

Transparent Cadastral System – in Both a Private and a Public Task Performance.

**Ewa SWENSSON, Sweden and
Torben JUULSAGER, Denmark**

Key words: Cadastre, Digital Cadastre, Land Management, Legislation, Liberal Surveyor, Public Surveyor

SUMMARY

A good Land Administration System (LAS) is a basic fundamental infrastructural element in the Community of law in both Denmark and Sweden. The overall task is to contribute to an efficient and sustainable use and development of the land and natural resources. The LAS underpins the implementation of land policies and land management strategies and facilitate the operation of efficient land markets and effective land-use management. A trustworthy multipurpose cadastre is basis and at the core of a LAS.

Denmark and Sweden both have well functional and reliable LAS with many similarities but the Cadastral System is organized with different specific solutions of what to be managed in private or public sector.

This paper stresses that a trustworthy and transparent Cadastral System as a part of a LAS depends on high focused political, legal and administrative framework conditions and not at least how the cadastral process is carried out professionally and responsibly by the surveyor in the context he/she works in. It is less important for credibility of the Cadastral System whether cadastral works are organized or carried out as a private business or as a public administration.

SUMMARY (DK)

Et velfungerende Land Administration System (LAS) er et fundamentalt og grundlæggende infrastrukturelt element i det danske og svenske retssamfund. Det overordnede formål er at bidrage til en effektiv og bæredygtig anvendelse og udvikling af areal- og naturressourcer. LAS understøtter gennemførelsen af politiske beslutninger og arealforvaltnings strategier og styrker et effektivt ejendomsmarked og ejendomsanvendelse. En troværdig multifunktionel matrikel er basis og kernen i LAS.

Danmark og Sverige har begge gode, funktionelle og pålidelige LAS med mange ligheder, men det matrikulære system er organiseret med forskellige specifikke løsninger for, hvad der skal forvaltes i den private eller i den offentlige sektor.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 1/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014

Denne artikel understreger og påstår, at et troværdigt og transparent matrikulært system, som en del af LAS afhænger af eksistensen af højt fokuserede politiske, juridiske og administrative rammebetingelser og ikke mindst af hvordan, den matrikulære proces udføres professionelt og ansvarligt af landinspektører i den kontekst han / hun arbejder i. Det er af mindre betydning for troværdigheden af det matrikulære system, om matrikulære arbejder er organiseret eller udføres i en privat virksomhed eller i en offentlig administration.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 2/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014

Transparent Cadastral System – in Both a Private and a Public Task Performance.

Ewa SWENSSON, Sweden
Torben JUULSAGER, Denmark

1. INTRODUCTION

A good Land Administration System (LAS) is a basic-fundamental infrastructural element in the Community of law in both Denmark and Sweden. The overall task is to contribute to an efficient and sustainable use and development of the land and natural resources. The LAS underpins the implementation of land policies and land management strategies and facilitate the operation of efficient land markets and effective land-use management. A trustworthy multipurpose cadaster is basis and at the core of a LAS.

Denmark and Sweden both have well functional and reliable LAS with many similarities but the Cadastral System is organized with different specific solutions of what to be managed in private or public sector.

This paper gives an overview of the similarity and principles of LAS in Denmark and Sweden, focusing on the Cadastral Systems. It will address the basic framework conditions for the Cadastral Systems, the structure of the Cadastral Systems and the cadastral process. A special discussion is given about the role of the surveyor in the process and how the surveyor through professional conduct handles this task performance and responsibility.

2. BASIC FRAMEWORK CONDITIONS FOR CADASTRAL SYSTEMS

2.1 Political framework

The political context for a complete and trustworthy property registration in an organized Cadastral System is the same in Denmark and Sweden. The ownership of private property is inviolable and protected by Constitution. The real estate/private property is the basis for significant national and private economies.

Land in Denmark and Sweden is, mostly, owned by private or juridical persons and based on market economy. But use and development of land is, for natural reasons, a matter not only for private but also for public interests. Consequently today's legislation on land management in Denmark and Sweden is trying to find a reasonable regulatory framework for management of the balance between public and private interests. Public control and restrictions exists in many fields, for instance in development of land and protection of environment, development of urban areas etc.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 3/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014

The Land Register is a political stabilizing factor as securing different kind of rights, as ownership, easement and mortgage. In a national perspective the Land Register contains information's about private property and sales. These information's are useful when to analyze value of the real estate market and for setting the property tax.

From a private perspective the Land Register gives the information's needed when buying a real estate, which is one of the most significant private investments during lifetime. The Land Register is updated and based on a secure cadastral process and registration.

2.2 Legal framework

The legislation in both Denmark and Sweden confirms and consolidates the economic and social significance and value of a secure and trustworthy cadastral system, by setting out a clear framework for responsibility, conduct and performance of cadastral work

■ The cadastral work in Denmark is performed in a private-public cooperation model founded and governed by two main laws the Parceling Act and The Chartered Surveyors Act. The Parceling Act states that cadastral work may only be performed by practicing chartered surveyors and their assistants who are appointed chartered surveyors. Regulatory control and registration is handled by The Danish Geodata Agency. The subdivision requirements states that there is only allowed transfer or pledge of an area if it presents a real estate or unregistered property. Change of ownership of a parcel of land that is part of a real estate or an unregistered property may be effected under the rules on land transfer.

In addition The Chartered Surveyors Act provides requirements for companies conducting cadastral work. It states

- Main objective – A chartered surveying company must have the sole of performing surveying and cadastral work
- Personal responsibility – An appointed chartered surveyor practicing in a chartered surveying company is personally liable, together with the company, for any claims arising in consequence of assistance provided by the chartered surveyor to a client
- Ownership restrictions – In a chartered surveying company, at least 51 percent of the company capital and voting rights must be owned by appointed chartered surveyors
- Management – In a chartered surveying company, the majority of the members of the board of directors and the management board must be appointed chartered surveyors

A series of executive orders and guidelines sets out more detailed framework for the specific execution of the cadastral work

■ The cadastral work in Sweden is regulated in many different acts. The most important one is the Real Property Formation Act. The Real Property Formation Act states that all kind of changes in the boundary of properties must be handled by the Cadastral Authority. The changes can be made as subdivision, reallotment or amalgamation. The cadastral procedure includes updating of the Real Property Register. Besides these acts there are Adjudication and

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 4/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

Legislation Act (when the ownership is not clear), Utility Easements Act (when an interested party need a space on a plot for utility or other device). The Joint Facility Act (establishing of a facility to be used by several plots e.g. an access to road and serves a purpose of enduring importance) and The Joint Property Units Act regulate the management of joint property. The registration of the cadastral work is regulated in the Real Property Register Act.

All these acts states that cadastral work only can practiced by a person employed at the Cadastral Authority. Lantmäteriet, The Swedish Mapping Cadastral and Land Registry Authority, are the responsible governmental agency. Specific permission to establish cadastral authority can be given to municipalities. In Sweden there are 38 municipalities with this kind of permission. In Sweden is the cadastral work regulated in the Instruction for Lantmäteriet. It states that cadastral work handles by a person employed in Lantmäteriet or in these municipalities with special permission.

A series of executive orders and guidelines sets out more detailed framework for the specific execution of the cadastral work. The surveyor is not personally liable. Lantmäteriet or the municipality is responsible for every claims and its consequence to a client.

2.3 Administrative framework

Because both Denmark and Sweden is member of the EU there are several common strategies to be implemented nationally. There are some regulations which will directly affect the administrative practice, which forms the basis of the cadastral systems and the cadastral works. A good and very fundamentally example are strategies for e-government, PSI-Directive and INSPIRE.

🇩🇰 In Denmark the Danish eGovernment Strategy 2011-2015 stress:

- Good Basic data for everyone – Authoritative basic data to accelerate the adoption on and optimizing digital solutions in the public sector. Cadastral data are categorized as basic data.
- Robust digital infrastructure – A shared digital infrastructure that is safe and sufficiently robust to meet future requirements
- Shared core data for all authorities – Effective and reliable sharing of core data between authorities
- INSPIRE philosophy – Data is collected once by the responsible authority and there is no redundant data in the system. Data/information is shared and downloaded at the source

🇸🇪 The catchword for the Swedish e-Government Strategy is: As simply as possible for as many as possible. The goal is the same as in Denmark but all this work must be done with participation of all parties, individuals, businesses and governmental agencies for consensus.

2.4 Professional framework

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 5/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014

In both in Denmark and Sweden the cadastral work is driven and conducted by an academic profession – the property or cadastral surveyor. The cadastral work is performed in a “Nordic” societal context where there shall be a strong account of the “Third party”. Third party in this context is multifaceted - which can be both neighbors, mortgagees, rights holders, the community and even the cadastral register.

In order to manage this complex task the professional identity of the surveyor is holistic and solution oriented. A cadastral surveyor has to listen carefully to the clients to know their needs, have a good knowledge in the cadastral legislation and the land management legislation, have to navigate task performance in an intersection of disparate interests and finally give the parties a possibility to make an agreement / a sustainable solution. This kind of dialogue based solutions are very characteristic of the profession.

■ In Denmark the surveyor is given public authority in some areas for example, boundary disputes. The surveyor can from an established procedure give a prior judicial determination of the boundary location. On the basis of the private organization of the cadastral work the surveyor also have a major advisory portfolio in property development and formation.

■ In Sweden can the cadastral surveyor in some special situations, when it is impossible to achieve an agreement, make a decision. The most common situation is valuation for example when the Transport Company needs access to property to build railway.

Both Denmark and Sweden have professional guidance how to manage different situations and have also continues discussion about ethical issues – it will be discussed and highlighted later in this article.

3. THE DANISH AND SWEDISH CADASTRAL SYSTEM

3.1 Spatial Data Infrastructure

The cadastral systems have basic infrastructural function in the Spatial Data Infrastructure (SDI) in both Denmark and Sweden. In both countries the systems are characterized by primarily being under public responsibility as regards maintenance display and distribution of data. It is authoritative basic national data collections with free access to all information. The basic view is that data must be in “game” and create value for society.

■ The Danish Spatial Data Infrastructure builds on five basic principles:

- Data should be only collected once
- Data should be maintained where this can be done most effectively
- Data should be combinable, regardless of their source
- It should be easy to get an overview of the available data and internet services
- There should be clear conditions which assure that data can be utilized by many users in many contexts

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 6/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014

This “philosophy” results in an infrastructure model based on collections of sector specific geodata themes build up on a “platform“ of common multi-sector, reference data and shared infrastructure internet services that allow access to documented geodata and to metadata from distributed sources of data. It means that the information in the Danish LIS is sectorized in charge of the resort authority, but taking responsibility for cross-agency public sector cooperation.



Fig. DK.1 The Danish infrastructure model (Geodatastyrelsen – National Survey and Cadastre: “Location – a gateway to eGovernment”)

There rests a unified national collaboration between central, local, and regional authorities, universities and private businesses in order to ensure that the national SDI “meets its users’ requirements.

In this context it must be pointed that the basic data “reference data” consists of geodata and maps that can be used as a reference to ascribe precise location to other data, and which can be used in all sectors - interoperability. Reference data can include cadastral maps, where the surveyor has a key responsibility for the maintenance and update of data.

In relation to the property formation process and land management there are following especially important basic data registers The Cadastre and The Land Book.

The Cadastre (under the responsibility of The National Survey and Cadaster) is a multipurpose digital/analog register with a two-part primary role (legal and administrative) for plots

- Authoritative proprietary basic data register

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 7/19
 Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

- Reference data for spatial eGovernment

The register consists of three main elements:

- Cadastral Register – information on property identification, area, various statutory quotations, case information, etc.
- Cadastral Maps – index cards containing spatial identifier, property boundaries, property identification, private roads and other administrative borders. In a national Geodetic Reference System UTM/ETR89.
- Cadastral Archive – details of dimensions for identification and determining the boundaries, other case documents

The Land Book (under responsibility of The Land Registration Court) is a digital register that includes basic data about property (plots, condominiums etc.):

- General information – owner, cadastral identifier, area etc.
- Title information – deed, date of deed, purchase price
- Easements – restrictions on use etc.
- Mortgages – principal and mortgagee

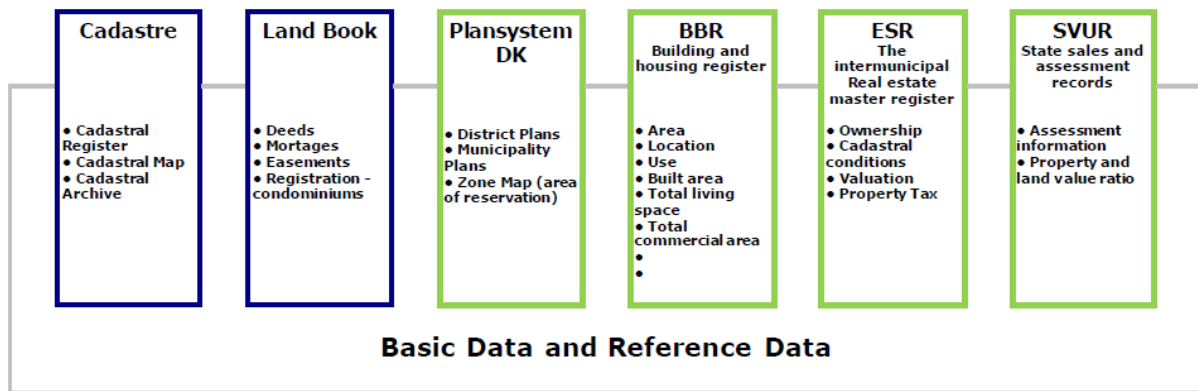


Fig. DK.2 Part of The Danish LAS – with focus on basic administrative registries relating to real estate

🇸🇪 Sweden has National Geodetic Reference System (SWEREF 99, RH2000) that is introduced in most organisations. The RTK reference system is managed by Lantmäteriet in Gävle. These are basic for all cadastral processes.

The Swedish Land Information System (LIS) includes the Land Register, updated by the Land Register Authority (Lantmäteriet), the Cadastral Register, updated by the Cadastral Authority (Lantmäteriet and 38 municipalities) as a result from the cadastral procedure (property formation), and register of physical plans, buildings and addresses updated regularly by the municipalities.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 8/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

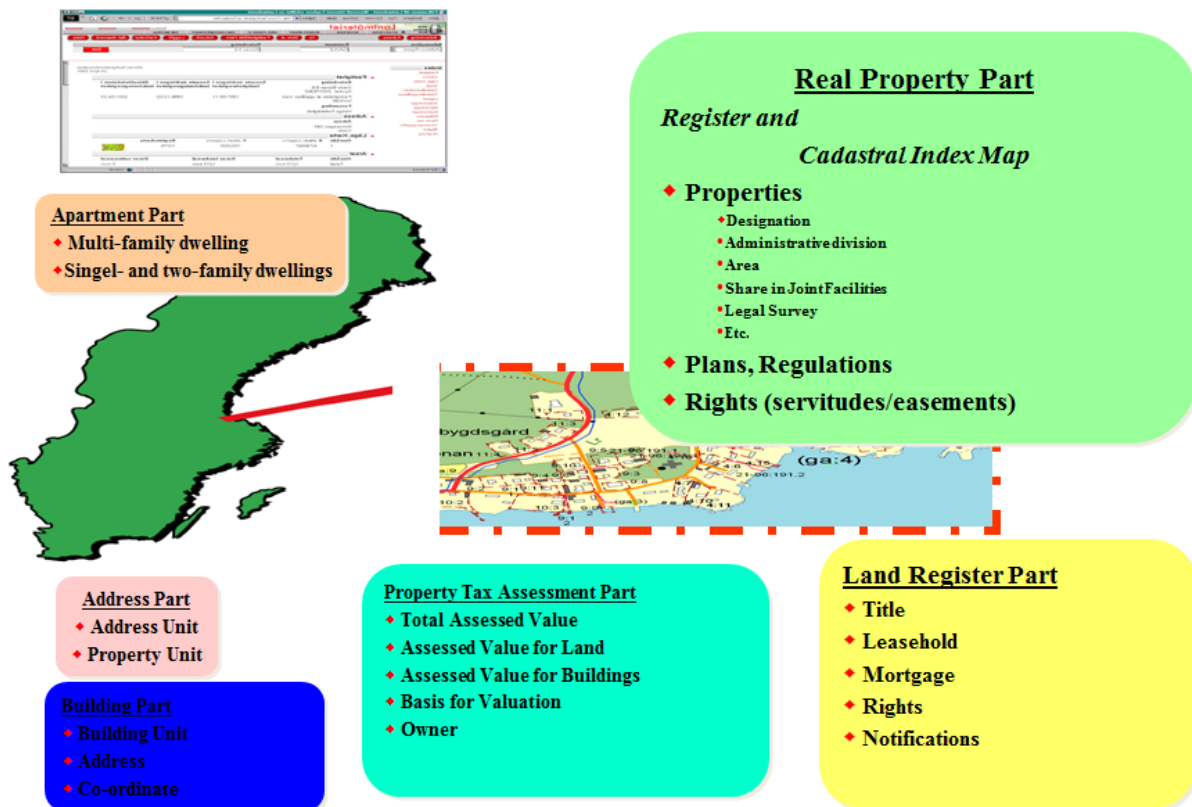


Fig. S.1 The Real Property Register in Sweden

The Land Register is the base that gives the title, leasehold mortgage, rights and notifications about property. This register is updated daily by Lantmäteriet. Mortgage certificates and property prices are basic information for property taxation.

The Real Property Registers includes the digital cadastral index map. This information comes from the cadastral procedure and updates daily by the land surveyors. In the General section of the Real Property Register is information about

- Administrative identity
- Extension, central coordinate
- Share oh joint property unit
- Easements resulted from cadastral procedure or from expropriation or other compulsory purchase
- Plan, regulations and other information from the register of plan
- Index map

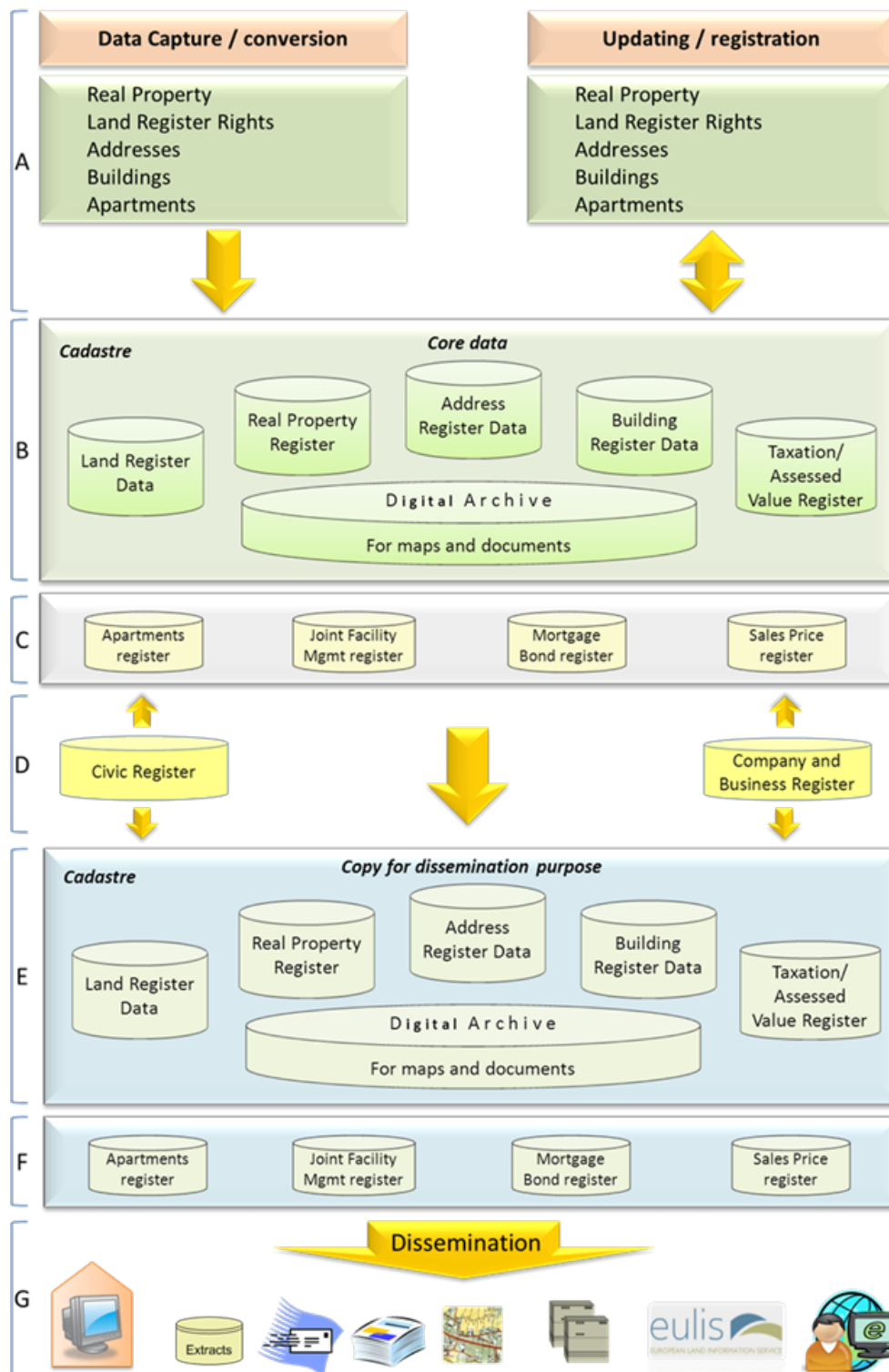


Fig. S.2 The structure of the LIS and how the data are captured and disseminated.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 10/19
 Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
 Engaging the Challenges – Enhancing the Relevance
 Kuala Lumpur, Malaysia 16-21 June 2014

Building Register, including a position in the cadastral map, updates by the municipalities when a person or company has got a building permission and then when the building has been constructed. This is done in a digital process and regulated in an agreement in which the compensation to the municipalities is regulated.

Apartment Register is connected to the building register and updates by the municipalities regulated in the same way as the building permission. The intensions is that every person in Sweden is registered at an apartment.

Address Register is a register connected to the building register. A building can have many addresses. The municipalities decide the locational address for buildings and then update the register. How this is to be done is regulated in the same way as the building permission. This register and connected map are very useful for fire brigade, ambulance, taxi, home care and car navigation.

3.2 The Cadastre – Basic elements

The Cadastre provides the spatial integrity and unique identification of every land parcel, usually through a cadastral map updated by cadastral surveys. The parcel identification provides the link for securing rights in land, controlling the use of land and connecting the way people use land with their understanding of land.

The land parcel is the foundation of the hierarchy, because it reflects the way people use land in their daily lives. It is the key for identification of land rights of restriction and responsibility in the use of land. The land parcel links the system with the people.

■ The basic element in the Danish Cadastre is the real property unit – the land parcel. It consist of geometric description of the land parcels represented as a digital closed object in the Cadastral Map by quality labeled coordinates in the UTM-reference system and connected with informative attributes in the Cadastral Register – as unique administrative identification nr. (e.g. 20h Holstebro Markjorder fra Hjerm), area, area of private roads and some restrictions of public rights as agricultural land (land designated for continued agriculture purposes), forest conservation areas, windfall (financial aid for rebuilding forests after windfall), coastal zoning (registration of seashores and dunes).

The Cadastre consists of approximately 2,5 million parcels. The first Cadastre was in force in 1688 and has developed since. In 1997 a digital reform completed the computerizing of approximately 15.000 analogue Cadastral Maps. In 2001 the digital update system MIA was in place and in 2008 a cadastral digital updating and quality system MiniMAKS was in place. In 2014 the measurement archive became partly digital (information's back to 1950) with digital web based access from the cadastral surveyors. It completed a full digitally cadastral process between the surveyor and the cadastral authority.

■ The basic element in the Swedish Cadastre is the real property unit. It consists of one or several parcels, often marked off on the ground. A property unit may include building, fences, trees, water areas etc. 3D real property units introduced 2004 and ownership flats 2009.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 11/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014

Engaging the Challenges – Enhancing the Relevance

Kuala Lumpur, Malaysia 16-21 June 2014

Technical infrastructure is not by itself considered as real property units (roads, water and sewage system, electrical power lines etc.).

All land and inland water except the four largest lakes are divided into real property units. All land is surveyed – although different methods are used. There are about 3,5 million units with 1 or more parcels of land, water, buildings, trees and other fixtures in or on the ground. Every property unit has a unique administrative identifying name and number, e.g. Härnösand Byn 2:40 in Västernorrland County.

The real property units can have shares of joint property units and joint facilities. These units are created in a cadastral procedure. Typically a joint property unit is for a water enterprise. Roads in the countryside are often organized as joint facilities.

The real property unit is defined in the dossier where it is created and changed. All dossiers, back to 1628, are in the National Digital Cadastral Archive, called Arken. It is an “online library” which tracks back to the cadastral history of all the properties in Sweden. It is free for everyone to look at.

3.3 The cadastral process in general

Cadastral work reflects a change in the property division and the use of the physical environment. The cadastral process is the formal and legal acts and agreements that ensure the implementation of a sustainable and holistic process of project realization. In Denmark and Sweden, the surveyor as the professional advisor and case responsible ensures and orchestrates the entire process.

■ The Danish surveyor is acting in the intersection between public and private interests and as an objective advisor he/she has to represent and manage all the interests related to property change and the future use. The surveyor is popularly said “the ambassador of the boundary”. The role as private counsellor gives the surveyor a significant legitimacy to be able to handle the balance between private and public interests around the property formation and use, and gives the surveyor the opportunity to take part in both an advisory and design stage.

Simplified the Danish cadastral process includes the following main phases

- Requisition: Case formulation and advisory
- Case preparation / review: Data collection, property screening, prior consultation, case development, etc.
- Measuring and defining boundaries: Boundary Determination and conflict prevention / resolution
- Part Recovery: Owner and neighbour consultation
- Case Preparation: Registration Documents
- Authority Consultation and Application: Land development control
- Clarification of conditions for rights: Deeds, mortgage and easement conditions
- Case Transmission: Case for registration in the land register, case management and control
- Case Completion: The registration certificate to the client

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 12/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014

Engaging the Challenges – Enhancing the Relevance

Kuala Lumpur, Malaysia 16-21 June 2014

When the surveyor receives a requisition on a cadastral change he/she makes a screening of property information, public and private legal restrictions. Based on this investigation the surveyor advises and formulates the cadastral case / changes with the client. After this field survey and boundary determination has to be carried out including evaluation of the correct position of the boundary under involvement of neighbour landowners. When the cadastral changes are finally decided the surveyor prepares the formal and the technical documents as the basis for approval by the authorities, party involvement, right holders involvement and registration in the Cadastre. The consultation process by the authorities is called “the subdivision control” and this process has to clarify and document that the cadastral changes and the future use of the property is legal in the ratio of public regulations. In certain situations, the surveyor has public authority to attest that the cadastral changes do not conflict with public regulations without submitting the case to the authority.

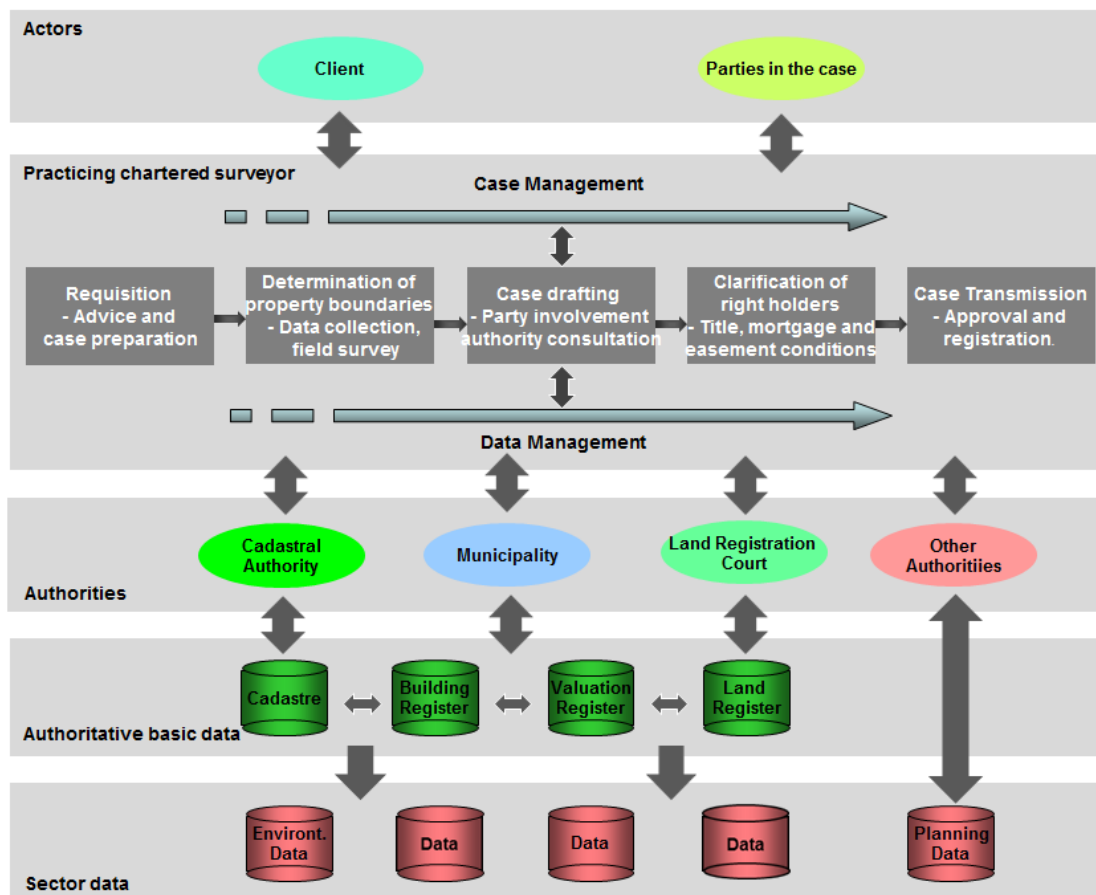


Fig. DK.3 The Danish Cadastral Process - parties, phases, tasks and information flow

In relation to right holders of affected properties the surveyor has to locate easements on proper land / properties in order to update the information in the Land Register.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 13/19
 Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
 Engaging the Challenges – Enhancing the Relevance
 Kuala Lumpur, Malaysia 16-21 June 2014

In a land transfer situation must the surveyor prior to the registration of cadastral changes document that there has been a transfer of the land and that it has been taken care that mortgagees still have a continued safety in the property.

When the surveyor has documented the conditions for registration of the cadastral changes the documents (registration documents, owner declarations, authority approvals and Certificate of land registration Judge on mortgage, easements and title deeds) will be packed in a digital file package and submitted to the National Survey and Cadaster (GST) for approval and registration. When the registration is complete updated other public records / registers will be updated with the new property situation.

The cost for the real property formation procedure is, for an ordinary subdivision, about 3 000 euro per parcel. Half the costs are fees paid to the surveyor and the rest is outlay, as well as taxes and fees to the state.

🇸🇪 The process always starts with an application. In Sweden it shall be sent to a municipality, if they have the responsibility to conduct cadastral procedure. In other case it shall be sent to Lantmäteriet. The land surveyor investigates and consults relevant parties and organizations with interests, e.g. municipalities if the applicant needs a building permission. The Real Property Formation Act states:

“Property formation shall be carried out in such a way that every property unit formed or re-formed will, in terms of location, extent and other conditions, be enduringly suited to its purpose.”

If the land surveyor assets there are no problem the procedure goes on with a field survey and construction of a map. In reality this is an out-checking from the digital cadastral database and a description of what will be changed and an illustration on a map. During this field surveying the interested parties usually attend. A meeting and decision with interested parties take place before, under or after the field surveying. After or under the meeting the surveyor concludes the procedure and order the changes made in the property formation procedure, sometime also about compensation and possession. The surveyor decide who should pay and how much. All orders can in four weeks be appealed by the interested parties and sometime also by the municipalities.

If the real property formation procedure is not claimed the surveyor shall up-date the Real Property Register with its digital cadastral index map, send all (already digital) document submitted or produced during the procedure to the digital archive Arken and inform the Land Registration Authority (a part of Lantmäteriet). The applicants get a copy of the map showing the new boundaries, minutes from the meetings and a description of the changes of the real properties.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 14/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014

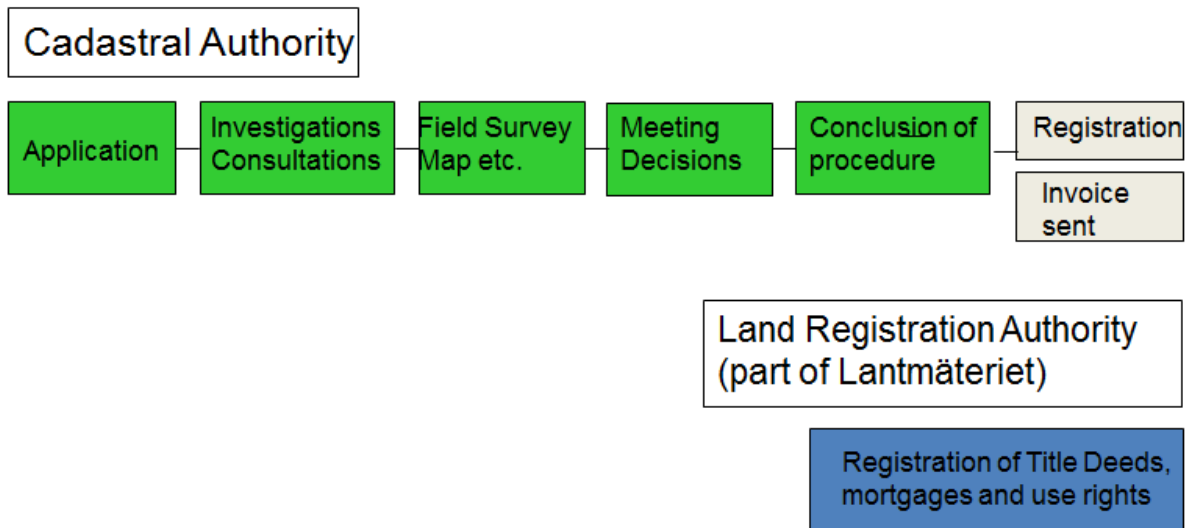


Fig. S34 Cadastral procedure in Sweden

The whole process is completely digitalized. It means that the surveyor can get all information in digital format, sometime he/she must go to the archive to find all valid rights, restrictions and responsibilities. There is a document management system integrated with the database. This system is called Trossen. For the geographical part of the process is Arc Cadastre in use. These two systems are connected to each other and also to the digital archive Arken.

Before registration of the property formation a college always checks all documents and the result.

The cost for the Real Property Formation Procedure is, for an ordinary subdivision, about 3 000 euro. This shall be divided by those who benefit the cadastral procedure.

4. PROFESSIONAL PRACTICING SURVEYORS IN DENMARK AND SWEDEN

4.1 Professional qualifications and prerequisites

In order to fulfill and satisfy societal expectations and concerns regarding the performance of cadastral work the surveyor have to fulfill a variety of requirements for professional exercise of the activity - which may involve regulation of the profession, educational requirements, consumer protection, ethics, disciplinary requirements etc. These requirements can be regulated by law, or be part of self-regulation of the profession.

■ Cadastral work is regulated in Denmark. It can only be performed by publicly appointed liberal surveyors based in a private surveying company with regulation of ownership so appointed surveyors have a majority interest in the ownership, in the board and in the executive board. At the moment there are barely 60 private surveying companies in Denmark, employing approximately 350 surveyors and about 700 other servants. The cadastral work represents about 30% of corporate revenue. The surveyors have an academic background – 5

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 15/19 Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014


Engaging the Challenges – Enhancing the Relevance

Kuala Lumpur, Malaysia 16-21 June 2014

years on University level consisting of a bachelor degree (3 years) and a master degree (2 years) in surveying and cadastral science.

To establish the necessary experience and knowledge to the requirements in practice the surveyor must have at least three years performing general cadastral work in a private chartered surveying company or in a cadastral administration doing cadastral work, undergoing further

education. Based on this minimum of experience of cadastral work in practice the surveyor can achieve appointment on approval of the professional skills by National Survey and Cadaster. To maintain professional skills, development and quality the The Danish Association of Chartered Surveyors (DdL) recommends 37 hours professional training, knowledge and dissemination per year. Continuing Professional Development (CPD) is not compulsory but defacto.

 In Sweden about 1000 persons work as a surveyor with cadastral purpose. Most of them are graduated in Surveying at Master degree. They graduate from the Royal Institute of Technology in Stockholm or the Institute of Technology in Lund. There is a lack of surveyors, not only for cadastral purpose. Nowadays even persons with bachelor degrees or lawyers work as cadastral surveyors.

A special obligatory introduction program has been produced by Lantmäteriet. It includes legislation, field surveying, practical handling on the technical system, how to manage a meeting, ethics rules etc. Every new employee gets an individual plan stretching two-three years, depending on their background. During this period they are working as an assistant surveyor and are supported by a decisional land surveyor. During the entire working life every surveyor must complete their competence due to new legislation and technical systems. In Sweden many surveyors are experts in handling certain types of cadastral types. E.g. is it possible for a surveyor expert in the south part of Sweden to handle a case in the north when field surveying not is necessarily.

The central governmental agency Lantmäteriet supervises continuously the land surveyor's competence and gives regularly support.

There are very few claims which indicate good works of the surveyors.

4.2 Professional business and disciplinary requirements

The public confidence to the property systems and the performing professionals is very high in Denmark and Sweden. There are no bribes and the systems are open and transparent. This confidence is supported by a high degree of consumer protection and a high code of ethics which makes great demands on all people working within the system. The surveyors must treat every person professional and work very effective and efficiency so that the cadastral process is progressing professionally, quickly and does not become unnecessarily expensive.

Due to the difference in performing the cadastral work in Denmark and Sweden, respectively by a private appointed adviser and a public civil servant, the professions must handle these requirements differently in the different contexts.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 16/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014

Engaging the Challenges – Enhancing the Relevance

Kuala Lumpur, Malaysia 16-21 June 2014

It is a condition by law for execution of cadastral works in Denmark that the surveyor takes out insurance for liability arising out of acts or omissions committed by the surveyor himself or by the surveyor's staff. The insurance must cover at least 5 years after the surveyor permanently ceased company. The National Survey and Cadaster registers and monitors that the demands of compulsory insurance are met.

Moreover, there is by law established a public board of appeal, The Surveying Board, independent from the surveyor's organization to settle complaints about practicing surveyors for their professional work. The board assesses the surveyor's work in order to decide whether he has failed to fulfill his obligations to such an extent that there is reason to impose a penalty in the form of a reprimand or a fine, or if special circumstances justify a withdrawal of the public appointment.

To support the increased professional liability the publicly appointed liberal surveyors are subject to, the Danish professional trade associations set up both a Disciplinary Board and a Remuneration Board. The Disciplinary Board considers complaints of all types of work carried out by chartered surveyors or their surveyor assistants who are members of the association. It can give an assessment of the quality of the surveyor's work, with an opinion.

The Disciplinary Board has the opportunity to recommend to the surveyor to carry out rectification of work performed. Such a request will usually be followed.

The Remuneration Board deals with complaints relating to the fee, a practicing chartered surveyor has calculated for the work done. An opinion of the board will be the basis for an assessment of whether the claim should be brought before the courts. A statement from the board that goes against the surveyor will usually be followed up by the surveyor.

And to have high ethical principles for surveying services and to support customer protection a professional association-related ethical code as guideline for the surveyor's work has been developed and adopted by the profession. Furthermore The Code of Conduct the Council an ethic guideline form the European Geodetic Surveyors (CLGE) has been ratified by the profession.

In Sweden the surveyors are not personally liable. Lantmäteriet or the municipality is responsible for every claims and its consequence to a client.

There are very few claims. The claims usually refer to questions about roads and how to split costs for construction and maintenance.

Lantmäteriet is responsible for giving juridical and technical support and produces tutorials and courses directed to the land surveyors.

4.3 Professional representation of interests

In both Denmark and Sweden there are organizations that represent and take care of the professional interests of the surveyors. Working to develop and strengthen the surveying profession for the benefit of its members and society.

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 17/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014

Engaging the Challenges – Enhancing the Relevance

Kuala Lumpur, Malaysia 16-21 June 2014

■ In Denmark The Danish Association of Chartered Surveyors (DdL) is responsible for the professional, economic and social interests of the surveying profession as well as member's personal work and professional interests – membership is personal.

The Danish Association of Licensed Surveyors in Private Practice (PLF) is a professional association for companies that perform surveying business under the The Chartered Surveyors Act. PLF is a political, professional and employers' association carrying out business interests by creating the best possible conditions for exercise of the cadastral work and related business and promoting professional developments. PLF is included as an active party in dense legislative development partnerships with various ministries within cadastral work and land management

■ In Sweden Samhällsbyggarna – the Swedish professional for built Environment is an organization of interests but with no juridical role for surveyors. The organization have adopted CLGEs code of Conduct.

DdL, PLF and Samhällsbyggarna are members of CLGE and FIG. In these international organizations we follow the discussions and development in Europe and other countries.

5. CONCLUSIONS

As we have shown in is this paper both Denmark and Sweden have well functional and high priority cadastral systems which is underlined in both communities by being categorized as digital infrastructure and cadastral data as authoritative basic data. We have described how the system works in both countries, in Denmark performed in a private-public partnership by private appointed surveyors and in Sweden in a public administration, but with many similarities in the process and distinct account of a third party. In both countries the cadastral process is carried out professional in an efficient and transparent way which gives the systems and the process a high confidence and credibility in society including a significant consumer protection.

It has been possible to create and develop a consistent and reliable cadastral system due to the political context, including the political consensus that prevails in relation to the security of rights in real estate private property. In addition the surveyor's society who have the exclusive right to perform the cadastral work in both countries contributes actively and professionally to develop the cadastral area by setting a high professional level of the profession accomplishing the task. It relates to the professional performance of the work, professional qualifications, code of ethics, consumer protection and continuous development of legislation and digital systems.

CONTACTS

Ewa Swensson
Senior Adviser of Cadastral Development Ewa Swensson
Lantmäteriet

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 18/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014

Box 505 90
SE -202 15 Malmö
Sweden
Tel: +46 40 660 80 70
Email: ewa.swensson@lm.se
Web site: www.lantmateriet.se

President Torben Juulsager
Danish Association of Licensed Surveyors in Private Practice (PLF)
Kalvebod Brygge 31-33
1780 København V
DENMARK
Tel. +45 61 62 83 21
Fax +
Email: tgj@geopartner.dk
Web site: www.ddl.org

Transparent Cadastral System – in both a Private and Public Task Performance, (6957) 19/19
Juulsager Torben (Denmark) and Ewa Swensson (Sweden)

FIG Congress 2014
Engaging the Challenges – Enhancing the Relevance
Kuala Lumpur, Malaysia 16-21 June 2014