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SVERIGES LANTMÄTAREFÖRENING

The Swedish Way

National report at FIG Working Week and General
Assembly in Hong Kong SAR, China, 13-17 May 2007

The Swedish Way

The Swedish Way contains descriptions of how activities, which are included in FIG's definition of land surveying, are carried out in Sweden. Every commission has been given its own chapter and every chapter is a description of how the activities are organised, the role of the chartered surveyor and the changes and developments that can be expected to take place during the next few years.

A short history

Land surveying in Sweden has deep roots that go back to 1628 when King Gustav II Adolf gave the mathematician Anders Bure I the task of mapping Sweden, creating a Swedish land survey organisation and training land surveyors.

During the course of the following centuries all cultivated land in Sweden was accurately surveyed and a list of land owners – the first real property register – was created. From the end of the 1700s and up to the beginning of the 1900s several comprehensive programmes of sub-division, consolidation and re-allocation of the land were carried out. As a consequence of the successive informal sub-division of land resulting from inheritance, cultivatable land had been broken down into fragmented small parcels which were no longer viable agricultural units, and to create more rational production possibilities the small separate parcels belonging to individual farmers were amalgamated to create one or two larger units. The result of the reform was that separate farm units were created with some distance between them, which can be seen today by the almost total absence of nuclear villages in the Swedish countryside.

The first university education of land surveyors was started in 1928. Up to the 1960's, most graduate surveyors were employed by central government agencies or by the larger municipalities, but since then an increasing number have sought employment with private sector real estate

companies or in the geographic information management sector. Today, Lantmäteriet (National Land Survey of Sweden) is the government agency that has responsibility for land sub-division and associated cadastral activities as well as for the maintenance of the Real Property and Land Registers. Lantmäteriet also has responsibility for creating and maintaining geographic databases containing topographic information; hydrographic databases are the responsibility of the National Maritime Administration and hydrological and geological databases of the Swedish Meteorological and Hydrological Institute and the Geological Survey of Sweden, respectively. Property valuation, the production of maps and the development of programs and support for positioning and mapping are primarily carried out by private sector companies. Planning of the use of land is primarily the responsibility of Sweden's 290 municipalities.

Professional standards and practice

General background

Standardisation in Sweden is co-ordinated by the Swedish Standards Institute (SIS). Work is carried out in working groups, which also include representatives for the business and industry sector and government agencies. Standardisation of geographic information is organised within the Stanli project, which both co-ordinates Swedish participation in ISO and CEN and is responsible for creating national, Swedish standards.

Description of activities in Sweden

Swedish standards that have been created and documented dealing with:

Geographic information -

Representation of changes in datasets.

In this basic standard, transactions for deleting, adding and updating datasets are described.

Geographic information – Type-independent representation of geographic phenomena.

This basic standard deals with a catalogue-based approach for representing and transferring data on phenomena that have links with, for example, road or utility networks.

Geographic information – Location addresses

The standard deals with the structure for addresses for physical locations and how addresses and road signs should be designed to facilitate understanding and navigation.

Geographic information – Surface water systems – Conceptual and application model

This application standard deals with systems for drainage basins, lakes and watercourses.

Geographic information – Road and railway networks – Conceptual model and application schema

The standard deals with describing and transferring information about traffic networks and phenomena linked to them.

Geographic information – Technical supply systems – Conceptual and application model

This application standard deals with utility networks for, for example, water, drainage and electricity and how information about them can be transferred.

The role of the chartered surveyor

Chartered surveyors are engaged in the different projects within Stanli that involve the development of standards in the geographic information field.

How are activities changing?

The vision is that there should be standards for all important types of geographic data that is used in Sweden and that all strategically involved bodies should produce, order and utilise data in accordance with these standards. Stanli participates in both European and global standardisation activities. This work includes the ISO 19100 series, which is the global standard for geographic information. The national standards for the different areas of activity that are developed by Stanli are based on this global standard.

Some of the key factors which, it is anticipated, will affect and lead to an intensification of work with standardisation include

- The Swedish government's interest for e-governance, in which geographic and real property information are important components,
- The national strategic plan for geodata which Lantmäteriet (National Land Survey of Sweden), together with the Geodata Advisory Group and a number of agencies, has formulated and is in the process of further developing,
- The European Union's directive, INSPIRE, the aim of which is to harmonise and facilitate access to geographic information and services associated with it, throughout Europe.

Professional Education

General background

Every year approximately 150 students graduate from the two Swedish technical universities, the Royal Institute of Technology (KTH) in Stockholm and the Faculty of Engineering (LTH) at the University of Lund, with degrees in land surveying, 60 with specialisation in cadastral surveying, 40 with specialisation in geographic information and 50 with a main focus on different types of real estate economics. Two hundred new students are accepted each year, which means that approximately 70 % continue to take their finals. In addition, approximately 50 students enter university to study property brokerage in social science departments.

Description of activities in Sweden

In Sweden higher education is provided by independent universities. Both groups are financed through government grants the size of which is related to the number of students they can attract and the number who are awarded degrees. There has been a large increase in the number of places of higher education during recent decades and the percentage of final year students at upper secondary schools who begin university studies within three years of leaving school is around 44 %. At the end of the 1980s the figure was 21%. There are two main reasons for the increase: several vocationally-oriented upper secondary schools have been given university status and there has been a general increase in the level of education of young people. There are no formal educational requirements for working as land surveyors. As the universities have freedom to design their own educational programmes there is, currently, no uniformly structured land survey education and students can choose between different courses and programmes that have varying names, content and length. At three universities it is possible to study real estate law at a level which makes the final degree acceptable for employment by Lantmäteriet (National Land Survey of

Sweden). After further complementary specialist training the recruits are considered to have the required competence to carry out cadastral procedures. During 2007 a fourth university will introduce a specialised programme for educating land surveyors. There are courses in real estate economics at six universities. These courses focus on different specialist areas such as brokerage, finance and housing economics and property management. This field is developing rapidly, which is mirrored in the number of courses that are being offered. A large expansion in this field has occurred since 2006 when a legal requirement was introduced which stipulated that estate agents must have at least two years of university education before they are allowed to practice. Education with a focus on technical land surveying is only available at present as part of other programmes. There are several programmes which have a main emphasis on the management and use of geographic data. First degree education at Swedish universities is free and students can also obtain grants and relatively cheap loans to cover accommodation and living expenses. Also those universities that are privately owned are included in the State financed study system. Further education programmes for persons who already have begun working are also available at the universities but, in this case, fees are charged. There is some demand for this educational form but it is limited to a certain extent because, as working as a surveyor does require formal certification, there are no formal requirements for further education. Research in real property techniques is carried out in a number of different areas such as property development processes, land acquisition, real estate law and real estate information. Research in real estate economics is focussed on the real property and housing markets, property valuation and real estate management. In the geo-information field, research projects include

cartographic visualisation, Web GIS, 3D modelling, GIS for planning purposes, building and industrial surveying, remote sensing and GPS.

How are activities changing?

In conjunction with Sweden's adoption of the Bologna model in which higher education is divided into 3 + 2 year periods, the pre-conditions for the universities will change. Traditional land surveying subjects can either constitute specialised studies during the last two years or within the framework of a broader programme or be offered as a three-year, independent programme, where further specialisation can be arranged in the workplace – a company or government agency. There is a manifest risk that the number of students who choose a land survey education will not be equal to market demands.

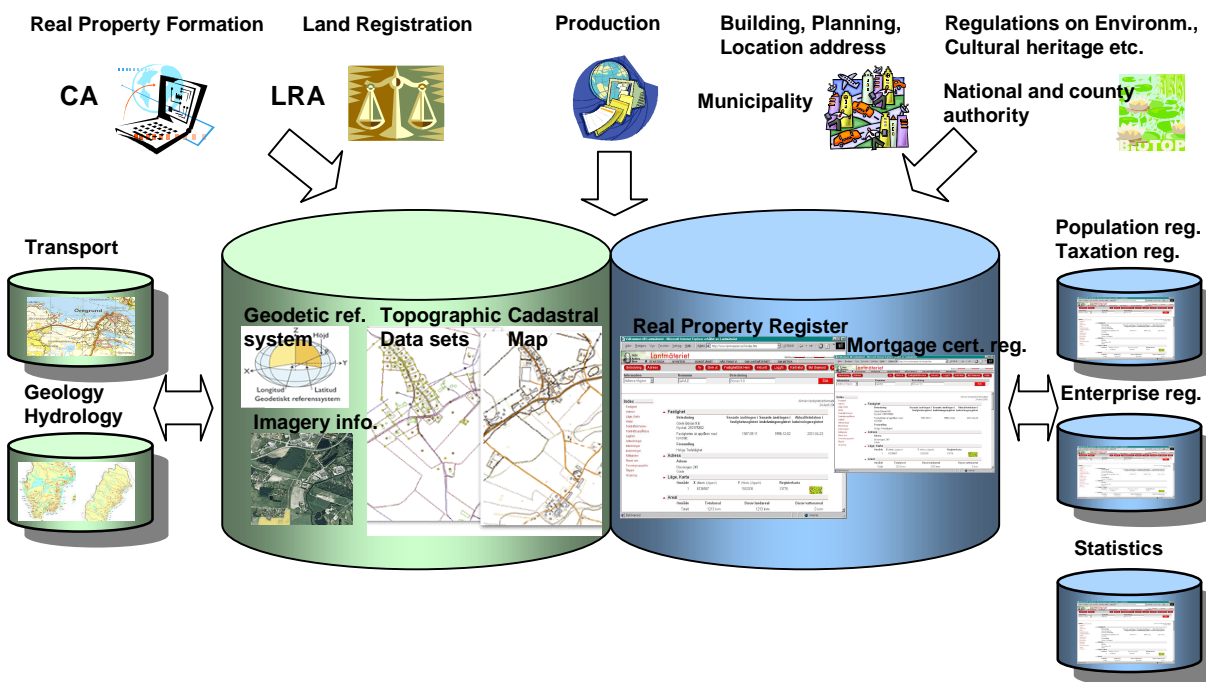
Spatial information management

General background

Many government authorities in Sweden have national geographic databases. Of them, Lantmäteriet (The National Land Survey of Sweden) is the authority that is responsible for supplying geographic and real estate data to almost all users in the country. The databases have been created and are maintained through co-operation between central and local government authorities and a number of other organisations. The Swedish Maritime Administration maintains hydrographic databases, the Swedish Meteorological and Hydrological Institute (SMHI) hydrological databases and the Geological Survey of Sweden (SGU) geological databases.

The figure below is a general overview of the co-operation that is carried out concerning national geographical databases.

A description of activities in Sweden
Lantmäteriet creates and maintains geographic databases containing information about topography, land use, real property and buildings. The data, which is referred to a common geodetic system, can be purchased as printed maps, databases for further refinement or adapted for various applications, through a network of retailers. A large number of standardised products are supplied via the Internet. Other authorities that supply geographic data have agreements with Lantmäteriet which make it possible to combine and present different types of information. Real property data is continuously updated, whereas geographic data is revised in cycles depending on the type of features. Topographic data is collected from, amongst other sources, aerial imagery which is repeated for the whole of Sweden at three-yearly intervals. A digital camera is used for this purpose.



The role of the chartered surveyor

Many of those who work with the maintenance and marketing of geographic information are chartered surveyors. There will continue to be a demand for chartered surveyors in these sectors.

How are activities changing?

Real property and geographic information – geodata – are part of the total national information resources. A basic precondition for developing an efficient and user-friendly e-governance is that all data from different suppliers is carefully documented and can be merged. The way in which information is provided is undergoing a process of change away from the current ways of providing geodata packaged in special GIS solutions. In the future, a general IT and service-oriented architecture (SOA) will be used to create network-based, distributed to provide data based on seamless co-operation between organisations.

We consider that a network and service-based information structure is the most suitable concept for developing a national data infrastructure with a sound foundation. A solution of this type could be applicable and satisfy needs at local, regional, national and European (INSPIRE) levels.

Hydrography

General Background

Swedish waters cover an area of 165,000 km² with a 2,700 km long coastline, mostly in the Baltic Sea and comparatively shallow. The average depth of the Baltic Sea is forty meters and maritime traffic is extensive and increasing. Winter ice in the north of The Gulf of Bothnia affects the routes usable by shipping. In Sweden hydrographic services are provided by the Swedish Hydrographic Office (SHO) a part of the governmental Swedish Maritime Administration (SMA). The SHO is responsible for the official hydrographic service in Swedish waters including hydrographic surveying. The SHO prepares and issues official nautical charts and nautical publications including notices to mariners to support maritime navigational safety and marine environmental preservation.

A description of activities in Sweden

Hydrographic Surveying

The SHO has three vessels at its disposal with a staff of twenty surveyors, which is sufficient to crew two vessels continuously. Several smaller vessels are also available for multi-beam echosounding and mechanical sweeping in shallow and sheltered waters. Since 1995 the main survey method has been multi-beam echosounding which gives a wide, complete and accurate picture of the sea bed. From 1995 to 2003 helicopter-borne laser bathymetry (Hawk-Eye) was used for shallow water surveys. Improvements in positioning (e.g. advanced GPS and Network-RTK as an alternative to tidal measurements), acoustics, movement sensors, analysis and more, have resulted in an increase in the reliability, accuracy and amount of data produced. Reliable data at the acquisition stage results in increased efficiency onboard and swaths can be compared by follow-up analysis. Improved analysis methods applied directly onboard mean that anomalies can be identified and eliminated whilst the ship is still in the operation area. Seven years ago Sweden

began implementing the IHO's Standard for Hydrographic Surveying (S-44), which means that newly surveyed areas are completely covered with soundings and shallow areas, where the margin between vessel and bottom (dynamic clearance), can be very small are surveyed with higher accuracy using an advanced method of mechanical detection.

All survey data is stored in a single depth database with new digital data stored in grid format and the older survey data (consisting of printed or hand-drawn depth charts) stored as geo-referenced scanned images.

In addition to the SHO, there are several private survey companies that work on a contract basis as well as some companies that publish customised charts for pleasure craft covering popular areas in the archipelagos.

Nautical Charts and other publications

Official nautical charts covering Swedish and adjacent waters such as the Skagerrak, the Kattegat, the Baltic Sea and the Gulf of Bothnia are produced by the SHO. Canal charts exist for the three largest canals in Sweden and consist of a nautical chart booklet and a section with text. The charts are divided and designated according to their scales and areas of use.

On the digital and vector-based Electron Navigation Chart (ENC), normally used in the Electronic Chart and Display Information System (ECDIS) on board a ship, the data is shown on the display as a continuous, seamless chart. The ENC's are produced in defined cells in usage bands. The use of digital charts as an alternative to paper charts is regulated according to international rules stipulated by the International Maritime Organisation (IMO).

Swedish waters are completely covered by ENC and their use is steadily increasing. The SHO's official ENCs are for sale via Primar, whose head office is in Stavanger, Norway.

The role of the chartered surveyor

Land surveyors at the SHO are typically engaged in geodetic activities related to positioning and the basic information for producing nautical charts. This involves contacts with other agencies that are responsible for geodetic networks.

How are activities changing?

The SHO is in the process of converting all older, analogue hydrographic survey data into a digital format. The aim is to have a complete digital coverage of Swedish waters within the next five years. Within the same timeframe other changes and improvements, such as the following will take place:

- The Network-RTK will be accessible along the whole Swedish coastline.
- A new version of IHO's Standard for Hydrographic Surveying (S-44) will be published and begin to be implemented by the Hydrographic Office and followed by manufactures of survey systems.
- New Swedish regulations for fairway design will be implemented and will probably affect survey methods and the survey plan.

Positioning and Measurement

General background

Lantmäteriet (The National Land Survey of Sweden) is responsible for the fundamental, national geodetic networks including the gravity network. A realisation of the ETRS 89, SWEREF 99, is since the beginning of 2007, the official reference system for products from Lantmäteriet. Sweden has also introduced a new vertical reference system, RH 2000, which has been adjusted to be as close as possible to the European height system, EVRS. The latest official geoid model developed in Sweden is called SWEN05_RH2000 and is based on the Nordic geoid model NKG 2004 fitted over Sweden to make height determination possible in RH 2000. The result is a geoid model which, for most parts of the country, is better than 2 cm (standard deviation).

A description of activities in Sweden

There are a large number of local co-ordinate and height systems in Sweden. The municipalities, especially those working with GPS, have realised that to be able to work efficiently with global positioning techniques they need to review the quality their local networks. A first step is to evaluate the quality of the existing network and, normally, this is followed by a decision to also adopt SWEREF 99 (and RH 2000) locally. The quality control is done by Lantmäteriet and the local authority together. A pre-condition for working with GPS in local surveys is that transformation parameters between local systems and the national system are available. Transformation parameters have been computed and are made available on Lantmäteriet's website.

Over the last 10 years much effort has been put into building up a network of permanent GNSS stations. The Swedish network is called SWEPOS and Lantmäteriet is responsible for its running and maintenance. The purpose of SWEPOS is to:

- Provide L1 and L2 data in RINEX format for post-processing.
- Provide DGPS and RTK data to real time distributors.
- Act as high precision control points for Swedish GPS users and be the basis for the Swedish national reference frame.
- Provide data for studies of crustal movements (geophysical research).
- Monitor the integrity of the GPS system.

Today, SWEPOS consists of more than 120 stations located over the whole of Sweden. There are also a few local networks and a number of local single station reference points, but Lantmäteriet is the main player regarding permanent GNSS stations. Network-RTK is one of the major services, among several others, that use SWEPOS and it also covers most parts of the country. Currently, the service has more than 500 users and the number is growing.

Some of the SWEPOS stations are connected to the EUREF Permanent Network (EPN) and Lantmäteriet acts as one of the 16 analysis centres in Europe. This is done as part of Nordic cooperation within the framework of NKG. In addition, some of the SWEPOS stations provide data to IGS.

The role of the chartered surveyor

Geodesy is one of the traditional core areas of competence for Swedish chartered surveyors and both development, management and the maintenance and running of the different reference systems and of SWEPOS is carried out by professional surveyors.

How are activities changing?

Activities during the next few years will be dominated by work with the adaptation of local reference systems to SWEREF 99, management of SWEREF 99 and RH 2000 and the management and further development of SWEPOS.

Cadastre and land management

General background

Sweden is divided into approximately 3.3 million property units, all of which are registered in a computerised real property register that covers the whole country. The register is complemented with a map. The register also contains information about easements, joint facilities and buildings. Between 20 and 25 thousand transactions that lead to changes in the real property register are handled annually. The national Real Property Register is administered by Lantmäteriet (The National Land Survey of Sweden).

Ownership and economic encumbrances in properties are registered in a separate land register which, in the near future, will organizationally become the responsibility of Lantmäteriet. Approximately 900 thousand changes are made in the land register each year.

A description of activities in Sweden

Lantmäteriet is a governmental agency with responsibility for real property formation and real property and geographic information in Sweden. Lantmäteriet reports to the Ministry of the Environment. The agency has a regional organisation with a cadastral authority in every county and local offices in some municipalities. A number of larger municipalities also have their own cadastral offices for real property formation (approximately 38).

The cadastral authorities undertake cadastral surveys on request from land owners or from governmental agencies. Cadastral activities include: subdivision, mutations, land consolidation, servitudes, special utility rights for pipelines, telecommunication lines and other type of line objects, the establishment of joint facilities and commons. Most cadastral activities are based on agreements, but they can also include the determination of expropriative rights to facilitate compulsory purchasing of land. This is the responsibility of the cadastral authority, which is also responsible for decisions

concerning settlement of land disputes. The information from cadastral activities is automatically used to update the land information system. These activities are regulated by the Real Property Formation Act and are mainly financed through fees charged to the involved parties.

Registration of ownership and mortgages is carried out at the request of the purchaser or lender. This activity is financed by a tax which is levied when the property is transferred.

The role of the chartered surveyor

In Sweden, real property formation is, traditionally, the main task of chartered surveyors. When a cadastral procedure is carried out, the cadastral authority is represented by a chartered surveyor who, independently, has the authority to implement the procedure in consultation with the interested parties whilst, at the same time, taking into consideration the public interested that are specified in the law. In addition to a sound knowledge of the relevant legislation, a cadastral surveyor must have the ability to value land and, not least, to handle negotiations leading to a final decision. Chartered surveyors also work with the administration and development of the Real Property Register. Up to the present time, the Land Register has been the responsibility of till lawyer in courts of law.

How are activities changing?

Apart from organisational changes that will place responsibility for the Real Property Register and the Land Register in one agency there are no other planned major changes. During the past decades, technical developments have led to a significant speeding up of cadastral procedures and a complete cadastral procedure up to registration in the Real Property Register can, in many cases, be carried out digitally. An expansion of the Real Property Register to include individual apartments in apartment blocks has been started.

Spatial Planning and Development

General background

In order to have a functioning society many different interests and needs, both private and public, for using different areas of land, need to be co-ordinated. The preparation of different types of plans that deal with changes to or preservation of land use are a way of achieving, from society's perspective, an acceptable use of land and striking a balance between different interests. In Sweden there are statutory possibilities to plan changes to or preserve land use. These plans can serve as guidelines or be mandatory. In the legislation there are also regulations concerning the balance between different land use interests.

Land use planning in Sweden is primarily the responsibility of the 290 municipalities. The State exercises a supervisory role, through the county administrative boards, to ensure that regional and national interests are observed in connection with municipal planning. The only existing regional land use plan is in the county of Stockholm.

A description of activities in Sweden

The Swedish form of government allows the municipalities a high degree of self determination including, for example, the power of taxation. In 1987, the Swedish government adopted the Planning and Building Act in which, amongst other things, the so-called municipal planning monopoly was confirmed. This meant that planning became a municipal responsibility and was part of a general move towards decentralising responsibility and decision-making from the government to the municipalities. One result was that governmental planning approval was no longer required.

The basis for all municipal planning and building decisions is a municipal land use plan that covers the whole of the municipality. The plan illustrates the municipality's overall general intentions

concerning land use. In the plan the municipality must show how national interests, as identified by the government, will be met. Such a plan is not binding either for individuals or authorities, but is the basis for planning at a more detailed level. The suitability of an area for building can be reviewed either through detailed planning or directly through a building permit review.

Valuable natural and cultural environments can be protected through the establishment of national parks, nature reserves, cultural reserves and similar. To safeguard public access to beaches and water and to ensure a good living environment for plants and animals, building closer than 100 metres to a shoreline is not allowed.

Land for public roads is accessed in accordance with public road rights, which entail the right to make use of the land without acquisition of ownership rights. A road right is, however, such a far-reaching transfer of rights that the land owner has, in reality, few possibilities to utilise his/her ownership rights.

Land for other public purposes is normally acquired through expropriation i. e. ownership is transferred to the State.

The role of the chartered surveyor

Traditionally, physical planning in Sweden, as far as plan interpretation and presentation in accordance with the Planning and Building Act is concerned, has been carried out by architects. However, approximately two hundred chartered surveyors are today engaged in planning, at State and municipal levels and in private development companies.

How are activities changing?

Swedish planning and building legislation has recently been the subject of a public investigation. The report stated that the present planning system should be retained generally unchanged. The problems that were identified were related to deficiencies in the implementation of current legislation which could be explained by a lack of

resources and competence in some of the municipalities.

Another investigation has recommended a completely new regional administrative organisation through the formation of regional authorities. This could result in a strengthening of planning at the regional level.

Valuation and the management of real estate

General background

There are approximately 3,3 million real property units in Sweden with a total value of SEK 3,700 billion, which is equivalent to the total value of the Stockholm Stock Exchange. Real property is security for loans amounting to SEK 1,600 billion and the value of property transactions in 2005 was SEK 120 billion.

A description of activities in Sweden

Sweden's real property market is probably one of the most efficient in the world (cfr. The World Bank's Doing Business studies). The transparency, low transaction costs, good access to property information as well as property financing and an increasing interest from foreign investors are factors that have contributed to a steady growth in real estate investments.

Today a valuation for a commercial property takes less than one hour – provided the valuer has access to the relevant databases – whilst it took maybe one week 30 years ago. Retail banks and mortgage institutions all have expert systems for valuation of family houses and co-operative flats, and for these categories almost all mortgages are based on a value estimate from an expert system. The market for traditional valuation is decreasing and such valuations are only undertaken for complex objects in markets with limited information. Most valuations, in other words, are carried out within the framework of other activities, for bank loans, by real estate agents or by consultants in connection with the acquisition of companies.

Assessment for tax purposes is handled by the Swedish National Tax Board. The reassessment that is done every third year is a mass valuation procedure, with few exceptions. Valuation expertise is involved only in the preparatory work, i.e. in the design of the valuation zones for the different categories of properties, in the process of proposing value levels and in

the development and refinement of the valuation methodology.

In Sweden, as in the rest of the world, management of real property involves contractual negotiations with tenants, procurement of technical services and reconstruction. Depending on whether the management is long-term, or part of a development project, the main focus will, of course, vary. Management can be the responsibility of the property owner or contracted out to specialist management companies.

The role of the chartered surveyor

As, traditionally, property valuation has been part of real property formation procedures many surveyors have been active when a need for valuation and other real property related financial services developed. Professionals with a land survey education are engaged at all levels in activities related to valuation and property management.

How are activities changing?

An all-embracing change is the influx of international capital together with international players. In 2005, foreign investors were responsible for 40% of the turn-over on the Swedish real property market and 10% of the properties had foreign owners. The creation of databases and valuation and management models has resulted in a general rationalisation and increased focus has now been placed on finding new ways to increase the value of properties by technically modernising and adapting them to new demands. Another way of adding value is by grouping properties in homogeneous property types adapted to satisfy the demands of different types of investors.

Construction Economics and Management

General background

The annual turnover in the building sector in Sweden is of the order of SEK 230 billion, which is equivalent to approximately 6% of GNP. In a European perspective, where the average is closer to 10% of GNP, this is a relatively low figure. The building sector comprises around 10 000 companies of which the majority are one-man firms. A few building companies are listed on the stock exchange and the internationally best known – Skanska – has more than 50 000 employees, mainly in the USA and Europe.

A description of activities in Sweden

Infrastructural development and building is almost wholly financed by public funding and the volume is, therefore, dependent on political decisions. The National Road Administration has its own building and construction division which competes with private sector companies for contracts on the same terms. In addition, some of the municipalities have their own highway departments, although the greater part of building and construction work is carried out by private companies.

The housing construction market is made up of a sector for single-family homes and a sector for apartment buildings. Houses are generally wooden, modular structures and are purchased by private persons. During 2005, 10 000 single-family units and 13 000 apartments, in apartment blocks, were built.

The construction of single-family homes is dominated by specialist companies. These companies either acquire plots of land and sell fully developed properties including a house, or sell their house packages to private persons who already have their own plot. In both cases, the normal procedure is for the companies also to be responsible for erecting the house, which then is handed over as a "turnkey product". In Sweden, apartments in apartment blocks are available either with right of tenancy or

as co-operatives. At present, there are no occupant-owned apartments in Sweden. Apartment blocks with apartments for renting are normally built on the initiative of private property owners or municipally owned property companies, which place orders for the total development and then take over management. Today, it is unusual for building companies to also manage buildings with rented apartments. Co-operatives are built on behalf of a tenant co-operative association made up of the future occupiers of the planned apartments. In practice it is a building company or an economic association that is responsible for having the block built after a sufficiently large number of prospective co-operative members have registered their interest in acquiring an apartment.

The market for commercial properties is the market that has undergone most change in Sweden during latter years. Both Swedish and international companies build and manage different types of commercial properties, such as offices and shopping centres. In addition, there are companies whose business concept is property development i.e. they purchase a plot of land, plan its development and design for, or in co-operation with, a future user. All of the major building and construction companies are engaged in this type of property development where the trend is to hand over the projects to different management companies or funds at increasingly earlier stages of the process, often before the buildings are complete or occupied.

In accordance with current legislation, the municipalities have a monopoly regarding the planning of all building. This means that they alone have the right to approve detailed development plans. With the exception of infrastructure and public activities such as, for example, building hospitals, the initiative for new building comes as a rule from private, interested parties. In practice, much of the planning work is carried out by private companies and every plan is complemented with an

agreement between the municipality and the developer which guarantees the municipality reimbursement for its costs, not only for the planning work but also for investments in necessary infrastructure.

The role of the chartered surveyor

A large number of chartered surveyors are engaged in property development activities where their competence in legally and economically putting together projects is sought after. Chartered surveyors who work with construction economics and management can be found in both real property and building companies, in the municipalities and as consultants.

How are activities changing?

During the past decades, infrastructural construction has mainly been carried out under unchanged conditions, but with a decreasing amount of investment as a consequence of labour market politics. In two cases, the railway link between Stockholm and Arlanda Airport and the bridge across Öresund between Sweden and Denmark, the construction work was carried out by consortiums which were then granted licences to operate the facilities for a number of decades and thereafter hand them over to the State.

There are signs that this type of investment - Public Private Partnership - will increase but, as yet, there are tangible examples. House building was for many years strictly regulated through State subventions, the last of which was abolished at the end of 2006. House building has, therefore, been successively adapted to market demands. Because rents in Sweden are subject to controls, building in areas where there is a large demand is dominated by privately owned single-family homes and housing co-operatives. The new government that came into power in 2006 has announced changes, which can result both in a decrease in rent controls and permit private ownership of apartments. How this will affect the production of housing is, as yet, unclear.

The building of commercial premises has, as mentioned above, developed rapidly and mirrors the trend in many other countries. A very large influx of foreign capital into the Swedish property market during the last few years has been an important driving force. Should this capital find its way into alternative markets, the picture can rapidly change.

It is generally considered that the current Planning and Building Act is out of phase with today's situation in which the greater part of building activities are carried out as a result of private initiatives. There are, however, no tangible proposals for change.