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Abstract
A landowner usually expects he can utilize his land in a profitable way, and the possibilities to utilize the land are highly depended on the right to build on the land. Building rights are determined in municipal planning – i.e. structure plans and binding local plans – in Denmark. However, landowners are within the same area often left with very different opportunities depending on which land parcels they own when planning is adopted. This raises the question of how building rights are distributed in Denmark and how the distribution is influenced by the different provisions in municipal planning and the level of detail in these. This paper presents the different ways building rights are distributed in Denmark and discusses the landowners’ different positions and opportunities. Other countries have different systems and some countries are experimenting with ways to transfer and trade building rights. This is yet another way of distributing building rights. It is discussed if other countries’ way to handle the distribution of building rights could contribute to the Danish system.

1. Introduction
A landowner possibility to utilize his land is highly depended on the right to build on the land, and in Denmark municipal planning plays an important role in this, since the building rights are determined in the statutory spatial plans. The statutory municipal spatial plan types are structure plans covering the entire municipal area and binding local plans covering a well-defined, minor (development) area, where the binding local plans must be in accordance with the municipal structure plan. The development possibilities are solely determined by the planning considerations materialised in the provisions of these plans, implying that within the same area landowners are often left with very different opportunities depending on which parcels they own. Planning, and municipal planning in particular, is one of the public authority’s tools to manage land and they do so in the best interest of the community. Nevertheless landowner’s are often left with very different opportunities to utilize their land.

Like in many other countries planning has a decisive impact on the land use and development in Denmark. (Christensen, 2011; Christensen & Aunsborg, 2011). Moreover, this influence on how land can be utilized affects the value of land (Christensen, 2011; Jensen, 2010; Evans, 2004 A; Evans, 2004 B, Kalbro, 2010; Dransfeld & Voss, 1993). Due to the economic impact of planning it is important to learn more about how the distribution of building rights takes place.

This paper explores the different ways building rights are distributed in Denmark and how the different provisions in municipal planning and the level of detail in these affect the distribution of rights. Furthermore the landowners’ different positions and opportunities are discussed. First The
Concept of Distributing Building Rights is elaborated and then The Danish Case through which the distribution of building rights in planning is discussed.

2. The Concept of Distributing Building Rights
The outright building right can be understood as “...the landowners right to build and to use the built buildings on his property in accordance with his wishes” (Andersen, 1964, p. 11 – translated¹). However, this is usually not the reality because this outright building right is limited by considerations to society and neighbours. In many countries, not least Scandinavian, building rights are not something that automatically exists. Instead, the opportunity to build is given through planning and land-use regulation of the property. (Christensen & Aunsborg, 2011; Andersen, 1964; Andersen, 1975). This is very different from the U.S. perspective is described in (Janssen-Jansen et.al., 2008, p. 45-46) where “...ownership of land entitles the owner to a certain 'bundle of right'. Among these rights are... ...the right to develop the property”. In this paper building rights are understood as the (material) content of the landowners building possibilities within the boundaries of public land-use regulations including spatial planning.

Designation of the usage possibilities of land takes place at different levels in planning. In big scale urban and rural zones are often defined through planning, this is also the case in Denmark (Christensen, 2011). The effect of this distribution between urban and rural purposes are often discussed from an economic perspective, see e.g. (Bramley et.al., 1995; Evans, 2004 A; Evans, 2004 B). One effect of segregating urban land from rural land is higher land values in urban areas than in rural areas. In larger scale the use of green belts are also a typical example, see e.g. (Harvey & Jowsey, 2004; Bramley et.al., 1995). In the municipality’s strategic planning a distribution between different urban uses can also take place, e.g. through zoning. This is often materialised as different urban uses in different urban areas.

A detailed distribution of usage possibilities takes place in the municipality’s land-use planning and “...detailed plans (or equivalent names) usually are the ones that allow issuing of development permits” (Alterman, 2010, p. 9). These detailed land-use plans set the permitted land-use and density of the affected properties (Alterman, 2010, p. 9). Through provisions building rights are distributed to specific properties within the relevant area. In the present paper distribution of building rights is understood as this allocation of building possibilities to sub-areas and properties.

It is rather unusual that an entire urban development area can be built upon; some land is usually required for roads and common areas. Usually, roads and common areas must be considered a burden if located on ones property as the economic return from such uses may be close to zero.

¹ In Danish: “en grundejers ret til at udnytte sin faste ejendom til bebyggelse og til at anvende den opførte bebyggelse i overensstemmelse med sine ønsker.”
Although connected to some degree, it is useful to distinguish between the distribution of building rights mentioned above and the distribution of burdens. At least in Denmark this is so because (only) burdens – and only some kinds of burdens – may rise a potential compensation issue. The compensation issue is regulated in the Danish Planning Act and the Danish Private Road Act. According to these acts landowners have a right to compensation when certain conditions are meet (Jensen, 2010). The way potential compensation issues are handled under the provisions of these acts have root in Danish traditions and is widely accepted.

Other countries have different systems and some countries are experimenting with ways to transfer and trade building rights as a way to compensate the landowner, see e.g. (Janssen-Jansen et.al., 2008). According to (Janssen-Jansen et.al., 2008, p. 1) this way of thinking origins from the U.S. concept of Transferable Developments Rights, which is about compensating landowners that are burdened with restriction on the use of the land with saleable building rights. This is referred to as non-financial compensation which is “...when a government compensates a person or company with an interest in land for the loss of one or more of the property rights for that land by creating a new property right that he can either use or sell” (Janssen-Jansen et.al., 2008, p. 2).

Although it is claimed that such tools can also be used to achieve different planning goals, e.g. social housing or environmental goals (Janssen-Jansen et.al., 2008, p. 19-20), the bottom line still is, that when restrictions on the land use are distributed building rights are given as compensation for the loss instead of monetary compensation. In other words this is a supplementing system that builds on top of the municipal statutory plans, in which there is a distribution of building rights and burdens. In some countries it might be necessary to compensate the landowners for restraints on the building possibilities attached to the properties. The Danish system, however, is based on the perception that instead of taking the planning is giving out building rights to the property owner. Consequently only extraordinary burdens needs to be compensated (cf. below), and this issue is handled in a system separate from the planning process.

3. The Danish Case
In the following the Danish case is presented and discussed. First the Danish planning and building system is introduced and this is followed by an analysis of how buildable land is allocated in a local plan and how common facilities are allocated in a local plan, in other words the distribution of opportunities and burdens respectively.

The Danish planning and building system
It is necessary to introduce the Danish planning and building system before discussing how building rights are distributed in planning, since it is the underlying foundation for the distribution. The Danish planning system has a national level, a regional level and a municipal level of planning. The first two levels are strategic in their perspective and they do not give any building rights. Unlike the national and regional level, the municipal level of plans comprise specific provisions
concerning how land can be utilized, and thereby, if and what can be built. At municipal level planning consist of a municipal plan – a municipal structure plan – and local plans – detailed land-use plans. On top of this the landowner will need a building permit before he is allowed to begin construction.

In a Danish context the landowner does not have the full right to build until a building permit is granted. This right to build is valid for one year, since the building permit expires after a year if construction has not begun. Due to this, “building rights given in planning” are in principle usage possibilities that can be utilised if these usage possibilities do not conflict\(^2\) with other regulations, which is checked when applying for a building permit. (Christensen & Aunsborg, 2011)

To create usage possibilities for one or more properties the starting point is the municipal plan, cf. the Danish Planning Act section 11. It does not matter if the area is included in the urban zone already, that is, is being reused, or if the properties are being included in the urban zone from the rural zone during the current planning process, as all land is included in the existing municipal plan. However, it may be necessary to adopt an amendment to the municipal plan to change the future purpose of the land. In the municipal plan the area’s use and density (rough estimation) is determined, just as it is determined whether the area is within the urban area or rural area. (Christensen & Aunsborg, 2011)

Areas are given a general land-use and density in the municipal plan. Before obtaining building rights these general usage possibilities are distributed to different properties through the local plan\(^3\). This analysis looks further into this distribution of rights in the local plan by analysing two issues; first how buildable land is placed and shaped within an urban development area and second how common facilities and roads are placed in a development area.

The distribution of opportunities

Three archetype planning situations can be outlined regarding how opportunities in the form of buildable land are distributed through local planning. The first planning situation is a continuation of the general usage possibilities in the municipal plan and gives the whole planning area identical usage possibilities, in other words a broad and general allocation of usage possibilities. The second planning situation is when the planning area is divided into sub-areas in which each area is given a land-use, density etc. The third planning situation is when the local plan holds specific provisions for where it is possible to build and what it is possible to build.

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\(^2\) According to the Danish Planning Act section 14 the municipality have the option to reject the project even if it is consistent with the adopted planning. If the municipality does so it must adopt a new local plan within one year.

\(^3\) Some minor project can be developed without a local plan.
The first planning situation

The allowed plot ratio in an area can be determined in a local plan, and most local plans do this. However, if this is not the case there are a set of general plot ratios in building regulations that applies (The Danish Building Act section 8; BR10 sec 2.7.1). In a local plan, it is possible to allocate a general usage possibility to a whole planning area, by adopting provisions in the local plan that says something like “in this area a plot ratio of 40% is allowed.” However, this is not without complications because the property structure of the area impacts the area internal distribution of building possibilities due to the way that plot ratios are calculated in Denmark. Hence, the effect of these calculation rules potentially conflicts with (the planning intentions behind) such a general usage possibility.

In the building regulations, it is described how plot ratios are to be calculated. This method cannot be deviated in the local plan. This means that the provisions in a local plan can deviate from the general plot ratios in the building regulations (both up- and downwards), but it cannot deviate from the way that they are calculated (The Danish Building Act section 8; BR10 sec 2 and appendix 1 B.1.1; NKO 403/2007). Plot ratios are calculated as “the amount of allowed floor space” divided by the “lot size” (BR10 appendix 1 B.1.1). By floor spaces is meant the amount of square meters floor space on all floors in all buildings on the lot combined (BR10 appendix 1 B.1.1.3). By lot size is meant the size of the property, however, if the property consists of more than one lot it is only the lots that are adjacent which are included in the “lot size” (BR10 appendix 1 B.1.1.2).

The calculation model for plot ratios and the term “lot” have influence on the possibility to allocate general usage possibilities and especially densities. It is possible to set a general plot ratio in the local plan, but in reality the planning area is divided into sub-areas identical to the property structure in the area. An example of this is NKO 403/2007 in which the local plan for a planning area sets a general plot ratio for the whole area, however, the planning area consists of three properties and it was at the end determined that the plot ratio should be calculated for each property and not the whole area. Followed by this each property could be utilised and it was not possible to place the whole building mass allowed in the planning area on one property.

If the property structure is changed in a planning area with general usage possibilities, the possible locations and volume of the building mass in the planning area is changed, too. Taking the NKO

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4 The Danish building regulations has root in the Danish Building Act (LBK nr 1185 af 14/10/2010), which at large is a framework act. The majority of the provisions can be found in Building Regulations 2010 (BR10) which is an order under the authority of the Danish Building Act.

5 Although this is the main principle there are exceptions, since some building types, e.g. garages, does not count fully and some parts of basements and garrets are not included.

6 Lots are still adjacent if there is a path or road between them, but further apart they are considered different lots in the perspective of building regulations.

7 “Natur- og Miljøklagenævnet” is the first right of appeal regarding the Danish Planning Act. NKO’s (now NOMO) are principal rulings presented by “Natur- og Miljøklagenævnet”.

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403/2007 (above) as example it would be possible to place the entire building mass in one end of the planning area if the three properties are merged into one property. This provides a randomness regarding the future development that is at large without municipal control.

The second planning situation
The second planning situation, when the planning area is divided into sub-areas in which each area is given a land-use and a density, is not that different from the first type. It has the same conflict between property structure / plot ratio calculation, however, the scale is smaller since it is within the individual sub-area the potential conflict arises.

It becomes further complicated if properties are covered by two sub-areas with different densities, meaning one half of the property in one sub-area and the other half in another sub-area. In that case a part of the property can be utilised differently that the other part of the same property. The calculation model for plot ratios is not explicit on how to handle this issue. However, in connection with the calculation of compensation regarding expropriation and the calculation of the property value in the Danish Tax Valuation c.f. (Skat, 2010, C.2.1.2 & C.2.2) it is handled this way: The property is broken in a part that concerns one sub-area and the other part that concerns other sub-area; then the calculated allowed building mass is combined. Breaking the property into parts concerning different sub-areas to calculate the allowed building mass is also exemplified in U.2005.1164H. Even if it this way is possible to determine the plot ratio for properties covered by two (or more) sub-areas the location of buildings within the property remains an unsolved issue. The found literature doesn’t deal with this matter and nor do any verdicts. Furthermore, it is necessary to discuss the minimum content of a legal local plan that gives landowner possibilities to build. The municipality is obligated to adopt a local plan before allowing major constructions or major parcelling out, cf. the Danish Planning Act section 13 sub-section 2. This obligation is fulfilled if the local plan “contains specific rules governing the parcelling out or development project” (the Danish Planning Act section 13 sub-section 5). The interpretation of the term “specific rules” is in practice defined by the presence of provisions on future use, the extent and placement of future building and roads, to a degree where it is possible to imagine how the developed area will look after development (Boeck, 2002, p. 167-168; Miljøministeriet, 2009, p. 21-22).

In NKO 193/1999 a municipality adopts a local plan with the future use mixed housing and business, and the local citizens complained about the local plan. The main issue in the case was whether the municipality had fulfilled its obligations to adopt a local plan before allowing larger constructions or parcelling out, and it was considered that it was not the case. This was so for two

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If a property consist of two parts A and B, both 1000 square meters big and located in different sub-areas in a local plan with a allowed plot ratio of 30 % and 50 % respectively. The allowed building mass on the property is then 0.30*1000+0.50*1000=800 square meters.
reasons. Firstly because the local plans provisions was not concrete enough regarding the future use, the extent and placement of future building and roads. The plan defined how much that could be built, but not where it could be build. Secondly detailed regulation was presumed to take place in a plan delivered by the developer to the municipality after the formal planning process. (NKO 193/1999) Both the first planning situation and the second planning situation are about plans determining how much that can be built, but without specific provisions for where it can be built. It is worth noticing that the local plans in these two planning situations are not necessarily legal local plans, as there might be a risk that the content is so general that the municipality has not fulfilled its obligations to adopt a local plan.

The third planning situation
The third planning situation, where it is specified where it is possible to build, allows the municipality a higher degree of control. Also in this type of planning the kinds of land use as well as the allowed plot ratios are determined (The Danish Planning Act section 15 sub-section 2). However, the local plan offers tools that supplement provisions on plot ratios, and these concerns two main issues; the placement of buildings and the property structure. When combining these tools it becomes (can become) very specific where it is possible to build and how much, because the building opportunity becomes fixed to certain locations.

In a local plan it is possible to include provisions on the location of buildings within the planning area, cf. the Planning Act section 15 sub-section 2 pt. 6. This can be done by making building lines building cannot exceed. Building lines typically refers to roads or property boundaries. It can also be done by drawing “building squares”, that specifies on which part of the property that it is possible to build. Thirdly a “building plan”\(^9\) can be included as an appendix to the local plan. Provision in the local plan will then determine that buildings should be placed accordingly to this plan. Lastly the general requirements in the building regulations for distance between property boundaries and buildings can be deviated through provisions in the local plan. If the local plan also contains provisions on the property structure, this will determine the possible location of future buildings. (Boeck, 2002, p. 181; Miljøministeriet, 2009)

The Planning Act section 15 sub-section 2 pt. 3 allows provisions in the local plan concerning the property structure within the planning area. However, it is only the future property structure that is regulated. A local plan does not, cf. the Planning Act section 18, include an obligation to act, only an obligation to follow the local plan if acting (Boeck, 2002, p. 199). The future property structure can be regulated either with provision on maximum and minimum sizes of future properties or with a “property plan”\(^10\) included as an appendix to the local plan. Such a property plan can also include the future roads, discussed further below.

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\(^9\) A map showing the planning areas and the future buildings
\(^10\) A map showing the planning areas and the future property structure
The municipality can choose different strategies to control the allocation of buildable land in a local plan. They can choose a high degree of control and determine specifically where it is allowed to build. They can also choose a more general approach and only use provisions on land use and density, however, the actual property structure in the urban development area will then also influence where it is possible to build.

The distribution of burdens
Common facilities and roads are important issues in this discussion because they take up space that could otherwise have been used as buildable land. Land designated for these purposes is in principle without value (Jensen, 2010). Nevertheless, it is hard to imagine areas totally without at least roads. The amount of common facilities ranges in principal from nothing to the whole planning area. Three types of common facilities can be identified: Roads and similar physical infrastructure at ground level, green areas and similar areas with common or public purposes and lastly planning areas that are entirely designated for public purposes.

Roads and similar physical infrastructure at ground level
It is both possible and natural to include roads, cycle paths and foot paths in a plan for a future urban development area, and the Danish Planning Act section 15 sub-section 2 pt. 4 enables provisions on the location of roads and how big they should be. (Boeck, 2002, p. 180; Miljøministeriet, 2009, p. 55) The courses of the roads are often included in property plans and building plans attached to the local plan as appendixes. Roads, cycle paths and foot paths are regulated by the Danish road Act and the Danish Private Road Act. However, the Danish Private Road Act section 43 allows the local plan to determine where the future roads are to be placed and how they should look. The construction still follows the rules in the Road Acts.

Green areas and similar areas with common or public purposes
The Planning Act section 15 sub-section 2 pt. 2 and 9 allows the local plan to regulate the design, use and maintenance of undeveloped areas. Due to this, the municipality can in a local plan designate areas for parking, green area and other common facilities. (Boeck, 2002, p. 185; Miljøministeriet, 2009, p. 64-65) An example of this (and roads) is the building plan in figure 1, which is from a local plan for a small housing area with 10 single family houses.

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11 This only applies for private roads (private fællesveje) while this is not possible for public roads. The location of those are determined by the municipality, c.f. the Danish Road Act section 23.
The urban development area illustrated in figure 1 is an example of how landowners are affected by planning decisions regarding the allocation of roads and common areas. This area had different landowners and one landowner, who owned the middle part of the area (marked with red in figure 1), attempted to get compensation for the space taken up by road and common area (KFE.2010.174). If areas are designated for roads in the local plan, meaning that the decision on where to put the road are made in the local plan, the landowner can cf. the Danish Private Road Act section 40 sub-section 3 demand compensation when alienating the land. In this case the landowner was only given compensation for the part of the road that serviced the two lots in the south part of the area (KFE.2010.174). According to the Danish Private Road Act section 40 sub-section 4 he can only be compensated for the part he does not benefit from himself12. Regarding the common area in the example the landowner can demand the area taken over by the municipality if the use is considered public use (KFE.2010.174; The Planning Act section 48 sub-section 2). In this case the common area was not considered public use, although being a green area (KFE.2010.174). If it had been considered public use the landowner would have been compensated and the compensation would be based on the allowed/existing use before the local plan was adopted (Boeck, 2002, p. 363-366; Jensen 2010).

Planning areas that are entirely designated for public purposes
A local plan can also designate the whole planning area for public purposes, cf. the Planning Act section 15 sub-section 2 pt. 2. In this terminology public use can be privately owned and managed, meaning the question is how it is used and not who it is owned by (Boeck, 2002, p. 364). In the Planning Act it is assumed that public purposes rules out the possibility for the landowner to use his property in an economically reasonable way. Therefore, the Planning Act section 48 makes it possible for the landowner to demand the properties taken over by the municipality in these cases. He will then get a compensation based on the allowed/existing use before the local plan was adopted (Boeck, 2002, p. 363-366; Jensen, 2010).

In a local plan the municipality can allocate land for roads, common facilities and up to the entire planning area for public purposes. However, the landowner will be compensated only if it is considered public purpose.

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12 The benefit that the landowner has is subtracted from the compensation he should otherwise have had.
4. Concluding remarks

In Denmark building rights are allocated in detail through spatial planning. This is even the case if the relevant plans don't have explicit provisions dealing with the area’s internal distribution of buildings within the area concerned. In such cases the total building right is distributed among the individual properties proportional with the lot sizes, due to the general rules for calculating plot ratios provided in the Building Regulations. The basis of this distribution – the building possibilities for the entire planning area – is normally determined in the plan, but even in the cases where no provisions regarding the coefficient of utilization is provided in the plan, a standard plot ratio for different types of land use (e.g. detached housing, blocks of flats, business and institutions) in some cases might apply. In other cases the planning obligation probably won't be met and the local plan will therefore not be legal.

Similar to the allocation of building rights the distribution of burdens is determined by the plan, too. In practice some disputes might occur, but these usually concern interpretation issues or/and financial matters of minor importance to the overall plan.

In consequence of the way the building rights and burdens are distributed through the planning system and the actual plans no significant financial matters or issues remain unresolved when the local plan is adopted. Formal as well as actual the distribution is completed, and only in rare situation this gives rise to doubt or uncertainty among the actors involved.

In Denmark, this system of allocation of building rights and burdens is well-known and accepted by (almost) everyone. Probably, a reason for that is the high degree of predictability – including predictability for the sake of the rule of law – which the system provides to the landowners as well as other concerned. Consequently, both the financial institutions (banks etc.) and the tax authorities use the municipal and local plans as the basis for assessment of the value of the individual properties and with that the credit rating and the basis of taxation.

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