

# Official Surveying and Mapping in Germany - Cooperation between the public and the private sector -

Wilhelm ZEDDIES, Germany

**Key words:** Cadastre; Land management; Legislation; Professional practice

## SUMMARY

In Germany the 16 federal states are responsible for performing the official surveying and mapping tasks. This includes both cadastral surveying and state surveying. With the exception of Bavaria, licensed surveyors participate in performing the tasks for legally specified areas in joint responsibility with the authorities. There are also special surveying departments for particular surveying tasks of individual federal administrative agencies (waterways, defense, and coastal survey), the states (land consolidation, road building, and forest survey) and the municipal authorities (town surveying). Land registration is performed by the local courts.

For the cadastral system the total staff capacity of public sector employees amounts to 25,000, of which a staff size of 20,000 is directly involved in cadastre tasks. Most of them are technician surveyors while the others are professional surveyors with academic degree and administration personal. In addition there is a considerable amount of private sector personnel also involved in the land administration system (about 1,500 professional land surveyors with academic degree - “publicly appointed surveyors” -, about 12,000 technician surveyors and a large number of lawyers and notaries who are only partially involved with land administration tasks).

Although the publicly appointed surveyor in Germany (German: Öffentlich bestellter Vermessungsingenieur) is a freelancer, he is part of the administration when he is performing cadastral surveys. This special profession is only open for citizens of the European Union Member States fulfilling special educational requirements. Concerning the regulations in the European Union it is the “exercise of official authority” (Art. 45 EU Treaty; “Treaty of Rome”) and is no “service”. Therefore the publicly appointed surveyor is not acting in a Public Private Partnership for these tasks.

# Official Surveying and Mapping in Germany - Cooperation between the public and the private sector -

Wilhelm ZEDDIES, Germany

## 1. FACTS ABOUT GERMANY

Germany, officially the Federal Republic of Germany (German: Bundesrepublik Deutschland) is a country in Central Europe and is one of the founding members of the European Union. It is bordered to the north by the North Sea, Denmark, and the Baltic Sea; to the east by Poland and the Czech Republic; to the south by Austria and Switzerland; and to the west by France, Luxembourg, Belgium, and the Netherlands. The territory of Germany covers 357,021 km<sup>2</sup> and is influenced by a temperate seasonal climate. With over 82 million inhabitants, it has the largest population of any member state of the European Union (Fig. 1).

In 1949, after World War II, Germany was divided into two separate states — the German Democratic Republic (DDR) and the Federal Republic of Germany — along the lines of Allied occupation. The two states were reunified in 1990. The capital and largest city is Berlin. Germany is a federal parliamentary republic of sixteen states (in German: Länder).

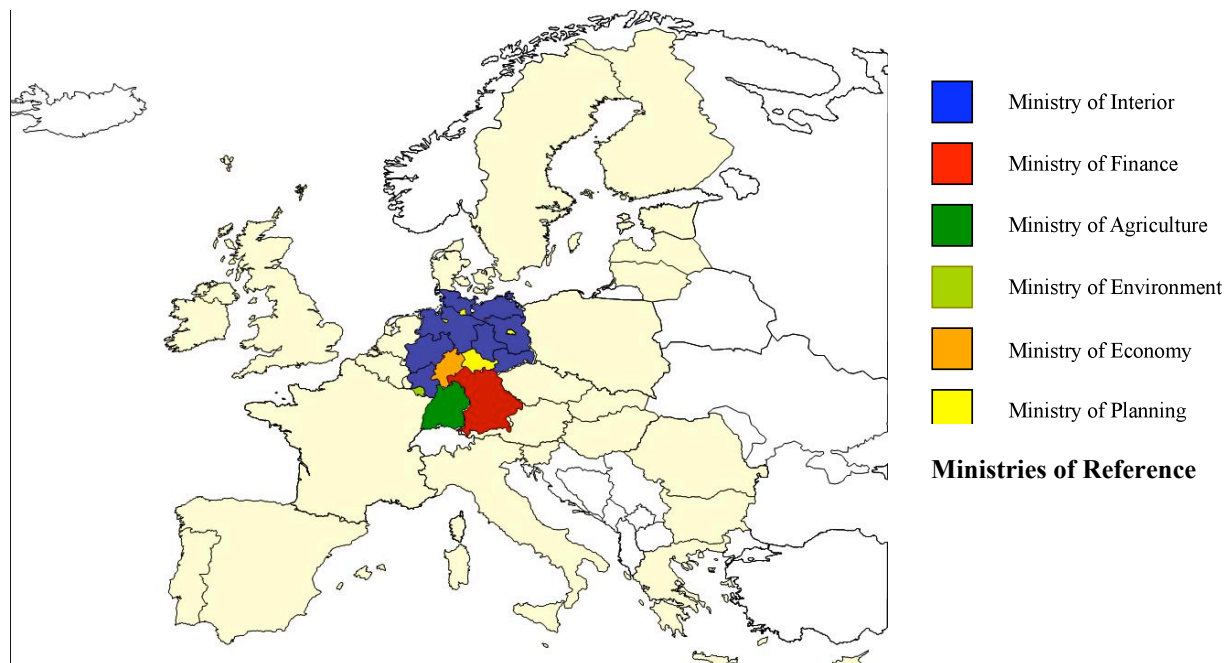


Fig. 1 Germany and Europe

## 2. THE PUBLIC SECTOR

TS 5I - Building Land Administration  
Wilhelm ZEDDIES, Germany  
Official Surveying and Mapping in Germany  
- Cooperation between the public and the private sector – (3802)

2/14

FIG Congress 2010  
Facing the Challenges – Building the Capacity  
Sydney, Australia, 11-16 April 2010

## 2.1 Historical Development

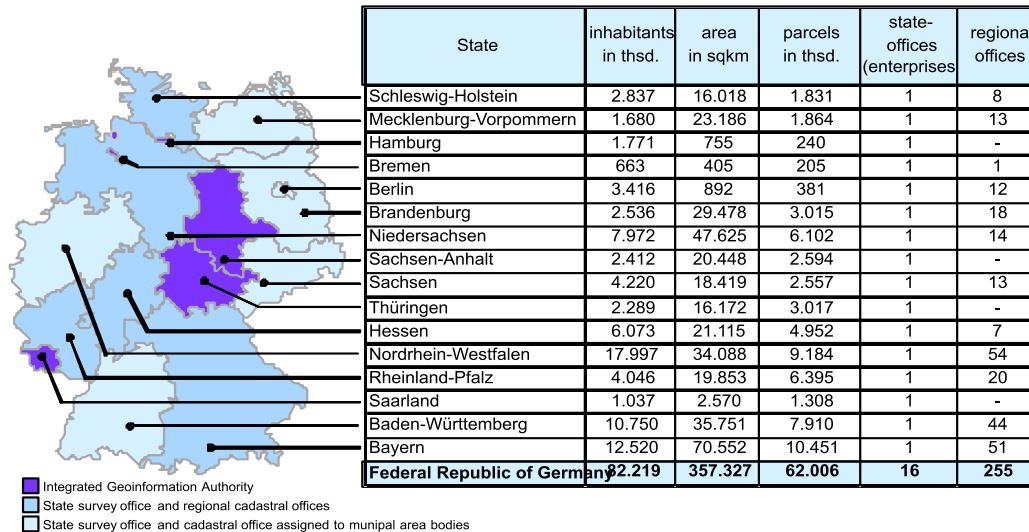
Official surveying and mapping in Germany is traditionally a matter for the federal states. This responsibility standard under constitutional law was temporarily interrupted in the period of National Socialism when the executive power was supposed to be transferred to the central state. As therefore one “German” real estate cadastre does not exist, the following explanations should be understood as general overview. Most of the cadastral systems in Germany were established in consequence of the French Revolution to reach a more fair taxation of real properties. The first task was to serve as a purely fiscal register, the tax cadastre, which, in its time, incorporated a substantial share of formerly established plans and registers (e.g. from land consolidation procedures). In 1872 land registration was enacted and made compulsory in Prussia (from 1900 on in the whole of Germany), relying on the newly established cadastral records - especially the maps – as an integral part. Thus evolved what may be called the property cadastre. After 1934 the results of the official soil taxation are recorded in the cadastre. This was the first step into the direction of a multi-purposed cadastre. As time went by, the information contained in the cadastral records, and growing accuracy in cadastral surveying and mapping made it a public inventory for various purposes and rising demands. Thus it changed to a multipurpose cadastre.

Surveying and the full scope of tasks related to geoinformation are not mentioned at all in the German constitution (Grundgesetz, GG), so Article 70 (1) GG, assigning the legislative authority to the 16 German states in this case, applies. The allocation of official surveying and mapping to different ministries within the states has resulted in a heterogeneous overall picture. As far as the exterior organisation is concerned, the authorities responsible for real estate cadastre are assigned either to the state or municipal level, while the state survey agencies are always part of the state administration. A few states have introduced so-called integrated authorities, merging the tasks of state survey and real estate cadastre in only one agency.

In addition to the administrative structures established for state or municipality-based surveying and mapping, 15 states of Germany (except Bavaria) are supported by Publicly Appointed Surveyors (in German: Öffentlich bestellter Vermessungsingenieur). Their legal status can be retrieved from the relevant state legislation. The public appointment does characterise it as a state-bound profession. They therefore form part of the official surveying and mapping.

## 2.2 Organisational Structures on State Level

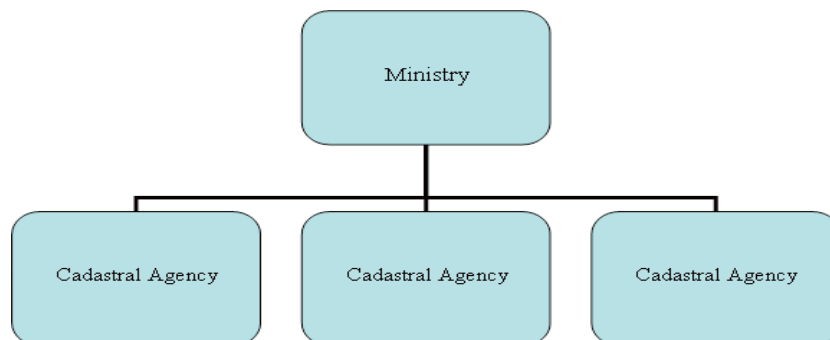
As there are 16 states there are also different ministries in charge of the surveying and cadastral authorities. Fig. 1 shows also the ministries of reference. At the moment (1/2010) 8 authorities belong to the Ministry of Interior, 4 authorities belong to the Ministry of Planning (in the 3 “city states” Berlin, Bremen and Hamburg “City Development”), and each 1 to the Ministry of Economy, Finance, Rural Affairs and Environment.



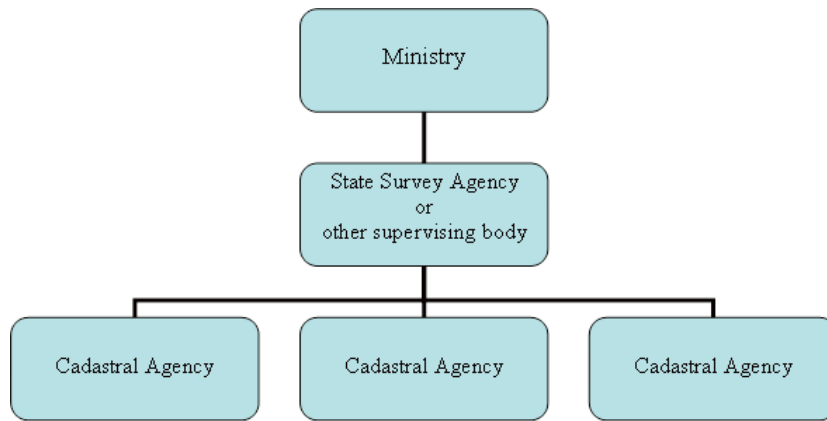
**Fig. 2 Authorities and agencies at the state level (2008)**

All over Germany there are about 250 cadastral agencies with a staff of about 25.000 including state survey (see Fig. 2) (Kummer, Pischler, Zeddies 2006 and AdV 2009).

Depending on the organisational structure in the states the cadastral offices may belong either to state or district (“Landkreis”) administration. Independent from the ministry of reference the official surveying and cadastral authorities belong normally to a two- or three-tier model of public administration (see Fig. 3a and b) (PCC 2008). In a two-tier model the supervision of the cadastral agencies is mostly done by the ministries, in a three-tier level it is mostly done by the state survey institution or in some cases by regional authorities (“Bezirksregierung”) that cover some districts (“Landkreise”). In all cases the supervision is done by the state.



**Fig. 3a Two Tier Model**



**Fig. 3b Three Tier Model**

## 2.3 Organisational Structures on Federal Level

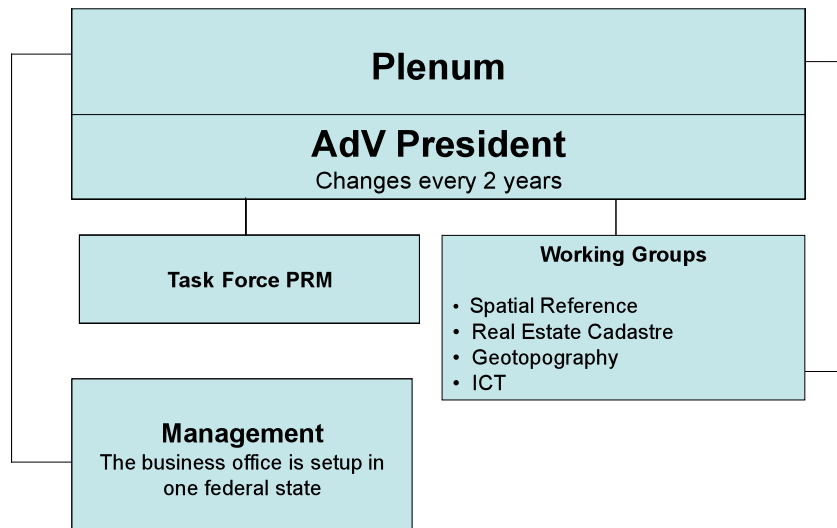
Apart from the official surveying within the competence of the states, relevant authorities are also in place and acting at federal level, but each one for its specific responsibilities only. There are the Federal Agency for Cartography and Geodesy (BKG) under the Federal Ministry of the Interior, the Geoinformation Service of the German Federal Armed Forces (GeoInfoDBw) under the Federal Ministry of Defence and the Water and Shipping Administration (WSV) assigned to the Federal Ministry for Transport, Building and Urban Affairs. While the two latter are practically exclusively responsible for their own specific tasks, BKG does also fulfil tasks in the fields of geodesy and geoinformation in close collaboration with the 16 states. These are the provision and representation of analogue and digital topographic-cartographic information for the federal area, the provision and maintenance of the geodetic reference networks of the Federal Republic of Germany and participation in the specification and maintenance of global reference systems. Furthermore the BKG is representing the interests of the Federal Republic of Germany internationally in the area of geodesy and geographic information. Nevertheless the BKG is not part of the official German surveying and mapping of the federal states.

## 2.4 AdV

As official surveying and mapping in Germany is task of the federal states there has been a necessity to harmonise these activities. In order to achieve, further develop and maintain extensive harmonisation and standardisation, representatives of the American Zone surveying and mapping authorities met already in May 1948. In October 1949, the working group, expanded by the surveying authorities of the British and French Zone was formed and has borne the name (“AdV” - Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany) it has today since this time. Later, West Berlin (1952), Saarland (1957) and the five new federal states after the reunification joined the AdV. As an organisation on a voluntary basis AdV is responsible for the coordination of official surveying and mapping. As well as the specialist authorities of the federal states responsible for official sur-

veying and mapping, the Federal Ministries of the Interior, Defence and for Traffic, Construction and City Development are cooperating in the AdV.

### Organisation of AdV



**Fig. 4 Organisation of AdV**

The German Geodetic Commission (DGK) as representative of geodetic education and research and the Bund/Länder Working Committee for Sustainable Rural Development (in German: ArgeLandentwicklung) have guest status in the AdV. The AdV is assigned to the Permanent Conference of Ministers of the Interior. Its organs are the plenum and the president. The plenum defines the technical and strategic alignment of the AdV and makes decisions of fundamental importance. The plenum elects a state representative as president every two years. The president ensures that the AdV objectives are continuously pursued and that its tasks are completed. He chairs the annual plenum meetings and represents the AdV to the outside world. The plenum uses specialist working groups and a business office to support the work (see Fig. 4) (AdV 2010).

The member authorities collaborate in the AdV to

- regulate technical matters of basic and national importance for the official surveying and mapping in a standardised way,
- to create a primary database of standardised fundamental geospatial reference data oriented to the requirements of the information society and
- to provide the infrastructure for the geospatial reference data as an important component, particularly for modern eGovernment architectures.

In order to achieve these objectives, the AdV performs the following tasks:

---

TS 5I - Building Land Administration  
 Wilhelm ZEDDIES, Germany  
 Official Surveying and Mapping in Germany  
 - Cooperation between the public and the private sector – (3802)

- Creation and agreement of future-oriented joint concepts for the national standardisation of real estate cadastre, state surveys and the geospatial reference data information system according to the needs of politics, economy and administration,
- Advancement of the common execution of nationwide important plans,
- Moderation and coordination of the standardisation for the recording and management of the geospatial reference data and the access and sales methods,
- Support of the structure and further development of the national and European geospatial data infrastructure and the corresponding electronic services,
- Representation and presentation of the official German surveying and mapping to the outside world,
- Participation in international technical organisations for advancing the transfer of know-how,
- Collaboration with subject-related organisations and authorities as well as institutions of geodetic research and education and
- Agreement for issues of technical training.

### 3. THE REAL ESTATE CADASTRE IN GERMANY

Today the entire territory of Germany is completely covered by the real estate cadastre without any gaps or overlaps. In Germany there exists only one type of real estate cadastre covering the complete territory with all kinds of landowners (private and state) and all kinds of land use (urban, rural, forests etc.). The real estate cadastre in Germany is a parcel-based system, i.e. information is geographically referenced to unique, well-defined units of land. These units are defined by formal boundaries marking the extent of land. Each parcel is given a unique parcel-number. The real estate cadastre will be updated permanently. The bases for this maintaining are cadastral surveys, statements from the land register or from the tax office (changes in the soil taxation) or because of the results of land consolidation and other land regulation processes.

As a rule, cadastral surveys are being executed only on application in Germany. In some cases the cadastre office may proceed without being asked to do so, e.g. in determining changes in the land use or in the context of land consolidation. Property may be sold in Germany without surveying, provided only whole parcels are affected. If a part of a parcel is to be sold, the law requires that part has to be surveyed before recording the division in the land book and before it takes legal effect. The portion of land must be identified and described in exact terms recorded by an official surveying body, either the cadastral office or a publicly appointed surveyor.

In some states all cadastral agencies and the state survey office have been integrated into one agency. That means that there are no independent cadastral agencies on the local level; they are all branches / departments of the “one” agency. The state survey office always belongs to state level.

The cadastre is the only register in Germany in which all parcels and buildings are described. There is no difference between public and private lands. The government finances the surveying authorities. The customers, both public and private, have to pay fees for cadastral surveys and the use of the Real Property Cadastre (e.g. for excerpts).

## 4. THE PRIVATE SECTOR

### 4.1 Legal Background

The institution „Publicly Appointed Surveyor“ exists since 1938 when the „sworn in land surveyor “ was released from the industrial law by establishing the rules of professional practice as a law (German: Berufsordnung). Except Bavaria in all federal states the institution „Publicly Appointed Surveyor“ is regulated in the state laws and the corresponding regulations. According to the legal regulations of the federal states the profession is characterized as state-bound occupation. The „Publicly Appointed Surveyors“ are organs of the official surveying and mapping. As such they are public office-holders and exercise official tasks. The profession of the „Publicly Appointed Surveyors“ has developed by the conferral of sovereign tasks in surveying and mapping on private ones, the so-called public appointment or the entrustment with public power. Fig. 5 (AdV 2009) shows the number of publicly appointed surveyors in the federal states in relation to the cadastral agencies.

### 4.2 Current Situation

Publicly appointed surveyors are mandated to do cadastral surveys, but not the cadastral registration. They are freelancers, but work under supervision of the surveying authority of the federal state. The license is granted by the state (not by a chamber) only to individuals and not to companies. A publicly appointed surveyor is authorized only for one state and acts on behalf of the state. So he/she can be described as a civil servant concerning administrative law. In some states they are assigned to an administrative district, where they have to perform all official cadastral surveys. Over and above they are allowed to work in their entire federal state as publicly appointed surveyor.

Due to this the requirements for the licensing are the same as for a comparable civil servant. In general the licensing requires 4-5 years of studying at a university plus an additional traineeship on state level with an examination (“second state examination”) plus one year of practicable experience in the job. Because of the strong relation to the public authority a publicly appointed surveyor uses the seal of the state for signing surveying documents produced in the job.

Federal State	State Area in sqkm	Cadastral Offices / integrated Authorities	Publicly Appointed Surveyors
Baden-Württemberg	35.751	44	158



Bayern	70.552	51	-
Berlin	892	12	45
Brandenburg	29.478	18	161
Bremen*	405	2	6
Hamburg*	755	1	9
Hessen	21.115	7	89
Mecklenburg-Vorpommern	23.186	13	76
Niedersachsen	47.625	14	105
Nordrhein-Westfalen	34.088	54	486
Rheinland-Pfalz	19.853	20	87
Saarland*	2.570	1	11
Sachsen	18.419	13	119
Sachsen-Anhalt*	20.448	1	56
Schleswig-Holstein	16.018	8	42
Thüringen*	16.172	1	73
Total Germany	357.327	260	1.523

\* Integrated Authorities

**Fig. 6 Cadastral Offices and Publicly Appointed Surveyors (2008)**

In Germany the function of a publicly appointed surveyor is seen as a regulated profession which is subject to Art. 45 EG Treaty (Treaty of Rome). Therefore it is not a Public Private Partnership (PPP). In other Member States of the European Union the function of surveyors who are active in cadastral surveying is mostly seen as subject to Art. 43 EG Treaty (“regulated profession”) or even as subject to Art. 49 EG Treaty (“service”).

The publicly appointed surveyors are paid by the applicant of cadastral surveys on the basis of the same scale of charges the cadastral office uses. The reason for this is to avoid unfair competition between the cadastral authorities and the publicly appointed surveyors. The publicly appointed surveyors have a market share regarding the survey of parcels and buildings of 60-80% (all over Germany, but the figures vary between the federal states). From 1992 to 2008 the number of publicly appointed surveyors increased from about 1000 to more than 1500.

Publicly appointed surveyors may also perform technical surveys. But in these cases they are not allowed to use their title “publicly appointed surveyor”. For these purposes they are compulsory members of the chamber of engineers.

### 4.3 BDVI

Publicly appointed surveyors have united in the German Association of Publicly Appointed Surveyors – BDVI - ([www.bdvi.de](http://www.bdvi.de)) to represent their common interests effectively. The BDVI is not a chamber, but a registered association. At present the association has approxi-

mately 1,300 members which is equivalent to a degree of organisation of more than 90%. The BDVI, a federal association, is registered in the register of associations as well as it is registered as a partner of the parliamentarians of the German Bundestag. The Association of Publicly Appointed Surveyors has its own Articles of Association. The articles of association codify the BDVI's name, head office as well as the association's aims and responsibilities.

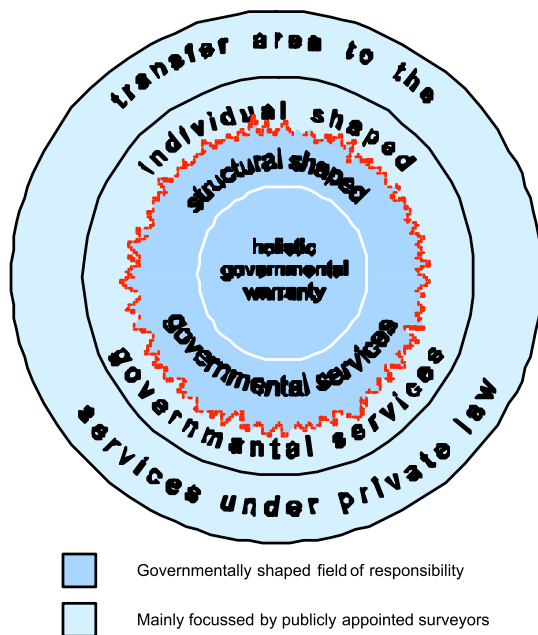
The priority of the association's work is on the one hand to strengthen the individual professional as a part of the public surveying system and on the other hand to underline the general interest in the appointed liberal professionals helping to establish the profession. The Association of Publicly Appointed Surveyors follows the tradition which has been kept for more than one hundred years by the body representing the interests of freelance surveyors in Germany. The association has developed to one of the most important associations in the surveying sector over decades determined and challenged by the reconstruction and reunification of Germany. Nowadays the BDVI considers it as its main responsibility to lead the profession into the European future representing a model for public services provided by liberal professionals.

The association's most important body is the Committee. The committee is chaired by the president and the first and second vice-presidents. This body represents the association externally and implements the decisions made by the executive board and the general assembly, e.g. fee regulations and professional code of conduct. The committee of the BDVI sets up committees of experts for the discussion of the most important issues and substantiates the representation of interests and an advisory function towards representatives from the political, economic and administrative sector. As the federal states are responsible for surveying, the BDVI is divided into several regional factions. At present there are 15 regional factions, which are involved in committed association politics on the spot. Bavaria has not yet introduced the public appointment of freelance professionals. The responsibilities assumed by the regional factions are codified in the respective rules of procedure.

The Executive Board consists of the chairmen of the 15 regional factions as well as of the association's most important office-holders.

## **5. COOPERATION IN OFFICIAL SURVEYING AND MAPPING**

Within the official surveying and mapping area of responsibility, AdV and the German Association of Publicly Appointed Surveyors (BDVI) have jointly agreed on a structure model of the national performance of tasks which contains the general task distribution between authorities and publicly appointed surveyors (Fig. 6) (AdV, BDVI 2006).



**Fig. 6 Structure model of the national performance of tasks in official surveying and mapping**

Accordingly, the profile and image shaping tasks of the surveying and geographic information authorities are guaranteed in the complete spectrum of tasks. These are coverage and standard, State-wide actuality of state survey and management of the real estate cadastre and the geo-spatial reference data information system. The specialist authorities also provide commercial activation (spatial data infrastructure, online services, geographic data portals, geo-network, and providing, sales, GIS consultancy) with structured national services. The publicly appointed surveyors are responsible for the individually characterised services (application areas such as the majority of real estate surveying, services for construction projects, data refinement) and the transfer to private law services.

Based on a Memorandum of Understanding AdV and BDVI have developed three joint papers for the topics advertisement, spatial reference by SAPOS<sup>®</sup> (Satellite Positioning System of the German State Survey) and the official surveying of buildings (as part of the cadastre). These documents have still to be adopted by the committees of AdV and BDVI.

How the involvement of the publicly appointed surveyor works practically at a cadastral survey, shall be described below.

There are identical procedures for both the surveyors in a cadastral office and the publicly appointed surveyors concerning cadastral surveys. After the application from a customer (private or public) both have to apply for the cadastral documents (stored in the archive of the cadastral office). Based on these documents the cadastral survey is performed in the fields including the setting of the administrative acts (determination of the boundaries, marking of the boundary corner points). After the calculation of the survey the documents for updating the real estate cadastre are prepared and submitted to the cadastral registry department within

the cadastral office. The registration is always done by the cadastral office. The next step normally is the preparation of the cadastral documents needed for the procedure of conveyance at the land registry office in the local courts.

## REFERENCES

AdV, BDVI 2006: Klöppel, R. (AdV) und Teetzmann, V. (BDVI): Gemeinsam für Staat, Wirtschaft und Gesellschaft, Memorandum über die Zusammenarbeit von AdV und BDVI im amtlichen Vermessungswesen in Deutschland. zfv 131, S. 1-6, Augsburg 2006.

AdV 2009: Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland. National Report 2008/2009, p. 7, Hannover 2009).

AdV 2010: Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland. Homepage, [www.adv-online.de](http://www.adv-online.de), (2008-2010).

Kummer, Pischler, Zeddies 2006: The Official German Surveying and Mapping; zfv 131, S. 238ff, Augsburg 2006

PCC 2008: Cadastral Information System – a resource for E.U. policies - ; Overview on the cadastral systems of the E.U. Member States; Part I; p. 112; Rome, 2008

WWW-Links:

Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland (AdV): [www.adv-online.de](http://www.adv-online.de)

Bund der Öffentlich bestellten Vermessungsingenieure (BDVI): [www.bdvi.de](http://www.bdvi.de)

## **BIOGRAPHICAL NOTES**

Wilhelm Zeddies (62) is Secretary General of the Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany (AdV), the umbrella organization of the surveying authorities. In this function he represents AdV in the Permanent Committee on Cadastre in the European Union (PCC) and is Permanent Correspondent for AdV in EuroGeographics.

## **CONTACTS**

Wilhelm Zeddies  
Arbeitsgemeinschaft der Vermessungsverwaltungen  
der Länder der Bundesrepublik Deutschland (AdV)  
Podbielskistr. 331  
30659 Hannover  
GERMANY  
Tel. +49-511-64609-110  
Fax + 49-511-64609-116  
Email: wilhelm.zeddies@lgn.niedersachsen.de  
Web site: www.adv-online.de