

SHOULD PEOPLE TRUST INFORMATION FROM THE CADASTRE?

- The case of public administrative usage in Norway

Leikny GAMMELMO, Norway

Key words: Cadastre, Real property, Public Administration, Trust, Information

SUMMARY

The cadastre should be a nationwide register that gives insight to existing property structure. It should be a resource for both planning and administrative procedures concerning property formation in general and more specifically changing real property like subdivision. However, can people trust information from the cadastre? This paper will discuss the possible roles for a cadastre and define some of the key terms as background information. Furthermore, it will outline the development of the Norwegian cadastre and provide an overview of the institutional framework relevant to Norway. This part will help clarify the weaknesses of the Norwegian cadastre. The empirical data will focus on the quality and use of the Norwegian cadastre by the public administration in processing applications for changing real property. There are benefits and challenges associated with using the information in the cadastre as an administrative tool. The question explored in this paper is: how well does the cadastre function as a source of information and administrative tool, focusing on the situation in Norway? In Norway, the cadastre is of variable completeness in terms of describing boundaries and the location of real properties. This is not unique to Norway, and it is a concern as landowners and other parties trust the cadastre. It is a particular concern where the cadastre is supposed to play a key role in land administration systems.

SUMMARY IN NORWEGIAN

Matrikkelen skal være et landsdekkende register som blant annet viser eksisterende eiendomsstruktur. Den skal være et utgangspunkt for så vel planlegging som saksbehandling av saker om opprettelse og endring av fast eiendom. Men kan vi stole på den informasjonen vi finner i matrikkelen? Artikkelen vil først ta for seg ulike roller en matrikkel kan ha og definere aktuelle begreper. Videre vil den ta for seg det formelle rammeverket og utviklingen i Norge som et grunnlag for å forstå utfordringene i den norske matrikkelen. Deretter presenteres data som beskriver innholdet i matrikkelen og hvordan den benyttes av kommunenes saksbehandlere. Artikkelen avsluttes med å se på utfordringer ved å benytte matrikkelen som saksbehandlingsverktøy ved opprettelse og endring av fast eiendom. Problemstillingen som belyses i denne artikkelen er; hvordan fungerer matrikkelen som informasjonskilde og saksbehandlingsverktøy med fokus på norske forhold? I Norge er matrikkelen i varierende grad komplett når det gjelder grenser og plassering av fast eiendom. Denne utfordringen er ikke unik for Norge og dette er en utfordring med tanke på at hjemmelshaver og partene har tillit til matrikkelen,

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uten nødvendigvis å kjenne til usikkerhetene. Spesielt når matrikkelen skal spille en hovedrolle i eiendomssystemet.

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1. INTRODUCTION

Developing and evolving our built environment often involves changes in real property. The realization of a land use plan also includes changes in real property. The landowner may have to submit an application and get approval when he or she wishes to make changes such as subdivision of a real property. The public administration handling these applications needs information about the real properties involved. A cadastre can provide this type of information. The cadastral number can also function as a link to other registries that contain useful information. Should people trust this information?

As long as 40 years ago, before nationwide digital registers were established, Henssen (1976:196) wrote “*that there is every indication that the world of to-day becomes more and more conscious of the importance of existing and up-to-date land registrations systems*” and that cadastral data is becoming essential. More than 30 years later the cadastre has become the most important tool in land administration systems (Williamson et.al. 2010:7). In Norway today, we see that the cadastre and cadastral numbers are used to link various registers and are used for the purpose of planning and controlling land use.

The scope of this paper is the public administration’s use of information from the cadastre when processing applications of changing real property. In other words, the cadastre’s role in administrative procedures in the Norwegian context. According to the Norwegian Planning and Building Act, the landowner has to submit an application and obtain approval when he or she wishes to make any change like the subdivision of real property, and to get it registered. This type of cases is the scope of this paper. Land-use change initiated by the public sector (e.g. roads, railways, etc.) follows a slightly different process in Norway and will not be discussed here. The cadastre is an important tool for both landowners preparing an application and the public administration when handling these applications. The processing is mostly done by an official. An exception can be special cases handled by the politicians.

According to Section 1 of the Norwegian act on a national register for land information (Cadastral Act), the cadastre shall ensure access to important land information by means of a uniform and reliable register that will be kept of all real property in the country, and by clarifying boundaries and other property-related matters. In Norway, the cadastre is of variable quality in terms of how complete the information in the register actually is (Gammelmo 2016). The absence of information is most easily seen when it comes to boundaries and accordingly the visualization of real property. This is not unique to Norway. According to de Zeeuw and Lemmen (2015:2) “[e]stimations show

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that about 70% of the people-land relationships are not documented'. This data, however, relates to developing countries; in the West, the registers are said to be complete. As we will see from the data presented in this paper there is a lot of information missing from the Norwegian cadastre. The questions asked in this paper are based on this insecurity: how well does the cadastre function as a source of information and tool for administrative procedures? If the cadastre is not reliable, how can the public administration use it? In addition, what are the consequences of faulty or missing information? Can we trust the cadastre?

Cases of changing real property can be complex and each case are unique. The process includes various parties such as the private parties involved and the public administration. A private party applies by submitting an application for subdivision, for instance, and the public administration processes the application. The private party may be a single landowner, two or more landowners together, a company or someone authorized to act on behalf of the landowner. The process may include parties with other property rights as well. The more complex and unique the issues are, the more uncertain the outcome is. According to North (1990), institutions such as rules and trustworthy information can reduce this uncertainty. The land administration system can provide relevant information. Therefore, by having an up-to-date system, uncertainty and transaction costs can be reduced. In Norway the land administration system includes the Land Register and the cadastre. Since the new Cadastre Act came into force in 2010 Norway has had one official cadastre available online, and it has become clear that there are many gaps in the information. This has been, and remains, a great concern within the profession and academic institutions.

Through a literature review, this paper aims to provide insight into the role of the cadastre. Therefore, the scope of the literature search for this paper covers cadastres, in general, and matters related to the Norwegian cadastre in particular. Chapter 3 will report the literature to provide an overview of the contents of a cadastre and define some of the terms as background information for the following chapters. Furthermore, it will outline the development of the Norwegian system and provide an overview of the institutional framework relevant to Norway. This is necessary because the roles of a cadastre will always depend on the jurisdiction. Chapter 4 will present the empirical data with a focus on the quality of the Norwegian cadastre and its use by the public administration. Then chapter 5 will analyse and discuss the benefits and challenges associated with using the information in the cadastre as an administrative tool. Chapter 6 will provide some concluding remarks concerning the situation in Norway.

2. METHOD AND DATA

Using information from a study of real-life practice allows us to see if the literature and theory give a true picture of the actual situation. It also allows us to investigate if the intentions of the formal institutions correspond with practice. Information and data about current practice comes from my own research project and a questionnaire called "Delesak i praksis 2015". The research project focuses on the municipal administration, its role according to the Planning and Building Act and its practice when processing applications for changes of real property.

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The data was collected over a period from 1 December 2015 to 5 February 2016 using a questionnaire made in Questback software. Before sending out this questionnaire, a pre-survey was sent to all 428 municipalities in Norway, 408 of which answered that they handle these applications themselves. The municipalities that handle these applications then became the respondents. The questionnaire was sent to the public administration represented by one public functionary, hereafter called the official, in each of the 408 municipalities, by preference the person handling applications of changing real property. The questionnaire had a response rate of 58% of the 408 possible respondents. The respondents represent all of the counties in Norway and all sizes of municipalities measured by population. The response rate and diversity of the municipalities represented makes it possible to draw conclusions of a general nature. There is no reason to believe that the municipalities which did not answer are different from those which did. The questionnaire included a mix of closed and open-ended questions. For the data used in this paper the main open-ended question was: How well does the cadastre function as an administrative tool for you as an official when handling applications of changing real property? Data on the quality and completeness of the Norwegian cadastre comes from a local office of the Norwegian Mapping Authority located at Hamar. The data is a report from the cadastre stored in Excel format. It provides information at the municipal level. I have then organized the data.

3. THEORETICAL APPROACH

3.1 Land Register and Cadastre

A land register is a public inventory used to record the existence of deeds or title documents, and a land information system is a system for acquiring, processing, storing and distributing information about land (FIG 1999). The function of a land registration system is to “*provide a safe and certain foundation for the acquisition, enjoyment and disposal of rights in land*” (UN 1996:11). Reading for instance North (1990, 2005), Arruñada (2012), and Sevatdal & Sky (2003) the main consequences of having a well-designed and up-to-date system is to lower transaction costs and provide security for both sellers and buyers in transactions involving real property. This is important for the economic development of a society.

Larsson (1991) points out that there is not always a clear distinction between the cadastre and the legal land registration system. They usually complement each other. “*Land registration puts in principle the accent on the relation subject-right, whereas cadastre puts the accent on the relation right-object*” (Henssen (1995), see also Hegstad (2003:51)). According to Williamson et al. (2010) a cadastre is normally a parcel-based and up-to-date land information system containing a record of interests in land (i.e. rights, restrictions, and responsibilities). It usually includes a geometric description of land parcels linked to other records describing the nature of the interests, the ownership or control of those interests, and often the value of the parcel and its improvements. It may be established for fiscal purposes, legal purposes, to assist in the management of land and land use, or to facilitate sustainable development and environmental protection. The cadastre is an official map showing the boundaries of land parcels, often buildings on the land, the cadastral number, and references to boundary markers. The cadastre may act as a key link to information

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from other registries (Hegstad 2014); it is a multipurpose register. Based on the above and articles that substantiate the importance and content of a land registration system (like Williamson et al. (2010), de Soto (2001), Davy (2012), and Bruce (1998)), figure 1 illustrates this role. The property rights are both inclusive and exclusive and they are included in the definition of real property. Following FIG (1999), UN (1996), and Williamson et al. (2010), this paper uses the term real property to refer to the land, the buildings and necessary rights for its legal use. The real property may include one or more parcels.

The cadastre should be a nationwide register that defines the existing location and dimensions of land parcels. The register should be a resource for both planning and administrative procedures concerning real property and building applications. It can also provide important information during transaction processes and for mortgage applications. In some jurisdictions, like those using the Torrens system, the cadastre is a mirror of the real world. “As such, the Torrens system is said to enshrine the ‘mirror principle’ - the register effectively reflects all interests affecting the land” (Wu 2008). In other countries, this mirror principle does not exist. This means that the actual situation do not have to be recorded in the cadastre. Zevenbergen (2002) divides cadastres into those with a positive or negative system. He describes them as follows: “Under a positive system the registrar or his or her employer (usually the State) guarantees the titles that are registered. Whatever is in the registration is –by law– regarded correct. Damage caused by mistakes is settled (financially) by the State (or the registry). In a negative system there is no guarantee regarding the actual title. Only mistakes by keeping the registers are redeemed, not the (...) problems that might not appear from the deeds, but still exist” (Zevenbergen 2002:63). In the case of the negative register, we lack guarantees of completeness.

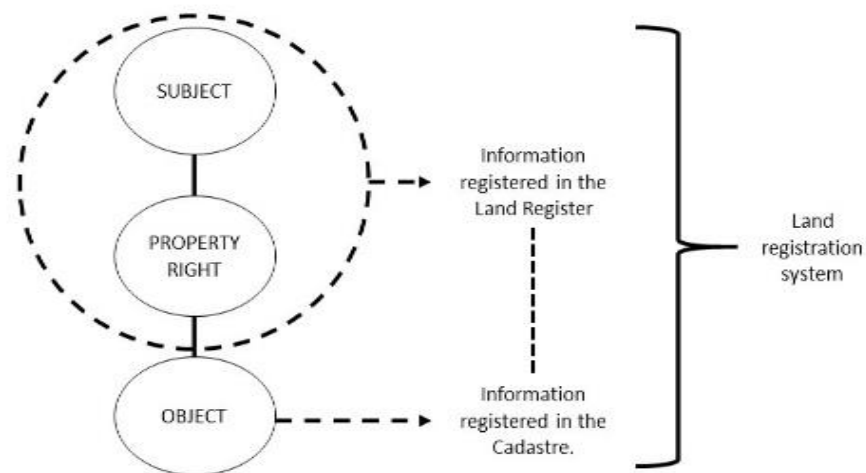


Figure 1: The relationship between information in the two main registries: the Land Register and the Cadastre. The information is linked to the cadastral number registered with one or more parcels as the object. All the information taken together is the land registration system. (Source: Figure based on Henssen (1995), Hegstad (2003), and the Norwegian land registration system.)

3.2 Norwegian approach

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The Norwegian cadastre is a result of many years of registering real property under various legislations. Today the cadastre is supposed to provide reliable information for the purpose of land administration. This was not its original role. The register started out as a way of allocating taxes. Consequently, the main focus was on the production value of the land and not on the physical extent and limits of the real property. The recording of the boundaries also reflects this. They have been established in various ways in line with the changing legislation and need for accuracy. The so-called birth year of the Norwegian cadastre is 1665 when the old cadastre was established, but it has its roots back to the Middle Ages (Hegstad 2003:150). The old cadastre was developed for the countryside and it paid little or no attention to the mapping of boundaries. This failure to define the location of parcels is perhaps the most important cause of problems in the Norwegian cadastre (Hegstad 2003:151). In the old system, a subdivision was a division of tax. Boundaries were described in words and to varying standards of quality, e.g. by measuring lengths by steps, using measuring tape, or using other local measures such as “*a long stone's throw to the north*”. Boundaries could also be marked in a variety of ways. The old boundaries were often marked with boundary stones, and crosses in trees or rocks (Gammelmo 2016:10, NOU 1988:16).

While other European countries conducted cadastral surveying and mapping – for example Sweden and Finland (from 1600) and Denmark (from 1700) – Norway stopped in 1815 because of “*the miserable financial situation and resistance from the farmers*” (Mjøs 2016:36). First in the 1960s did nationwide registration of all real property larger than 0.5 ha (5,000 m²) start. The project was called Economic Mapping. The main reason for this project was the need for a basis for land-use planning (Leiknes et al. 2014). One of the people who carried out this work and described it is Haraldstad (2013). He explains that the mapping is of variable quality and did not necessarily involve the landowners or other right holders. The economic map series has been digitalized, and has increasing applications, but the original limitations have not been resolved. It is therefore important to understand how the maps were created in order to assess the quality of the content. This is particularly important in cases where the maps are used as evidence in disputes over property boundaries (Haraldstad 2013:255). It is also important in other cases like changing real property handled by the public administration.

Mjøs (2016:53) describes the development of the Norwegian cadastre by dividing it into two periods “*from the 1600s to 1960, and after 1960. (...) up to 1960, the cadastral system in rural areas was based on the old tax cadastre and it included no spatial representation of the property objects. Urban areas – cities and towns – had systems of their own, based on cadastral surveying and maps from late 1800s and onwards*”. The city of Bergen had its own cadastre from the end of the 17th century and Oslo had one from the early 19th century (Mjøs and Leiknes 2007). Norway then introduced the economic mapping project in 1960 starting the “*modernization of the cadastral system, leading up to a land registration and cadastral reform beginning in 1980. With this reform, nationwide cadastral surveying and new multipurpose cadastre (...) were introduced*” (Mjøs 2016:53).

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Norway has had a number of different laws regulating property formation and the registration of properties and property boundaries. Not only historically but also to deal with differences between urban and rural areas. The Act from 1764, called “Skylddelings-forordningen”, implemented a division for tax purposes, followed by a physical subdivision described in a document called a “skylddelingsdokument”. This and later legislation like the Act of 1909 (“Skylddelingslova”), and the Building Act of 1924, did not apply to the country as a whole. Nationwide acts did not exist until the Building Act of 1965, followed by the Act regulating division of real property, land surveying and registration (“Delingsloven”), which came into force on 1 January 1980.

With the Act of 1980 came the obligation to register property boundaries, but it was limited to registration on the municipality's main map and a recommendation that the municipality should prepare a cadastre (KS 1988:12.2). The municipality had an obligation to describe property boundaries with the degree of accuracy the parties might need, which should be specified in the documentation (Bertelsen 1999:14). Unfortunately, it appears that procedures varied between municipalities, even after the introduction of uniform legislation. This may explain the differences in the documentation one would expect to find. In the period from 1980, there were two main registries containing information about real property: GAB, a register including cadastral number, addresses and buildings; and DEK, a digital property map, the cadastre map. These two were merged to create the official cadastre when the Cadastre Act entered into force on 1 January 2010.

Hence, today's cadastre is a mixture of boundaries from different periods, measured and registered under differing legislation and for different needs. According to the Cadastre Act, Section 3, letter a, the cadastre is the official national register of land information, including buildings, dwellings, and addresses. The Norwegian Mapping Authority is the central cadastral authority and the municipalities are the local cadastral authorities. The local cadastral authorities perform the cadastral registration and are responsible for carrying out cadastral surveying (Cadastre Act, Section 5a). The register is now open and possible for everyone to use, as stated in Section 29 of the Cadastre Act: “[e]veryone shall have access to information about the cadastre. The central cadastral authority and municipalities shall ensure that information about the cadastre is available on request”. Together with this information Norway still has a system where it is possible to reach agreements about real property without registration. This makes it what Zevenbergen (2002) called a negative register. It does not necessarily reflect the real situation; it does not enshrine the mirror principle.

4. RESEARCH ON THE NORWEGIAN CADASTRE

4.1 The quality of the Norwegian cadastre

As we saw in the previous section, the cadastre in Norway is a mix of old and new records registered under differing legislations. Nevertheless, Section 4 of the Cadastre Act states that the cadastre shall contain the necessary information for the planning, development, use, and protection of real property. Further, the cadastre shall show the boundaries of the cadastral parcels. The cadastre shall contain information about orders concerning the use of land or buildings on the

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cadastral parcel concerned. How trustworthy is this information? Is it possible to use the information in accordance with the intentions of the Cadastre Act (Section 1), which promises a uniform and reliable register?

Table 1 gives an idea of the quality of the cadastre measured by completeness. As shown in the table, most real properties can be found by searching for the cadastral number in the cadastre, but this tells us nothing about the quality of the boundaries. In 2016 there are seven municipalities where 15-30% of the cadastral numbers do not point to any parcel. This means that in 15-30% of your searches you will not be able to use the cadastral number to find the parcel(s) associated with the real property in the cadastre. If these properties do not have a building number or an address, they are referred to as “ghost properties” whose location can only be determined through deeper research.

Table 1: The completeness of the cadastre in Norway over the last three years. The completeness is measured by the percentage of cadastral numbers in the land register that also have a parcel in the cadastre. The accuracy of the boundary markers will differ and may be of poor quality.

Percentage of completeness:	70.00-84.99%	85.00-89.99%	90.00-94.99%	95.00-100% ¹	N
2014	13	43	103	269	428
2015	9	42	105	272	428
2016	7	32	111	278	428

Source: Cadastre statistics from Hamar Mapping Office, see also Gammelmo (2016:29, table 2)

1) Of the 428 municipalities, two scored 100% in 2014 and in 2015. In 2016, one scored 100%.

Table 2: Amount of cadastral numbers for “grunneiendom” (basic real property¹) and leased land in Norway in 2016. The table gives an overview of the cadastral numbers that are missing the information needed to link them to a physical parcel or to established boundaries in the cadastre. Not all officially registered cadastral numbers in the land register have a physical parcel in the cadastre and some have parcels with fictitious boundaries, which means that they are marked with a circle or boundaries drawn by using water borders, roads or other natural borders.

Total number of “grunneiendom” ¹	2,537,889	Total number of leased land ²	159,366
Cadastral number without parcel(s)	72,089	Leased land without parcel(s)	15,942
Cadastral number with fictitious boundaries	99,304	Leased land with fictitious boundaries	32,757
Percentage without registered parcel(s)	3%	Percentage without registered parcel(s)	10%
Percentage with fictitious boundaries	4%	Percentage with fictitious boundaries	21%

Source: Cadastre statistics from Hamar Mapping Office.

1) There are also 3D parcels (460), condominiums (492,287), farm commons (436), other properties which can be other types of objects and rights that were assigned a cadastral number under earlier regulations (2,871), and leased land (see right column and footnote 2) that are not included in this table.

2) Leased land can also be defined as a “punktfeste”, which refers to leased land without boundaries only marked with a coordinate and a circle in the cadastre (54,602). “Punktfeste” is not included in this table.

Table 2 gives further insight in the quality of the information. It shows that 4% of all real properties called “grunneiendom” (which is the most common type) and 21% of those that are leased have fictitious boundaries. This means that they may be marked as a circle or with boundaries generated by using natural barriers, such as a body of water, without knowing if that is correct. Nearly 16,000 units of leased land or 10% are without any parcel(s).

4.2 The public administration

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The authority empowered to approve an application for changing real property in Norway is the municipality. The municipality can delegate authority to the public administration (often the planning and building authority), which then makes the administrative decision on the application. The process of subdivision of real property in Norway is “rather strictly regulated; such operations, both the subdivision as such, and the new boundaries need approval from proper authorities. The actual operation; surveying, documentation, demarcation and so on, have to follow certain procedures and standards, and are (normally) performed by the surveying section of the municipal administration” (Sevatdal 1999:265). Today official approval is still needed for e.g. subdivision (Planning and Building Act Section 20-2). In order to get the new cadastral number and register the property in the cadastre and land register a cadastral survey must be performed (Cadastre Act Section 6), which involves clarifying and describing the boundaries of, and rights to, land, and providing the necessary documentation for cadastral recording (Cadastre Act Section 33).

Most applications for changing real property are handled by the public administration. They not only prepare the cases and approve or reject them, they also help the parties during the process of submitting an application. Table 3 shows that the respondents normally have informal or formal meetings with the parties. Out of 237 respondents, 90.7% say that providing guidance to the parties is part of their work. This means that the public administration may be involved in the majority of the process. In this context, the work of the public administration can be of great importance, by helping to overcome various social traps and dilemmas, and as a bridge-builder. This is not unique to Norway. The description of the public administration as a bridge-builder seems in line with advice on best practice. The UN (2010:139) says that “the public administration can build bridges between two worlds: between the formal and the informal, between statutory and customary, between professionals and the community, between formal cadastre and the real situation on the ground”. By getting close (but not too close) to the parties, the official can build trust and in a conflict he or she might be able to find the core of the conflict and help solve it. Table 4 shows that the respondents quite often guide the parties on the need to clarify existing boundaries and servitudes. Furthermore, over 66% of the respondents say that they often or always help with filling in the application form.

Table 3: Frequency of meetings according to type of meeting before landowners apply for changing real property. Landowners can have informal or formal contact or meetings with the public administration. The table shows how often this type of contact is used. In Norway, the Planning and Building Act, Section 21.1 regulates the formal meetings called preliminary conferences. Informal contact is often by phone, or the landowner may visit the official without necessarily making an appointment in advance.

Type of meeting	Never	Seldom	Sometimes	Often	Always	Don't know	N
Informal	0.4%	3.8%	24.6%	66.9%	3.8%	0.4%	236
Formal	8.9%	38.7%	36.2%	15.3%	0.4%	0.4%	235

Source: Own survey (“Delesak i praksis 2015”)

Table 4: Frequency of given topics in formal and informal meetings between the official and landowner(s). The topics are especially relevant for the cases of changing real property.

Subject on which guidance is provided	Never	Seldom	Sometimes	Often	Always	Don't know	N
Need to clarify existing boundaries	3.0%	17.7%	35.8%	34.1%	7.3%	2.2%	232
Need to clarify existing servitudes	6.9%	26.6%	35.6%	23.2%	6.0%	1.7%	233
Need to clarify future servitudes ¹⁾	2.1%	9.0%	23.6%	40.8%	22.7%	1.7%	233
Need for approval from other authorities ²⁾	0.4%	2.6%	29.4%	38.7%	27.2%	1.7%	235

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Help with filling in the application form	0.9%	6.8%	23.9%	54.7%	12.8%	0.9%	234
Costs of administrative procedures	1.7%	6.8%	20.5%	45.7%	23.5%	1.7%	234
Costs of land surveying	5.1%	11.9%	22.1%	41.3%	17.4%	2.1%	235

Source: Own survey (“Delesak i praksis 2015”)

1) Servitudes like road access, water supply and drains governed by the Planning and Building act

2) Approval pursuant to other legislation than the Planning and Building act

4.3 The role of the cadastre in administrative procedures

The creation of new real property and its registration in the cadastre requires an advance permit pursuant to Section 20-2 and 20-1, first paragraph, letter m of the Planning and Building Act. Furthermore, property may only be created when it is clear which cadastral number and parcel the new parcel will be partitioned from or created on. Alternatively it may be created with parts from several cadastral parcels with different title holders if the conditions for merging the parts are met (Cadastre Act, Section 10). This information should be available in the cadastre and the cadastre should therefore be a sufficient information source for the public administration. According to Section 30 of the Cadastre Act, cadastral data may be provided for uses related to public planning, administrative procedures and administration.

Table 5 shows how often the public administration uses information from the cadastre in its administrative procedures when handling cases concerning changing real property. The table shows the percentage of the different responses sorted by size of municipality. Most of the respondents chose the options “often” and “always”. This corresponds with the numbers for the country as a whole, which was 61.5% always, and 31.2% often. This shows that the information in the cadastre is, as expected, frequently used. A closer inspection of the two categories “never” and “seldom” reveals that just one respondent answered never. This respondent belongs to a municipality with 2,000-4,999 inhabitants and said in the open-ended question that the data is transferred to a web-based map. Therefore, this respondent most likely uses data from the cadastre as well. Three respondents answered “seldom”. They are from three different counties, and one from each of the three middle sizes of municipalities (2,000-4,999, 5,000-19,999, and 20,000-49,999). They stated that the software does not work well, the cadastre is missing some information, and one answered that this is used by other departments so the respondent does not have experience with it.

Table 5: Officials’ use of information from the cadastre when processing a case of changing real property. The answers are distributed by size of municipality measured by population (N=231).

Population	Never	Seldom	Sometimes	Often	Always	Don’t know	N
Below 2,000	0.0%	0.0%	11.9%	38.1%	50.0%	0.0%	42
2,000-4,999	1.5%	1.5%	3.0%	30.3%	63.6%	0.0%	66
5,000-19,999	0.0%	1.2%	4.8%	28.6%	65.5%	0.0%	84
20,000-49,999	0.0%	3.4%	3.4%	37.9%	51.7%	3.4%	29
50,000 or more	0.0%	0.0%	0.0%	10.0%	90.0%	0.0%	10

Source: Own survey (“Delesak i praksis 2015”)

It is also possible for the public administration to inform the parties in advance that the boundaries might be of poor quality and that it may be worth performing a survey (see Table 4 on clarifying existing boundaries). This can be done in a meeting between the landowner and the public

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administration before an application is submitted. This preliminary conference is regulated by the Planning and Building Act, Section 21.1. In response to this question, 35.8% of respondents answered that they sometimes inform about this, while 34.1% answered that they often do.

The information from the cadastre primarily consists of boundaries and land ownership, including ownership of the real properties that are subject to change and to the neighbouring parcels (the properties that will be involved in a land survey). The cadastre also provides access to information about other rights in land. For example, officials can see if the real property is part of a land consolidation process. As well seeing property boundaries, they can also find information about the property's size, location, buildings, addresses, and if there have been earlier subdivisions or amalgamations. The respondents indicated that the cadastre was their most important source of this type of information. Moreover, as shown in table 5, they use it in nearly all administrative procedures concerning changes in real property.

Most of the respondents highlighted the importance of the cadastre and stated that it is an important and useful tool. However, they also said that it has to be used wisely. As one of them stated: when the boundaries are correct it is a good tool. Another respondent said the cadastre is the most important tool they have. In addition, they are aware of the potential inaccuracy of boundaries. Nevertheless, the cadastre provides a starting point for discussion and land surveys. A third respondent stated that it is a good tool, but there are a lot of inaccurate boundaries and incorrect cadastral numbers. This corresponds with the statistic in table 1. Nearly one third of Norwegian municipalities are uncertain about the location of 5% or more of real properties. This also ties in with the large number of boundary disputes that are brought before the Norwegian land consolidation court. According to an annual report from the Courts of Norway, cases concerning boundary determination (pursuant to the Land Consolidation Act, Section 1-4, letter c) represent about 60% of cases (DA 2015:19).

4.4 Example

When a landowner sells real property in Norway, the real estate agent uses information provided by the municipality, often through a web resource called Ambita Infoland. The information about boundaries in this resource often comes from the cadastre. Other sources can be old documentation describing the boundaries that the municipality provides together with the rest of the information. This example involves two real properties. The first one has the cadastral number 33/1 and was established before the formal institutions were in place. Information about boundaries may be very uncertain and depend on information about the surrounding cadastral parcels and newer real properties subdivided from 33/1. Cadastral number 33/12 was partitioned from 33/1 in August 1931, as described in a document dealing with the division of tax (so-called "skylddeling"). In this specific case, the landowner of 33/12 was dead, so there were no one to verify the boundaries, and the real estate agent did not recommend requesting a land survey. Therefore, 33/12 was sold as a unit consisting of four parcels; two large and two smaller ones (figure 2).

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When the new landowner wanted to cut down some of his forest, the owner of a neighbouring property, 33/1, objected. According to the owner of 33/1, the forest was his property. It took an almost 3-year-long dispute to clarify the situation, after which adjusted property boundaries were recorded in the cadastre. The parties came to an agreement and the registrar in the municipality could register the situation in accordance with Section 26 of the Cadastre Act.

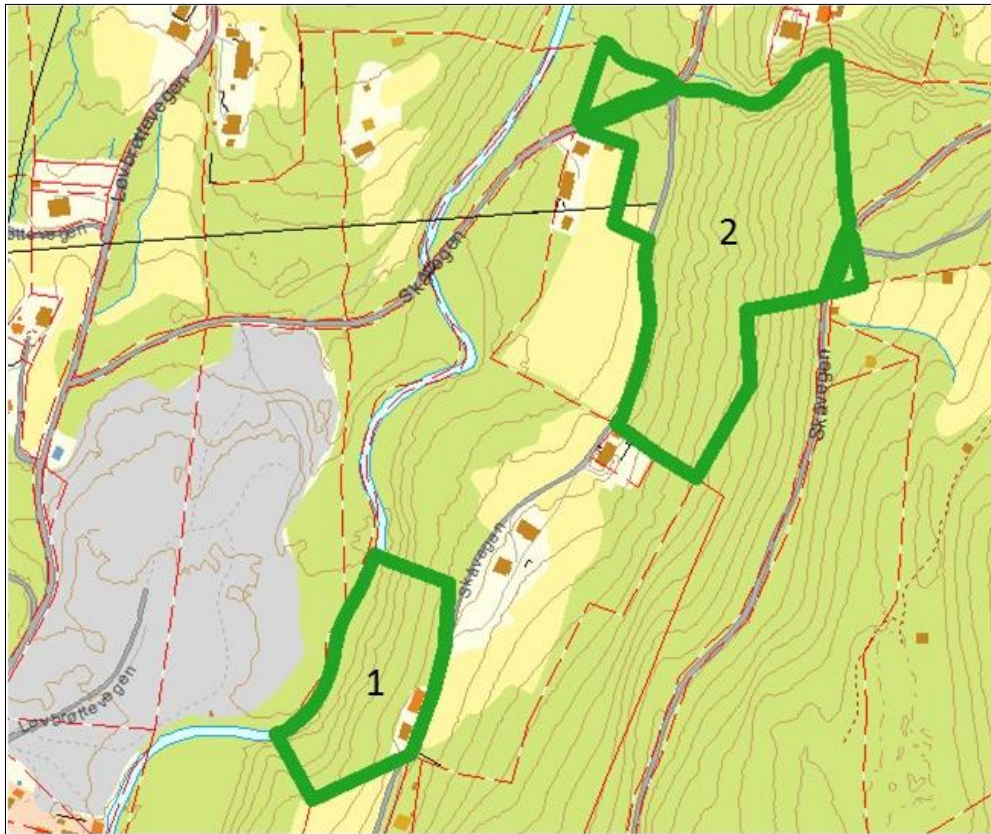


Figure 2: The situation shown in the cadastre when the real property 33/12 was sold. In the information from the cadastre, 33/12 had four parcels marked as areas number 1 and 2 in the figure. Area number 1 is one parcel and number 2 contains of one large and two small parcels. (Source: Case 13/01409 in Gran municipality).

This example is relevant to the discussion of the role of the cadastre in at least two ways. First, the description of, or information about, the object you are selling, and buying, must be clear. Therefore, when the information in the cadastre is incorrect, you do not get the necessary information, which can lead to a subsequent dispute. The second way is more subtle. If the landowner and public administration trust the information in the cadastre, it is possible that applications of changing real property, like a subdivision of 33/12's parcel of forest into two parcels, will be approved by the public administration. In the worst-case scenario it can go through the whole process and even be sold without the actual landowner being involved. A third perspective may be the lack of interest in boundaries demonstrated by the real estate agent, who did not do any further investigation. The same can be said of the buyer. When it comes to boundaries, it

seems that potential buyers do not pay much attention to their accuracy. Buying real property is probably the most expensive investment people do, and one would expect them to have an interest in knowing what they are buying. The potential consequences of not knowing seem to be poorly communicated in Norway.

5. DISCUSSION

As we have seen, the cadastre can provide information necessary for handling changes in real property. It is also an important register for obtaining other information since it can act as a link between the land register and other parts of the land administration system. The development of a cadastre and a land registration system is closely related to the history, geography, legislation, and other characteristics of the country in question. The cadastre may be a mirror of the real situation; a positive register where the parties can trust the information provided. On the other hand, the register may be negative, with differences between the situation in real life and the information in the register. A cadastre that does not provide complete information about the real situation can still be useful. If the parties are aware of the weaknesses, if the quality of the boundaries is marked and documentation is easy to find, then it is possible to inform possible users about the strengths and weaknesses of the cadastre.

My study of the cadastre in Norway indicates that it is a negative register with missing information. Nevertheless, the Norwegian Ministry of Local Government and Modernization says that the property information in the cadastre is important basic information in all land management, which includes changes in real property and planning. In reality, this means that the implementation of a plan might be impossible if the private parties do not want to bear the cost of resolving the situation. It also means that decisions made by the public administration may be based on inaccurate information. Analysing the Norwegian cadastre, its history and the public administration's procedures today shows that there are more than one pitfall: the accuracy of the boundaries, the location of parcels, and lack of cadastral parcels. This makes it necessary for the official to use time and resources on finding information in other registers like old paper-based archives.

In the example of the sale of the real property 33/12, the lack of information in the cadastre, and failure to investigate by the parties, resulted in a conflict. This is an example of impersonal exchange. According to Arruñada (2012) a cadastre should provide benefits for impersonal exchange. The first one is that it is possible to get information from the register about the object without knowing the seller (landowner). Another important benefit is reduced transaction costs. However, as previously shown, the information in the cadastre was wrong. Therefore, in this case, trusting the cadastre resulted in higher transaction costs. This is the opposite of what Sevatal (2002:77) suggests: "*one of the main justifications for land registration is precisely to ease transactions by reducing transaction costs*". However, for the cadastre to reduce the transaction cost, the register must be trustworthy.

To analyse the role of the cadastre, the institutional analysis and development (IAD) framework, introduced by Ostrom (2005, 2011), is useful. Seeing the role of the cadastre in a wider perspective

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there are exogenous variables like (1) the real world, division of the country into rural and urban areas (biophysical conditions); (2) the people living in the country, education level, culture (attributes of community); and (3) legislation, norms and local custom (rules), affecting the development of the cadastre. Countries with a long history of cadastral surveys and registration, with legislation focusing on the quality of the information and the need for the cadastre, should be able to use the cadastre as an important and reliable source of information and administrative tool. These factors affect how trustworthy the cadastre can be. Applying the action situation in the IAD framework, which is the social spaces where individuals interact (Ostrom 2011:11), to the situation of processing an application for subdivision and the connection to the cadastre, we can produce the analysis shown in figure 3. In this case, the participants are the official, landowner and other parties with rights in land. The landowner can choose to provide more information about the actual situation of their real property when submitting an application. The official can choose to use the cadastre as the “one-and-only” source of information or use other sources as well. The outcome depends on the totality and accuracy of the information. Lack of information in the cadastre can make the outcome unpredictable, and it can weaken people’s confidence in the system. If the official knows the background and quality of the cadastre, he or she will be more able to choose the appropriate action.

Action situation: public administration use of cadastre

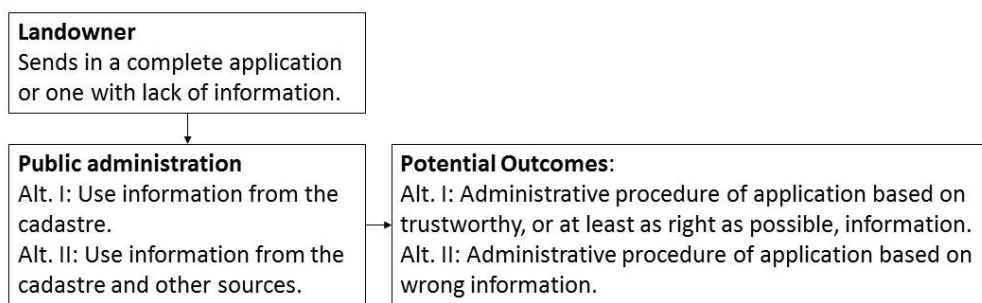


Figure 3: The public administration’s use of the cadastre when handling applications for the subdivision of real property. (Source: Analysis based on the IAD framework by Ostrom (2005:33, 2011:10))

6. FINAL REMARKS CONCERNING THE SITUATION IN NORWAY

Based on the intention behind the cadastre, it should be possible to use the cadastre as an administrative tool. Unfortunately, today using cadastre as a starting point may result in administrative errors. Some respondents to the questionnaire noted that the cadastre must be used with caution and that information must be obtained from other sources as well. Norway has not reached the goal of creating a uniform and reliable cadastre. Landowners, officials, real estate agencies, among others, should also seek information elsewhere.

In many cases it will be necessary to survey the existing situation before proceeding, which could be one way of bringing the cadastre up to date. To introduce Section 7 in the Cadastre Act, which requires clear boundaries before registration of a transfer of title, may be another part of the solution. That will give a clear description of, or information about, the object you are selling, and buying. Introducing qualification requirements and having enough people to handle land surveys and the registration process is another part of the solution, and will be important in the future. By using resources to spread awareness of the weaknesses as well as the strengths of the cadastre, it is possible to make it a useful tool.

For now, we must pay attention to the history of what is in the cadastre and the fact that in Norway the cadastre does not fully reflect the real situation; it is a negative register with missing information. For the public administration, the cadastre provides a useful starting point for their administrative procedures. The empirical studies of how the public administration uses the cadastre show that they are aware of its weaknesses. One conclusion is that using the cadastre has great potential. The intention of the Cadastre Act is excellent. However, in Norway, we are not there yet and people cannot fully trust information from the cadastre.

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