Aspect of Registration of Land Information in Poland\*\*

### 1. Introduction

Land information is a term of rather wide meaning [3]. Generally, one can classify land information as a surveying and legal information. The latter concerns various right assigned to real estate. The former concerns, in turn, wide range of information including both location of objects and groups of attributes, describing their features. This kind of information we will call later “land information in surveying aspect” or shorter “surveying information”. This is a brief idea of range and kind of land information in Poland. One can assume that this problem is similar to other countries.

Surveying information in Poland is obtained during various measurements. Their results are data<sup>1</sup>, which in turn can be processed to demanded shape. Thus, they will be first of all maps in digital (vector or raster model) and analogue form, lists, registers, tables, and so on. Both raw and processed data are in turn registered and kept in special places called “surveying documentation centres”. We will call them later shortly “documentation centres” or “centres”.

One should mention, that documentation centres play very important role in Poland [2]. Although their aim is mostly registration and keeping surveying information, yet their task is also supervising and inspection of quality of surveying works. We will discuss this problem in the next points of the article.

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\* AGH University of Science and Technology, Faculty of Mining Surveying and Environmental Engineering, Department of Geomatics, Krakow, Poland

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<sup>1</sup> There is a difference between terms “information” and “data”. According to [1] “data” is representation of information, suitable for communication, interpretation or processing, while “information” is a knowledge gathered through interpretation these data. Nevertheless, these terms are little differentiated, for the most part, and used changeably.

One should also remark, that the whole technical surveying documentation, kept in centres in various forms and shapes, creates so called “state surveying data store” also named shorter “surveying data store”, “data store” or even “store<sup>2</sup>”. Its functioning is regulated by act [12]. Data store are used, among others, for:

- real estate description in land register,
- real estate management,
- spatial planning,
- calculating yearly land taxes,
- verifying subventions to agricultural farms in IACS system according to European Union rules,
- statistical purposes.

## 2. Surveying Documentation Centre and Its Tasks

The whole surveying data store is the property of state and functions on three levels, accordingly to the administrative partition of the country<sup>3</sup>. Thus, one can distinguish in Poland:

- country store – managed by General Surveyor of Poland,
- province stores – each managed by head of province<sup>4</sup>,
- districts (local) stores – each managed by head of district<sup>5</sup>.

One should remark, that such classifications comes from necessity of dividing all surveying information according to the importance of information and its level of minuteness of detail. It means, there is one country surveying data store in Poland. Moreover, there are 16 provinces data stores and about 380 districts data stores, including 65 districts data stores created for big towns being treated as districts themselves. It should be also added, that it is possible a case when commune data store is created<sup>6</sup>.

The structure of surveying data store in Poland is shown on figure 1.

<sup>2</sup> It can be explained as a big collection of all geodetic, cartographic, surveying and mapping documents, made by surveyors, existing in many possible forms, like raw data, maps, protocols, data-bases, etc, serving not only surveyors and administrative offices for many purposes but also those individuals who are interested in using them. So, the term “store” only approximately translates in English the spirit of the text of act [12], where this problem has been written down.

<sup>3</sup> Poland’s territory is partitioned into 16 provinces, about 380 districts and about 2500 communes. Each province is divided into districts. Each district is divided, in turn, into communes. Nevertheless, taking into account a fact, that each mentioned unit is self-governed, there is no dependency between them. Yet, although each unit has own authorities selected through common elections, it is inspected and supervised by government representative (voivode) nominated by Prime Minister in each province. Voivode supervises all self-governed authorities in province.

<sup>4</sup> Marshal of province – fulfilling self-governed tasks.

<sup>5</sup> Starosta – in Polish. There is no good equivalent in English.

<sup>6</sup> According to act [12] commune can run surveying data store within its territory, under some conditions determined in act [12] and order [11].

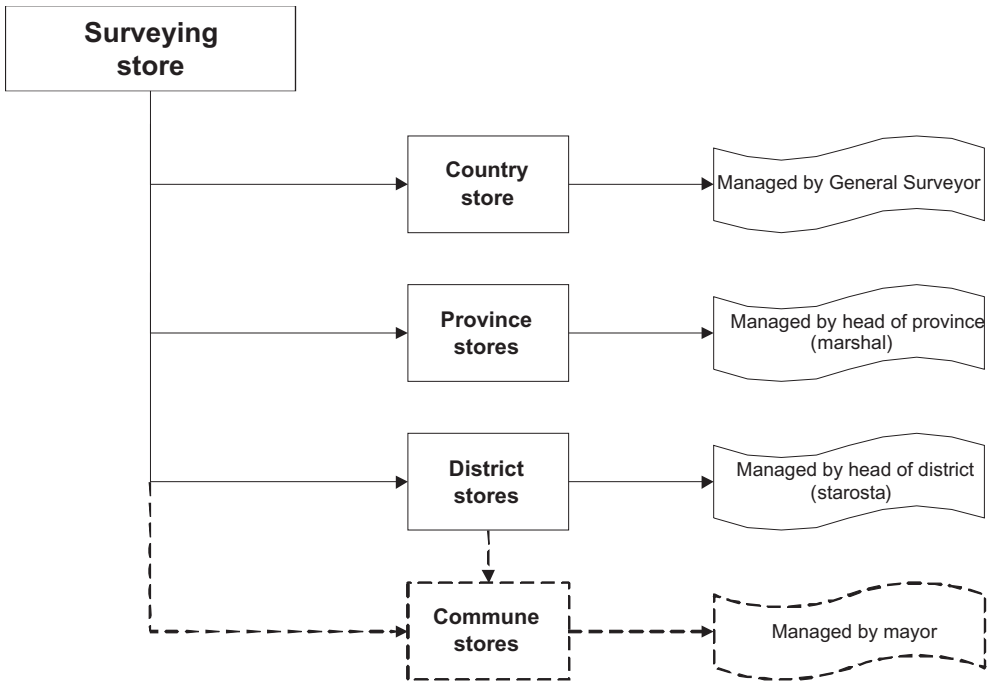


Fig. 1. An outline of structure of surveying data store and its managing in Poland

Stores are kept in mentioned earlier surveying documentation centres. According to this statement there are country surveying documentation centre, province surveying documentation centres and district surveying documentation centres. There can also exist communes surveying documentation centres in some cases. Documentation centres are usually located in solid buildings, properly saving documentation from serious damages like fire, flood etc. Moreover documents must also be perfect protected from robbery. Staff of documentation centre must be well educated in surveying and must have professional authorization for verifying and supervising surveying works. Staff must also have broad knowledge in surveying in order to accept surveying works, done by surveyor. It is worth remarking, that managing of stores on all levels, according to [12], is made as task of government competency.

In country store, the most important country documentation and surveying data are kept. In turn, in provincial store, the most important regional documentation and surveying data are kept. Finally, in district and commune store the most important local documentation and surveying data are kept. Data registered and kept in district store are the most detailed and the most frequently used by professionals surveying data.

District documentation centre has many tasks to perform:

- registering data – in the shape of field and cameral documentation, being final result of surveying work,
- keeping data in digital (files, databases) and analogue (maps in traditional shape, sketches, field notes, etc) form,
- processing data into demanded shape,
- making data accessible in various kinds,
- updating,
- taking notes of submits by professionals of surveying works<sup>7</sup>,
- acceptance surveying works to data store,
- service of parties being interested in data store and furnishing parties with necessary information,
- collecting payments for various activities of surveying centre,
- supervising and inspecting of being performed surveying works.

District surveying documentation centre is an office and is managed by head of district. Usually, head of district in this case is stood for a chief of centre – authorized by head of district. Because of the fact, that the centre is an office, a chief of the centre passes administrative decision of different kinds in various cases. They concern activities of centre and its competency (for example: decision of refusing acceptance surveying work to data store). Taking into consideration that administrative proceeding is of two-stages, party can appeal against such decision to provincial surveying supervisor to be under voivode authority.

Surveying documentation centre exerts significant influence on quality of surveying works performed by professionals, through correct performed tasks mentioned above. So, it can reasonably be called “surveying police”. It plays significant role in keeping accuracy and reliability of surveying works.

### **3. Range and Kind of Registered Surveying Data in Documentation Centres**

According to act [12], in Poland for the whole territory, sets of spatial data are registered and kept in surveying centres functioning, as it has been mentioned, on three levels: country, province and district ones.

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<sup>7</sup> There is an obligation in Poland, in the relation to majority of measurements, that surveyor must submit them to suitable documentation centre. The subjects of submitting are these works, which results change field information (for example: real estate subdivision).

### 3.1. Surveying Data of Country Documentation Centre

In country documentation centre there are, among others, the following data:

- fundamental geodetic networks of Ist class and documentation of mathematical dependencies between geodetic country references coordinate systems,
- documentation of astronomic, satellites, gravimetric and magnetic measurements,
- original of aerial and satellites photos in digital form,
- topographic maps,
- photomaps and orthophotomaps of great importance,
- documentation of state borders measurement and provinces borders,
- country register of borders and register of areas of territorial units of the state,
- thematic maps of country importance.

### 3.2. Surveying Data of Province Documentation Centre

In province documentation centre there are, among others, the following data:

- photomaps and orthophotomaps of regional importance,
- province databases of country land information system,
- thematic maps of regional importance.

### 3.3. Surveying Data of District Documentation Centre

In district documentation centre there are, among others, the following data:

- detailed networks of IIrd and IIIrd class, fixed control serving for direct measurements and also documentation of dependencies between country coordinate reference system and local reference systems,
- documentation of networks in local reference systems,
- documentation of measurement of district borders and communes borders contained within it,
- base map<sup>8</sup> and digital terrain model,
- photomaps and orthophotomaps of local importance,
- cadastre and data of real estate common appraisal,
- surveying register of sets of underground utilities<sup>9</sup>,
- documents of land consolidations and agricultural works,
- local databases of country land information system,
- thematic maps of local importance.

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<sup>8</sup> Base map is created in scales 1:500, 1:1000, 1:2000 i 1:5000, depending on type of land (developed, agricultural and forest) and is made in layers shape (layer – detailed situation, layer – relief, layer – underground utilities and layer – cadastre). Base map has been worked out for about 40% of Poland's territory, nowadays [13].

<sup>9</sup> In Poland, there is a register of data of all underground existing utilities, called surveying register of underground utilities sets. It collects both spatial and descriptive data of these sets. Its acronym in Polish is GESUT. It is managed by head of district.

### 4. Administrative-Technical Principal Activities in Surveying Documentation Centre

Surveying centre does generally many various activities in the relation to ranges of surveying works. There are mainly: updating data, collected in centre, accepting documentation to store and eliminating documentation from store, verifying surveying works and rendering surveying information store accessible.

These activities are especially visible in district (local) centre. Thus, all mentioned activities will be shown on the basis of such centre, as a good example if idea of

#### 4.1. Updating Surveying Data in Documentation Centre

Surveying data, received through measurements are registered and collected in suitable documentation centre. In order to use them properly, they must be updated.

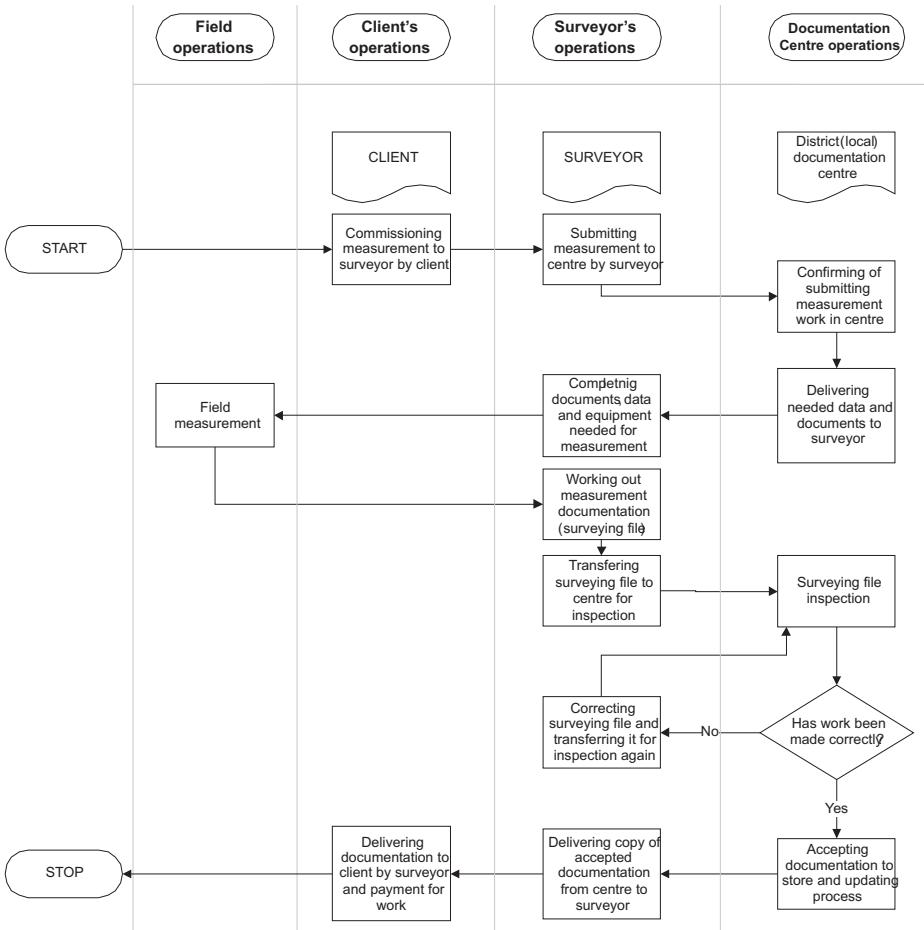


Fig. 2. Graph of operations done in local centre connected with surveying works and updating land information

Updating data, collected in centre, is usually performed permanently. Data are updated through inserting results of new measurements into existing documents like maps, registers, lists, etc. There are two ways of updating: traditional (manual) and digital. In some cases, also so called “complex updating” is performed, concerns one kind of surveying work. It usually takes place, when majority of gathered data do not fit to real situation in the field. As an example of complex updating may serve process of cadastre modernization, performed for the whole cadastral units. They are usually villages, little towns or quarters of big towns.

Updating is usually performed in the centre through digital way. Graph of operations, connected with performing surveying work, including updating process, made in district (local) centre is shown on figure 2.

#### 4.2. Accepting Documentation and Excluding Documentation from Store

Accepting surveying documentation is an activity of centre depending on including data contained in surveying file into database store, and issued suitable statement of a fact that documentation is up-to-date, data inside it are correct, reliable and suitable accurate. It is made in the shape of stamp and signature of the chief of the centre. Such stamp and signature is also put on the copy of documentation, reserved for client.

Activity of the centre also depends on recording out-of-date data in archive centre.

Each file (both in traditional or numeric kind) included to store, contains three parts:

- **basis** part – contains source surveying documents and data (for example: field sketches, original drawing map) being the ground for next works,
- **useful** part – contains surveying documents and data (for example: list of coordinates) serving for direct use and render them accessible for surveyors,
- **temporary** part – contains surveying documents and data do not belong to basis and useful part (for example: various computations, maps of field reconnaissance) being only auxiliary source of land information.

Documentation, collected in surveying store can also be excluded. One should add, that after passing three years from accepting documentation to store, temporary part is excluded from store, automatically. Documents of basis and useful kind which lost their value, when they were destroyed or damaged can also be excluded from store on the submit of the chief of documentation centre to special commission. Commission decides if documents can be excluded from store or not.

Excluding documents depends on moving them to proper state archive or damaging them.

### 4.3. Verifying of Made Surveying Work

Made surveying work, after submitting it to centre, must be verified before it has been sold to client. Verifying process is also performed in the centre. Only correct made surveying work, being in accordance with common accepted technical rules, can be included to store.

Documents reserved for client, get then suitable stamp and signature, confirming the fact of accepting them as correct, good and reliable source of land information. Such documents can only be the basis for next works connected with land (for example: for project of subdivision, and next for making a decision by mayor approving subdivision). One can also mention here projecting new buildings structures by map, accepted to store being fully up-to-date. One can classify inspection activities into formal and essential one. Formal inspection depends on checking on completeness of documents included in surveying file, completeness information contained in the following parts of file and checking all terms concerning surveying work. Essential inspection deals with correctness of performing all parts of work.

### 4.4. Rendering Data Store Accessible

Data stored in documentation centre are used not only by surveyors but also by individuals and institutions. Rendering data store accessible is payable activity, for the most part. Only data, serving such institutions as: public prosecutor's office, courts or state inspection organs, can be used by them gratuitously [12]. Access to cadastral data collected in store is possible only for persons or institutions having business in use them. So, except owners and possessors having other rights to land, data can be used by state institutions if they need such data for various purposes. Access to store also have surveyors if they make measurement and need suitable data. Yet, necessary condition is, that such measurement must be earlier submitted to centre before it is performed.

Being accessible documents from store are affixed a seal and a signature each time informing that they are up-to-date and they can not be reproduced and disseminated without prior permission of chief of centre.

### 4.5. Service of Parties and Payments for Centre Operations

Service of parties (including surveyors) is one of the fundamental tasks of centre. In fact, service of parties is performed within three ranges. Here they are:

- service of parties concerns cadastral problems,
- service of parties concerns base map (vide: footnote 8),
- service of parties connected with coordination of projects of underground utilities documentation<sup>10</sup>.

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<sup>10</sup> There is an obligation in Poland to coordinate documentation dealing with location of projected underground utilities. Such operations is performed by special team authorized by head of district and functioning in the cooperation with centre. Coordination is made in order to avoid in future possible collisions between existing and projected underground utilities, especially between gas pipelines and electric wires.



If centre activity concerns base map, there is usually special team in centre, separated from staff centre, which performs all operations connected with updating base map being both in traditional and numerical form.

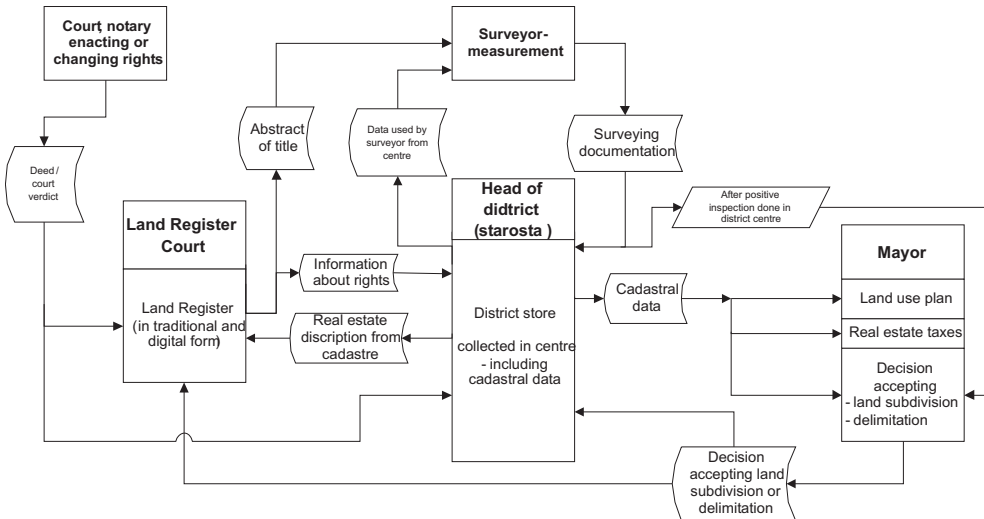
Rendering data accessible, inspection surveying documentation, accepting surveying documentation and also coordination of projected underground utilities is payable. Amount of payments is determined by ordinance [8]. One can give here some examples of payments. Thus, payment for copy of cadastral parcel shown on cadastral map is about 30 € – for the first, and about 3 € for the next one. Payment for accepting surveying documentation, concerning land subdivision into two parcels, to store is about 22,5 €. It is worth mentioning here, that medium gratification for surveyor for such subdivision reaches about 500 €.

**4.6. Relations Between Local (District) Centre and Other Units and Users**

There are various units and individuals using data and documentation collected and kept in centre. This fact is the most visible in local centre. One can mention here such users as:

- authorities of commune,
- notaries,
- courts,
- surveyors,
- clients needing land information to their purposes.

Process of using collected centre data is the most clearly visible on the level of district centre. Graph of relations between district centre and mentioned units and individuals is shown on figure 3.



**Fig. 3.** Graph of relations between surveying local (district) centre and various units and users

## 5. Conclusions

On the basis of discussion presented in the paper, one can present the following final remarks.

1. Data of surveying kind called "surveying store" are collected in Poland in surveying documentation centres situated on three levels, depending of their importance. The most often used store is local store collected and kept data in district (local) documentation centres.
2. One of the main aims of documentation centre, except collection and keeping data and surveying documentation, is also supervising over surveying works and inspections these works.
3. Documentation centre plays crucial role in maintaining good quality of surveying works. It means first of all, reliability, accordance with regulations and suitable accuracy of results of works.
4. Most of surveying data are kept in documentation centres in digital form, now. Yet, part of them are kept in analogue form. So, many works performed in centres nowadays is connected with data modernization, that is, with processing or transferring them from analogue to digital shape.
5. According to authors' opinion, documentation centres will have significant influence in Poland within registering, collecting, keeping and rendering land information accessible.

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