Dwelling ideals and reality

- How demographic changes shape future dwelling preferences and how municipalities combine this with environmental challenges

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TITLE SHEET

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Cover photo from Google earth, depicting residential area in Aarhus

Synopsis: The main aim for this thesis has been to investigate how the demographic development influences people's preferences towards dwellings. A theoretical frame for understanding the concept of needs is established and the method of comparative case study is chosen where four different municipalities act as cases. To find out which preferences people have in relation to the dwelling two different studies are reviewed. An extrapolation of the residential preferences for each municipality show that most people in 2021 is expected to prefer the single-family house. Interview with planners from each municipality show that this is not at odds with the planning discourse, which seems to be that everyone should be able to choose their own dwelling. In addition the municipalities seem to focus on economic sustainability. Knowledge about environmentally friendly planning is reviewed and it is argued that the municipalities do not plan in accordance with such knowledge as well as in accordance with their own formulations from the Agenda 21 strategies. Different barriers are discussed as influences on the municipal planning and it is concluded that the focus on growth seem to be the larges contender to an environmentally friendly urban planning. Reflections on another trajectory are made, in which a degrowth strategy is considered.

PREFACE

This report is my master thesis for the study programme of Urban Planning and Development, University of Aalborg. The project period has spanned from September 2011 to early June 2012. The inspiration for this topic has been building up during the year before starting on the thesis where discussions about urban form, the environment and influential mechanisms have made me wonder how to understand and possible alter the unsustainable urban settlements of Denmark.

As the process progressed I have become challenged on some of my own opinions and values, which I believe has been healthy, but at the same time the process has confirmed me in my basic believes about nature and society. This has only showed me that planning is very important, and that we must have a say about our future.

I would like to thank all who have been helpful and provided me with either data or knowledge about the subject as well as supported me throughout the period. This is especially the planners from the case municipalities who have been kind to provide themselves for questioning and Hans Skifter Andersen who provided additional data. I would also like to thank my supervisor Petter Næss who has been very helpful and inspirational during the whole period.

Rasmus Nedergård Steffansen

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1 Framing the problem

According to the Global Footprint Network the living standards of the average Danish person would require 4.65 planets if the ecological balance was to be sustained and if all people on earth were to have the same living conditions. A considerable part of the environmental impact can be ascribed directly or indirectly to the Danish dwelling stock. According to the International Energy Agency Danish housing produce 27.8% of the total CO_2 emissions stemming from fuel combustion (International Energy Agency, 2011). In Denmark there are about 2.75 million dwellings, of which 44% are single-family housing, 14% are terraced dwellings and 38% are apartment dwellings and the rest are other types of dwelling (Statistics Denmark, 2011). This makes it obvious that the Danish population seems to favour low-density dwellings and a reason for this could be because people seek to create their identity through the dwelling (Bech-Danielsen and Gram-Hansen, 2004) and low-density dwellings especially provide this opportunity. In addition the tendency is that the dwellings get larger. In 2010 the average floor area per person was 52.3 m^2. In 1981 the average household had 2.5 inhabitants on a floor area of 106,4 m^2 and in 2010 2.1 people inhabited 112,2 m^2 floor area (Statistics Denmark, 2011). This means the average floor area per person has increased by approximately 10 m^2 over 30 years. Dwellings built in 1985 were on average 99 square meters while dwellings built in 2010 in average were 150 square meters (Statistics Denmark, 2011).

Another clear tendency in this general picture is that people tend to situate themselves in specific dwellings according to what age they have. Figure 1.1 shows how it seems that most people live in single-family houses, but that some age groups tend to live more in apartment dwellings than other age groups. Between age 18-29 people seem to favour the apartment dwelling, which could be explained with young people moving away from home and starting an education. For the age group 30-39 the picture has changed again and people now seem to favour the single-family house again. From age 40-69 more than 60% live in single-family houses, but from there it starts to decline, which could be explained with smaller households as well as age limiting some people's physical mobility. For people over 60 the terraced and apartment dwellings seem to increase their shares of residency, which again could be ascribed to the decreased need for spacious dwellings. As this is a one-year sample of how people live, this picture might change over time, as well as there might be regional differences.

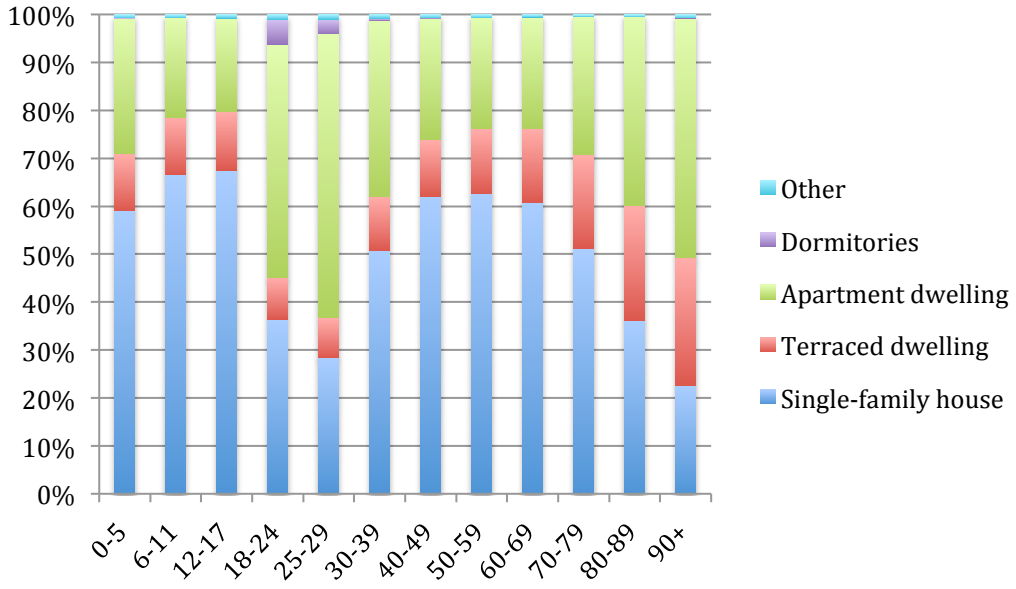

Figure 1.1 Age groups and dwelling type 2012 (Statistikbanken, 2012).

An influential factor that will contribute to shape the future dwelling pattern could therefore be the demographic composition. A Danish bank – Spar Nord – made a quick analysis of how the demographics would shape the future of the Danish housing market. They conclude that the Danish housing market is facing a 'demographic bomb' by 2020. Spar Nord have calculated that there will be 230.000 new senior citizens (65+), which is an increase by 22 % and that there will be a decrease by 13 % - 95.000 – of people in their thirties. This they argue will result in the market being overwhelmed with single-family houses, because it typically is the seniors that move from this type of housing and the young families that move in, they argue – this is also what Figure 1.1 suggests. In addition there will be 104.000 additional young people between 20-30 years, the equivalent of an increase by 16 %. These young people will request apartments just like the seniors, which will result in a rise in apartment cost, because the demand will increase rapidly, Spar Nord argues. Another point to this analysis is that this development will not affect the large city regions as hard as the outer regions, so there is also a geographical aspect embedded in the problem as well. These calculations are based on the assumption that the age groups will be distributed among the different dwelling types in 2020 as they are today.

Some questions starts to appear when such bombastic statements are made, though with seemingly reasonable arguments. How is it possible to understand people's apparent preference towards the single-family house? What are people's actual dwelling preferences? How much will the demographic change actually affect the

dwelling demand? How do the municipalities, who have the planning authority, handle the task of accommodating changing dwelling demands? Could these demands be in conflict with other planning tasks? Since the dwelling stock is a great contributor to the environmental impact, how should the dwelling composition then be composed in order to reduce the impact? This is some of the questions, which will be sought answered through this report.

1.1 Research questions

Through this report it will in particular be made clear what the development in the demographics will be and how this will affect the general picture of which preferences, towards the dwelling type, people have. With this in mind the role of the municipalities and their planning efforts will also be analysed in order to form an understanding of how this presumed future problem will be handled by the local planning authorities. Based on this, a discussion follows of how the municipalities' planning efforts cope with other planning-related challenges, mainly the challenge of reducing the environmental impact caused by the dwelling stock. This leads to the formulation of a research questions with four additional sub-research questions.

How will the demographic development of lifecycle groups effect the general composition of people's preferences and how does this development comply with the municipalities' planning as well as with an environmentally friendly urban planning?

- Which preferences do different lifecycle groups have in relation to the dwelling and what are the methodological implications of gaining such knowledge?
- What is the demographic development over time for a number of different Danish municipalities and how will this affect the general picture of the populations' preference towards dwelling types?
- How do the case municipalities conduct planning for residential development and how does this relate to people's dwelling preferences?
- How does the municipalities' conducted planning comply with knowledge about an environmentally sustainable planning, and what barriers exist for the municipalities to conduct such a planning?

Before going on to answer these questions it is necessary to develop a theoretical understanding to form a foundation for the research questions. After the theoretical aspects are made clear the methodological considerations are put forth.

2 Theoretical frame of understanding

Through this section the purpose will be to create a theoretical understanding of the subjects, which this report examines. The theoretical frame will serve as an underlying layer for understanding throughout the entire report and by that describe how the future chapters are approached theoretically.

Because the term preference is used in connection with people's preferred dwelling an understanding of this term will be formulated. The term needs is related to preferences and an understanding of needs will therefore also be formulated. The understandings of these two terms will thereby serve, throughout the report, as a basis for discussion. This will be related to critical realism which will help explain the relation between objective and subjective needs via its understanding of the structure/actor relationship. Societal needs, relevant for this report, which affect people's perception of needs, will also be presented.

First, a short introduction to critical realism, which will be introduced and applied in relation to several issues concerning this report. Critical realists believe in the existence of a real world, including a real social world, without our knowledge about it (Fairclough, 2005). In relation to this it is important not to confuse our knowledge of the real world and the nature of reality. To this critical realists conceive of reality as existing of three ontological domains, the empirical (which is our experience and observations of the world), the actual (which is the phenomenon that occur and exists, also without our knowledge about it) and the real (which is the not directly observable structures and mechanisms that under certain conditions can cause phenomenon on the actual level) (Danermark et al., 2002). For this report it means that to understand the observable events a deeper understanding of the underlying mechanisms and structures is necessary. This also means the understanding of the issues of the study, which is put forth in this report, is dependent on the theoretical understanding. This understanding will be now be presented.

2.1 The nature of preferences and needs

Throughout this report the terms preferences and needs will be used and since different fields of research have different perceptions of the terms they will here be clarified in order to establish a usable understanding for the rest of this report.

The term *preference* means that something is preferred or has priority in relation to something else (Den store danske, 2011). The specific term preference is normally used within the field of economics and is related to and determined by how the consumer chooses between goods and services (Den store danske, 2011; Store

norske leksikon, 2011). This means that preferences are an expression of subjective choices between different alternatives. In economics, preferences are interesting because they create the foundation for production. The division of labour makes it possible to satisfy more than just the basic physiological needs, which also means that the achievement of one's preferences rely on others' production efforts. One's production effort is substituted with an income of money that is used to demand services and goods (Store norske leksikon, 2011). This demand creates the production, and thereby the demand shows what preferences people have and thereby preferences are considered to be subjective.

As mentioned the term *needs* is related to, and used under similar circumstances as preferences. Within phycology the focus is often on needs as inherent, static, objective and measurable, whereas within the field of sociology needs is seen as an expression of a socioculturally created phenomenon (with the only exception of biological needs which are absolute basic ones) (Lian, 2000). In relation to this Assiter and Noonan (2007) argue from a critical realist perspective that some needs are objective – the absolute basic ones. They use David Millers conception of the term needs, which distinguishes between (a) instrumental needs (b) functional needs and (c) intrinsic needs (Assiter and Noonan, 2007). In this conception a and b are means towards achieving a particular and contingent end, *if* one is to carry out a particular practice then the need in question should be satisfied. The needs that are being fulfilled in a and b are no necessity in the given end, which means that life can continue without the end being attained (Assiter and Noonan, 2007). The last conception, Assiter and Noonan argues, is the necessary needs, which are objective in that sense they are fundamental and basic for all human kind – it is not possible to survive without compliance with these needs.

In psychology needs are therefore objective and given beforehand. Within sociology needs vary from culture to culture and are therefore both an expression of objective and subjective needs. This means that needs and preferences are what we decide to define them as, although they are expressed through commonly acknowledged conceptions (Lian, 2000). Lian (2000) argues that even though the field of sociology denies the naturalistic understanding of the human need as something given, this does not mean that needs are completely subjective as within the field of economics (what we need is what we buy). Within sociology there is an understanding of needs as both having an objective and subjective nature. This understanding comes together with the understanding of the relationship between structure and actor, as critical realists perceive it, which is presented in the later.

Lian (2000) also clarifies that within sociology there is a difference between needs and desires. We might want something that we do not need and need something that we do not want. To this there is an understanding that an authority can ascribe needs to a subject (also against the subject's own wish), and that a subject is not always aware of what its needs are, whereas we are aware of what our desires are (Lian, 2000). Common to needs and desires is that they are often not a goal in themselves but rather the means to achieve a superior goal (e.g. the good life, in relation to housing). Needs and desires are also not value-neutral, which means they are always related to value prioritisations (Lian, 2000).

But how can it be that a five-bedroom single-family house is preferred instead of a two-bedroom apartment, which is enough for a family of five to live (as it was before the housing boom in the 60's)? Maslow's hierarchy of needs can help explain this. Today only few would question if a five-member family argued for the need of a single-family house to make an everyday living. The point here is that how can something that would seem as 'just' a desire few decades ago now seem reasonable, and is viewed as a common need.

Maslow's hierarchy of needs suggests that when basic needs, related to physiological needs (sheer survival), are satisfied the emergence of new and higher needs change the motivation of the organism (Maslow, 1970). After the physiological needs are satisfied, safety needs emerge, then love and belonging, then esteem, and last and highest in the hierarchy, self-actualisation. As the needs lower in the hierarchy are satisfied the higher emerge, this does not mean that the lower needs do not exist; they are now potential needs that can once again emerge to dominate the organism if they are thwarted (Maslow, 1970). To this Maslow states that "*The organism is dominated and its behaviour organised only by unsatisfied needs."* (Maslow, 1970:18). This also relates to what Graham (2002) describes as a 'constraint of precondition', which entails that to pursue any project the preconditions must be fulfilled before any further ado. To ride a bike some ingested food and skills of balance are some of the preconditions that if not fulfilled would be a constraint for the further completion of riding the bike.

This is in line with the critical realist view that reality is stratified and hierarchal, where the underlying levels support the upper ones (Buch-Hansen and Nielsen, 2005). Society is formed by individuals, who are formed by skin, organs, the circulation of blood etc., which are formed by atoms and molecules etc. This could lead to a reductionist approach, where the lower levels could be used to explain the higher ones. But critical realists are anti-reductionists, which means that the lower levels of reality cannot explain the upper levels, but that they are a part of the

explanation. More precisely this means that level A generates level B, which in itself possesses causal potentials that none of the underlying levels do (Buch-Hansen and Nielsen, 2005). Thereby you cannot explain, for example, a social phenomenon by looking at the human gene, even though the genome is essential for social interaction. Thus the emergent tendency of needs is in line with a critical realist approach.

With this theoretical description of needs and preferences it now becomes possible to relate it to the housing sector. This is best done through a simple example. Take for example two five-person families in Denmark, if they were to move to a new dwelling it is safe to argue that they would *need* a four bedroom dwelling each (if the parents are presumed to sleep in the same room) (plus a living room, bathroom and a kitchen). The two families can have *preferences* towards different dwelling types, as well as different furniture, location of the dwelling and so on. In poorer countries a four-bedroom dwelling might not be perceived to be a need, because the living standards are different as it was in Denmark 60 years ago. Thereby there is an understanding that, while there exists some basic needs, needs are as well culturally and socially determined. In addition needs are considered a means for achieving a goal e.g. the good life. Preferences are how we choose among alternatives to achieve the goal. In the following a further development of how needs can be conceptualised will be put forth.

2.2 Collective and individual needs

In this report it is reasonable to distinguish between collective and individual needs, mainly because there is a difference in a planning situation. As in the relation between structure and actor (see later) it is not possible to disregard one of the two types of needs. This is important because individual needs shape and make a demand for collective needs (e.g. public transport) as well as collective needs affect the individuals (e.g. environmental awareness/restrictions).

Collective needs are related to what the authorities should provide to make a comfortable living and sustainable future. What the public authority provides is usually infrastructure such as roads, sewers, electricity, internet, schools etc. In addition there are some externalities that should be dealt with, such as pollution, noise, environmental degradation etc. Even though private companies provide some of these facilities, it is the authorities that do the planning and see to that everyone gets the basic infrastructure. The mentioned infrastructures are collective needs that would not be provided equally in a society without planning (for an equal distribution the society should also be a welfare society with interests in

redistributing goods). In a neoliberal planning system the focus would be on supporting the market and downplaying planning, as in particular seen practised under the Thatcher government during the 80's in the UK, through the 'simplified planning zones', where planning permissions were given in advance (Allmendinger, 2009). According to Allmendinger (2009) these simplified planning zones were only carried out to a small extent and has proven unpopular by both the public and the private. Some of the critiques of this attempt to implement neoliberal planning was that none of the investors liked the uncertainty offered by the market mechanisms, they would rather want the certainty offered by the rule of law, which already existed (Allmendinger, 2009). Also the difference between the notions, certainty and flexibility, became evident. In order to plan for flexibility, a wide range of uses and developments should be permitted, but this makes it difficult for investors and developers to know what use the area should have – if the neighbours' development would affect yours and in what way – which makes them reluctant from investing (Allmendinger, 2009). This form of deregulation resulted in a prisoner's dilemma situation, where no actors dares to act because they believe that reactionary behaviour will be more beneficial for themself.

With this example of deregulation and anti-planning it becomes evident that planning should seek to provide for some collective goals. Klosterman (1985) has assessed arguments for and against planning within different planning views and argues for a common realisation within these different directions that planning should provide for some common needs. These needs are; the need, from an economic argument, to resolve prisoner's dilemma situations and provide public or collective consumption goods, i.e. a healthy and pleasant living environment, which even a perfect market cannot provide; the need to regulate 'external' social costs and benefits, which a market does not include in prices and revenues; the need for information on long-term effects of location decisions influential for marked decisions and the need for socially acceptable redistribution, of which the market itself is not adequate (Klosterman, 1985).

This shows that individual needs are not enough to ensure a sound development and that planning of collective needs are important. Næss (2005) argues that though it is important to consider needs on the level of society it is also important to distinguish between groups of the population. Though it might be acknowledged that society should provide good quality dwellings for all, it is important to nuance this perception and examine if there might be different needs within different groups of society. Families with children might have other needs in relation to their dwelling than elders. In addition the intensity of needs can vary from need to need,

situation to situation as well as from group to group (Næss, 2005). Some needs might also be urgent where others are long-range needs. Some groups might even have contradicting needs where the satisfaction of one group's need will cause another group's need to be unmet. These differences in needs also apply to societal needs. In this report there will both be a focus on individual and collective needs.

It is thereby possible to ad this dimension, of how needs are both individual and collective, to how needs are conceptualised throughout this report.

With this conceptualisation of needs (as presented in section 2.1 and above) it is time to review how critical realists conceive the relation between structure and actor. This is relevant because it shows how structures participate in forming individual needs as well as how individuals create the structural needs.

2.3 Structure/actor relationship

Critical realism's conception of the relation between structure and actor will help form the understanding of the needs as being either objective or subjective (this is in addition to what is described before about objective and subjective needs). Structure is here regarded as forming the objective needs; the surrounding structure is regarded to be forming parts of the population's needs. The subjective needs should be found on the actor level, but these needs can be argued to be stimulated by some more basic needs or for example the imperative of the economic system (see later) – the need for the individual capitalist to make profit.

In critical realism there is a difference between structure and actor where one side can be partially explained by the other, which is unlike other traditions (like in social constructivism where actors form their own reality). What is interesting is the relation between these over time (Buch-Hansen & Nielsen, 2005). As reality, social reality is split in different levels, where structures and actors are fundamental. Even though they are different, structures and actors are each other's emergent products. Structures emerge from the social interaction between actors and possesses qualities that actors do not and vice versa (Buch-Hansen & Nielsen, 2005).

This can be described analytically as an endless line of circular relations, containing structural conditions, social interaction and structural progress. This is shown in Figure 2.1

At any given time social structures confront actors, who will meet the structures objectively (or without any knowledge of the structure), because they have not yet formed an understanding of the structures. As an example children learn to save money in the bank, because they might come to a better use when they grow up.

What they are not told is that inflation will make the savings too become less worth. Inflation meets the child objectively and influences the savings, though the child does not have any notion of such a phenomenon.

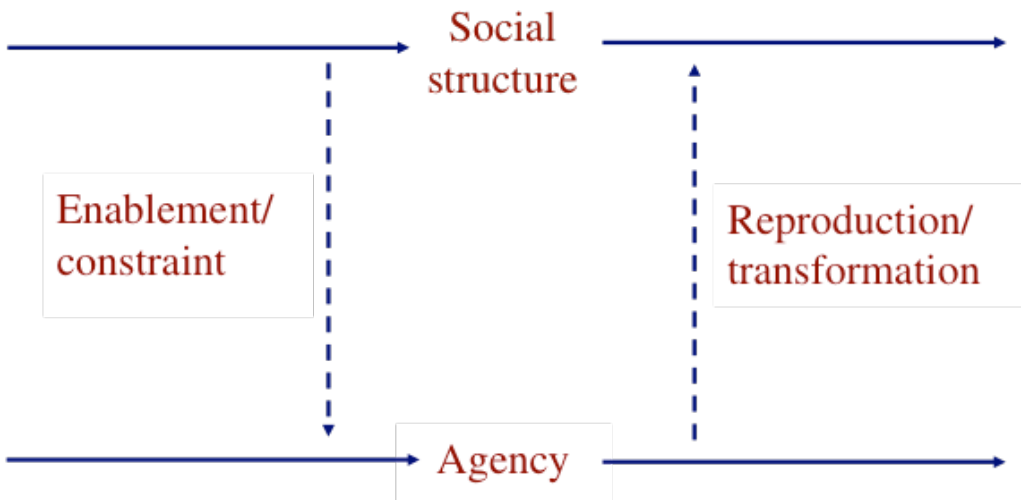

Figure 2.1 The transformation model for the relation between social structure and agency (Bhaskar 1993 Dialectic: The pulse of freedom:155).

As Figure 2.1 show, social structures both enable and constrain actors. All social activity presupposes social structures, which means social structures enable the actors. But social structures also constrain the actors, they do not determine action but limit the space of action (Danermark et al., 2002). So the actions carried out by the actors are always influenced by the structures that surround them, but because actors possess unique potentials they have the potential to influence the existing structures, but this usually takes considerable time, and for certain structures the time horizon for change can be very long. In addition there are many structures on different levels (mutually connected), which meets the actors at one time, some clearly visible, some not (Buch-Hansen & Nielsen, 2005). Through this relation the actors reshape and reproduce structures and the circle continues.

As an example social housing can be used to describe the structure/actor relationship. At first, social housing was introduced in urban areas in the mid-nineteenth century to provide good quality dwellings to the lower income groups, who typically lived in poor high-density apartments with poor sanity conditions, which exposed the tenants for different health risks. This called some actors to create a different structure that would provide the low-income groups with opportunities for moving to better dwellings. This structure has then changed several times since it was first enacted.

With this understanding of structures and actors, needs can thereby also be understood as being constantly reproduced over time, while some structures enable and constrain people's actions and therefore their perception of needs. In the following some of the factors that might contribute to the reproduction will be discussed.

2.4 Societal needs

As described in the previous sections needs are of a diverse nature and as such also have many influences. The following will present some of the important structural influences (for this report) on societal as well as individual needs. It will not be possible to make an exhaustive list nor will it make sense to be too specific. Here only the most influential and relevant influences will be examined.

2.4.1 The need for growth

One of the most influential structures, which is also one of the most fundamental in western society, is the capitalist system and the flow of money. David Harvey describes the flow of capital in the preamble to his book 'The Enigma of Capital': '*Capital is the lifeblood that flows through the body politic of all those societies we call capitalist, spreading out, sometimes as a trickle and other times as a flood, into every nook and cranny of the inhabited world*' (Harvey, 2010:vi). Here I will argue that capitalism is fundamental in the way that it influences people's perception of needs. More precisely, capitalism helps shift needs upward.

If a capitalist society is to thrive it has to grow at a considerable annual rate, which means the capitalist system has to send capital in search for more money, whenever a surplus is achieved (Harvey, 2010). In the traditional industrialised society, which began in the mid-eighteenth century, the capitalist sets the process in motion by investing in a production system, that is; labour power and the means of production. Combining the two the capitalist is now able to produce a form of commodity, which he goes to market to sell with a profit. A part of this profit is invested in new processes to accumulate more profit. In theory this process of investing, making profit and reinvesting the profit will continue ad infinitum (Gordon and Rosenthal, 2003; Harvey, 2010). The process will continue for two reasons. First 'the coercive laws of competition' play a decisive role (Harvey, 2010). If the capitalist does not reinvest the likeliness to be driven out of business after a while by a competitor, who does reinvest, is large. This is what Gordon and Rosenthal (2003) call 'the growth imperative'. For any capitalist this means they have to invest anew to stay a capitalist and the capitalist system therefore entails a competitive environment. Second, money is a form of social power in itself, which can be appropriate for

private persons, and it has no inherent limit (Harvey, 2010). There is a limit to the amount of commodities a person can own, but there is no limit to the amount of money one can own. David Harvey expresses it as such: *"The limitlessness of money, and the inevitable desire to command the social power in confers, provides an abundant range of social and political incentives to want more of it"* (Harvey, 2010:43).

In relation to the growth imperative Easterlin (1973) has investigated how the individual capitalist also seeks to increase wealth. This, with a point of departure in happiness set as a goal, where money and consumer goods are perceived needed as a means to achieve the end. In a survey of what make people feel happy Easterlin (1973) has compared surveys from different countries of both cultural and economic difference and found that happiness is correlated with the amount of money (often materialised) one has, compared to the general affluence of the society. The more money one has, compared to others, the happier the person is. In other words the satisfaction one gets from his or her material situation, is not dependent on the total amount of materialised goods he or she possesses, but on how this amount is compared to what he or she believe is needed (Easterlin, 1973). This means as the general affluence of society increases the individual will have to acquire more money or goods in order to feel that his or her needs are satisfied and to not be unhappy. In addition Lane (2000) has showed that continued increase in wealth does not necessarily include continued happiness and as affluence increases the less purchasable one's goals to bring happiness become. This is also what Maslow's hierarchy of needs suggest. To this Easterlin (1973) argues that needs are socially perceived and formed around what people form from 'how to live', which is experienced through the surrounding society. In the formation of perceived needs, peer groups are important factors. But as peer groups also strive for happiness through increasing wealth (and subsequent consumption) one's increased wealth soon becomes eaten up by the peer group's increased wealth and the happiness from increased wealth can therefore be short-lived (Lane, 2000). Advertising as well as medias portraying specific (wealthy) ways of living as ideals do surely also influence what people believe they need, which therefore might enhance an upward-spiralling perception of needs. The upward shift of needs is thus highly connected with economic growth as it permits more consumption. Torstein Veblen's theory about conspicuous consumption can be used to further explain why there is an upward shift in needs. According to Veblen it is not enough to possess wealth; it is important to show that you are wealthy. When the upper classes in society display their wealth through their consumer goods (luxury goods) the lower classes will try to imitate possessing the wealth of the upper classes by having similar goods (cheap

copies). This will turn the upper class to reject those consumer goods because they cannot be used to distinguish them from the common people, and thus they will have to find new goods that can signal their wealth (Johansson and Miegel, 1992). The display of wealth can thereby also be regarded as a form of social power.

The dwelling has often been argued to be a measure for achieving happiness or 'the good life', and in particularly the single-family house has been considered to be the best way for realising this (Guttu, 2003). In addition Guttu (2003) also argues that the single-family house to some extent is used as a symbol of one's individuality, though it is also used to express unity or affiliation with peer groups – therefore individuality without standing out. Later it will be discussed how the welfare society has defined 'the good dwelling'. The dwelling thereby play a role in the display of wealth as well as it is a commodity, which makes capital flow.

As shown through this section, the flow of money is an important part of the western society and is as well a contributor to people's upward shift in needs. Continued growth is important for the capitalist society as well as for the individual. Therefore, any disruption in the flow of capital will result in losses for the capitalist. A disruption in the flow of capital will increase the likelihood that commodities cannot be sold and for services not to be bought. The exchange of commodities and services is how people capitalise. The continuation of the flow of capital is therefore also an important part of the capitalist society, which makes the capitalist society contradict friction and barriers within the system (Harvey, 2010). Thus such friction or barriers must be reduced in order to ease the flow. Less regulation makes the growth faster, because capital will flow faster. An example of how economy can be affected by decreased flow of money is the financial crises, which began in 2007. For the capitalist society there is thus a need of growth. Unless growth is present the capitalist society will be in crisis.

2.4.2 Environmental needs

An ever-expanding growth is not entirely a positive tendency. Several negative consequences follow. One of the more prevailing and one the media has turned its focus to (though the connection is rarely made), is environmental degradation as a consequence of consumption. As more and more people get higher and higher living standards and 'need' more and more consumer goods the quest for raw materials becomes ever greater and after a while the resources begins to become scarce or even deplete. Some of the resources that are consumed are not renewable, but still vital for the survival of the human species. Also outlet of environmentally damaging by-products and chemicals used in the industry threaten the environment as more and more are used (see Figure 2.2).

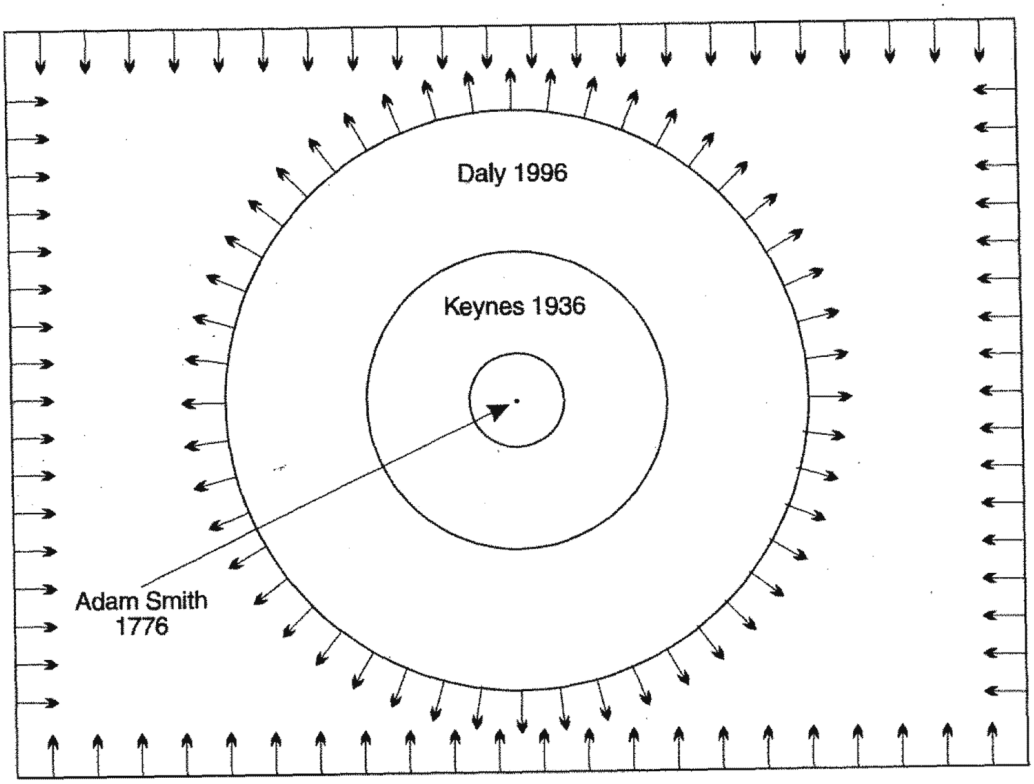

Figure 2.2 illustrate how the earth's economic scope decreases with time. The outer square illustrates the capital of nature, which is at disposal, but it shrinks as it is used. The circles illustrate world economies at different times. The outer circle is the world economy as it is today (Jespersen, 1998:103).

Looking at the world today there are already in abundance of regulating precautions to secure the environment (green levies, ban on outlet of different chemicals, nature protection areas and green standards in the housing sector, just to mention a few). So already there is a need to protect the environment from human activity in which the housing sector is a great part of the problem and thereby also the solution. However, it still seems there is a need to reduce the impacts even more. This issue can be explained by the simple IPAT equation (I = P x A x T). According to the IPAT equation the impact on the environment (I) can be expressed by a function of the population (P), affluence (A), measured in consumption or production per capita and technology (T), which refers to the technological efficiency of which the commodities are made (Commoner, 1971). Typically the equation focuses on one type of environmental impact, i.e. greenhouse gas emissions.

As the world population has just exceeded seven billion and is expected to reach ten billion in 2100 (United Nations, 2011) and the economic growth is recommended to be around 3 per cent annually in developed countries (World Commission on Environment and Development, 1987) it becomes evident that the impact on the

environment is becoming greater each year. Given the premises of growth in population and affluence levels, the only factor that can decrease environmental impact is improvements within the technology of which we produce our consumer goods. The need to protect and have a sustainable environment thereby creates a need for technical innovations and efficiency.

According to the Environmental Kuznets Curve economic growth precedes environmental improvements and the continued economic growth is therefore argued to be necessity. The Environmental Kuznets Curve is an inverted U-shape that depicts how rising economies will increase their environmental impact up to a certain threshold of wealth, where the environmental impact starts to decline (Hayward, 2005). The theory though still lacks the empirical evidence.

The idea behind the Environmental Kuznets Curve, that economic growth is a precondition for decreasing the environmental impact, is also one of the main hypotheses behind the theory of ecological modernisation. The early formulations of ecological modernisation theory built on the idea that through economic growth, technological and institutional innovations will limit the environmental impact caused by the increased consumption (Mol, 2000). There is thus a hypothesis that decoupling of the environmental impact from growth is possible through a techno-institutional fix. These ideas are also what is hinted at in a part of the second bullet point of the Brundtland Commission's definition of sustainable development (about the limitations imposed by the state of technology on the environment's ability to meet present and future needs).

Later (in chapter 0) it will be discussed how the prospect of this development might not be the best solution to the environmental problems created by economic growth and the following consumption.

2.4.3 Public health needs

Another need within the housing sector, which should be provided for by a central authority is the protection of public health. A classic example is why the first GIS (geographical information system) map was made. John Snow plotted on a map the position of cholera outbreaks in London during the epidemic of 1854 and showed that the outbreaks were related to the sewers and thereby water quality. This knowledge clearly showed that there was a need to provide better quality water to the homes of the inhabitants of the dense city. Since then many other researchers have investigated the link between urban form and health risks.

A considerably body of literature therefore exist on the health risks that inner-city dwellers are exposed to. Studies show that asthma is more frequent in the inner-city (Goldstein et al., 1986; Mortimer et al., 2002), a German study conclude that inner-city residents are more exposed to heat and Particulate Matter (also called particle pollution, which is related to adverse health effects) than suburban and rural area dwellers (Merbitz et al., 2011), traffic noise and pollution are often related to health risks in inner-city areas (Ross et al., 2011) and traffic accidents are more frequent in inner-city areas. This shows that there is a considerable need for urban planners to take health risks of various kinds into consideration, but also that for the individual dwelling buyer there is a considerable risk to be aware of when looking for a new dwelling.

2.4.4 Political decisions

A variety of political decisions also influence people's perception of needs. The decision to build a motorway can influence spatial development, because the decreased friction by traveling by car can open up for possibilities to live at long distances from work. Subsidies of various kinds can also have an influence on people's choice to settle down. Housing benefit helps the not so well-off to afford a dwelling, municipal site preparation helps people afford new houses etc. Such land developments and subsidies are all politically determined, thus political decisions have a great influence on people's decisions when settling down. These issues also deals with how the welfare state provides a certain level of affluence and services to the public, which might make people expect a certain level of standard living. As mentioned it will later be discussed how the welfare state defines 'the good dwelling'.

Different political ideological governments may have different notions of what the public need is in terms of welfare. A right-wing led government tends to lower taxes and make cuts in the welfare provision, thereby leaving more money with the individual whereas left-wing governments (might) argue for a strong publicly financed welfare sector and thereby raising taxes.

In addition, politicians play a large role in conceptualising what needs the society has, through the formulation of goals. Since politicians might be reluctant from stating their goals to specifically, because they do not want to reject any potential voters and desire broad political agreements, precaution should be taken when political goals account for societal needs (Næss, 2005). Sager (1991) argues that goal-setting can have three functions for planning; they can be used as steering, propaganda and legitimisation. This also shows that political goals might be used

not only for formulating 'objective' societal needs but maybe also as part of a political strategic agenda.

2.4.5 Lifestyles, identity-construction and cultural trends

The term lifestyle is here related to an individual level of 'the way of life', with a focus on personal characteristics. The notion of lifestyle is widely used within different fields of social research but is often associated with two research fields (Johansson and Miegel, 1992). One focuses on various determinants of consumer attitudes and behaviour where the knowledge on lifestyles is used for marketing and advertising. Another use is within the fields of medical research where different lifestyles are associated with health risks i.e. the risk of smoking or eating unhealthy foods. In this report the notion of lifestyle expressed through consumption is interesting because various types of lifestyles might affect people's choice of dwelling. As Guttu (2003) has shown, the dwelling can be used for creating one's identity and thereby to show who you are (or want to be) as well as your belonging (to a particular group). Similarly, Ærø (2001) argues, from a point of departure in Bourdieu's notion of the hierarchical urban space, that the popularity of the single-family house could be ascribed to be ranking high in a dwelling hierarchy because it is associated with wealthy groups of society as well as with the nuclear family. In combination with some of the before-mentioned theories about upward shifts in needs, it could as well be argued that some people might want to show that they belong to the wealthy parts of society and have a nuclear family by occupying a single-family house. The single-family house should not be regarded as one entity, but is in fact diverse and come in many shapes and thus can have many meanings related to it.

As showed in the introduction, ideals about the dwelling and the urban settlement might change over time as well as they might differ from culture to culture and should therefore not be regarded as being static but in constant change.

After having framed the theoretical understanding that will help analyse the different aspects of what is examined throughout the report I will now move on to present the methodological approach and considerations for answering the research questions.

3 Methodology

In this chapter the general methodological approach will be presented. It will contain a presentation of the general structure, methodological considerations and reflections on the data collection.

3.1 General outline of the report

Throughout the report the main aim will be to examine how the municipalities plan in relation to people's expressed preferences towards dwellings. This is sought done by first of all creating a theoretical understanding of how needs and preferences can be conceived in relation to dwellings and urban planning (previous chapter). A review of studies conducted to map out people's preferences towards the dwelling is carried out on two previous research studies, which have applied different methodological approaches. This is to have a discussion of which methodological implications obtaining knowledge (through a stated and a reviled preferences method) about people's preferences entail. One of the studies will serve as a reference for an extrapolation of residential preferences among inhabitants in four different municipalities. The case municipalities were chosen to make it possible to make comparison and examine regional differences in the challenges faced by the municipalities. Extrapolating the most likely outcome of people's preferences will show which effort the municipalities will have to induce if these preferences are to be accommodated. In order to analyse the municipalities' planning efforts, planning documents have been examined and interviews with planners from the four case municipalities have been conducted. This will lead to a discussion of how the municipalities conduct their planning in relation to the ideas of an environmentally sustainable urban planning as well as which challenges needs to be overcome for such a planning to occur.

3.2 The methodological approach

The case study method is generally considered to be preferable when one seeks to retain a holistic and meaningful characteristics of real-life events (Yin, 2009) and as such the case study method is applied to this research. By comparing different contexts it is possible to obtain knowledge about differences and similarities, which would otherwise not have been detected. The comparative case study therefore provides the opportunity of a deeper understanding of the phenomena studied. Four different case municipalities have been chosen for comparison and since they represent different contexts they will provide the necessary empirical data for understanding.

In Table 3.1 the information needed, methodological points of departure as well as the main sources of data used for answering each sub-research question can be seen.

Table 3.1 Methodological approach for each sub-research question and main data sources.

Main research question: How will the demographic development of lifecycle groups effect the general composition of people's preferences and how does this development comply with the municipalities' planning as well as with an environmentally friendly urban planning?		
Information needed to answer the question	**Method for answering the question**	**Main source**
1: Which preferences do different lifecycle groups have in relation to the dwelling and what are the methodological implications of gaining such knowledge?		
Up to date information about people's preferences in relation to the dwelling. This information should both be used to answer the next question and as a foundation for a discussion of people's preferences in general.	Review of two methodologically different studies that investigate which preferences people have in relation to the dwelling. Discussion of pros and cons of the two methods used.	'Befolkningens boligønsker' (2008, stated preferences Danish context) 'Bokvalitet i by' (2007, revealed preferences, Norwegian capital context)
2: What is the demographic development over time for a number of different Danish municipalities and how will this affect the general picture of the populations' preference towards dwelling types?		
Information about dwelling compositions, occupier compositions, population composition and population development for four different municipalities. Knowledge about people's preferences towards the dwelling (obtained through the former question)	Extrapolation of four different case municipalities' population development as well as an extrapolation of preferences towards different dwelling types (using a factor for regional differences). The extrapolations are conducted with data about people's preferences from the Danish study as well as relevant statistical data.	'Befolkningens boligønsker' (2008, stated preferences Danish context). The results have been altered in order to be able to use and compare in relation to statistical data. Statistical data retrieved from Statistics Denmark 'bank of statistics' (Statistikbanken)

3: How do the case municipalities conduct planning for residential development and how does this relate to people's dwelling preferences?		
Knowledge about municipal planning practice and planning discourse.	Interview with planners from the different case municipalities as well as analysis of relevant planning documents.	Interview with planners Planning strategy Municipal plan Agenda 21 strategy Municipal climate plans
4: How does the municipalities' conducted planning comply with knowledge about an environmentally sustainable planning, and what barriers exist for the municipalities to conduct such a planning?		
State of the art knowledge about environmentally sustainable urban planning.	Discussion, with a point of departure in state of the art knowledge about the environmentally sustainable city, how the municipalities manage to obtain an environmental friendly planning. Discussion of some of the structures that might influence the municipalities' planning efforts and which might hamper an environmentally sustainable urban planning. This includes a discussion of the municipalities' pursuit of a 'sustainable development'.	Literature from empirical studies that have investigated aspects relevant to the environmental sustainability of cities. Theory on how environmental impacts and how the interrelation between political institutions can be understood.

The methodological choices for each sub-research question will in the following be justified.

Regarding 1: I choose to conduct a review of two studies that have examined people's preferences towards the dwelling instead of conducting my own study. Reasons for this is that the researchers who conducted the studies thereby have saved me much time, but more importantly one of the studies provided sufficient data and in a form, which could be used in the extrapolation.

By reviewing two studies that have a different methodological point of departure, one being a stated preferences study and the other being a revealed preferences study, it is possible to criticise both studies by reflecting on them against each other and thereby to obtain a more nuanced understanding of people's preferences. In addition (as the review will show) they might have different outcomes which makes it possible to reflect more deeply on the value of these studies as well as how they should be used further in the report. Though only one of the studies is used in the extrapolation, the review of the other is important as a critique of the first one.

Regarding 2: Although one should be critical about the use of the results from the Danish study, it provides the foundation to calculate and extrapolate residential preferences among populations of four different case municipalities. This is mostly because of the tangibility of the results as well as the fact that they stem from a Danish context (see section 4.4.3). Statistical data from Statistics Denmark is also used because it provides the necessary figures about the municipalities' population (now and as expected in the future) and dwelling composition (see section 3.3).

Regarding 3: Reviewing different municipal planning documents provide knowledge about the intended municipal planning. As stated in the former chapter, Sager (1991) argues that goals can be used in different manners and one should therefore be critical about the goals and aims stated in the municipal planning documents. Therefore interviews with municipal planners from the case municipalities were carried out in order to gain knowledge about the municipalities' actual planning as well as their planning discourse. The interviews provide first-hand knowledge about the planning climate in the municipality and since planning has a certain level of complexity as well as being context dependent the interviewed planners provided 'easy access' to this knowledge, which would not have been possible e.g. through a questionnaire survey.

Regarding 4: Since all the municipalities have to formulate how they approach climate and environmental impacts stemming from urban planning a review of state of the art knowledge on how to conduct such a planning is carried out. This is to provide the foundation for a discussion about how the municipalities are doing in this regard. In addition theory about on what level (local, national, global) environmental impacts can be located as well as which administrative institutions that should deal with the issues is put forth to form a discussion about why the municipalities lack implementing more strict environmentally friendly regulations through planning. This will also provide a stepping-stone for the rest of the discussion, where structures that might influence the municipalities planning will be examined. In the following the main data sources used, will be further discussed.

3.3 Use of statistics

A great deal of the extrapolation of future preferences builds on statistical data from Statistics Denmark in combination with data from the survey 'Befolkningens boligønsker'. For several reasons, some elaboration of the data turned out to be necessary. Reasons for and implications from that will here briefly be discussed.

Firstly, the two different sources use different definitions for dwelling types as well as there is a different categorisation. As an example a category of 'parcel/stuehus' (detached single-family house) used by Statistics Denmark is subdivided into four groups (landejendom, ældre villa eller murermesterhus, parcelhus 1960-1990, nyt parcelhus efter 1990) in the survey 'Befolkningens boligønsker'. It thereby becomes necessary to merge the four groups from 'Befolkningens boligønsker' to make comparison and extrapolation possible.

For simplicity three main dwelling types are adopted in this report and these are: the single-family house, the terraced dwelling and the apartment dwelling. At some points the dwelling types 'dormitory' and 'other' will occur, but because they are occupied by a very small part of the population these will not be a part of the analysis to a large extent. As mentioned above, the single-family house includes all types of detached single-family houses, the terraced dwelling includes low- and medium-density dwellings that are in somewhat direct connection with other dwellings, apartment dwellings include dwellings in multi-story buildings (normally three or more floors). This is of course a simplification of the real urban form (related to dwellings) as it does not only include three types of dwellings, but these overall categories are nevertheless representative and include most of the residential building types and thereby provide a simple frame for understanding.

In addition, in order to make the extrapolation of certain lifecycle groups' preferences, the statistical data from Statistics Denmark had to be altered. For example, when examining how many among the lifecycle group 'children living at home' lived in certain dwelling types, the data from 'Befolkningens boligønsker' span from people of age 15 and up of people still living with their parents. Statistics Denmark only presents data on the population in the different dwellings in age groups, so one group spans from 12-17 and another span from 18-24. It has therefore been necessary to subtract people of age 12-14 from the age group 12-17 in order to make the data sets comparable (for a more thorough explanation, see Appendix 1). In addition, Statistics Denmark only has data on 'children' (who are characterised by living with their parents) till the age of 24 whereas the lifecycle group 'children living at home' could entail people above the age of 24. The number

of people still living at home after the age of 24 is tough considered to be of small influence.

3.3.1 Validity of statistical data

The validity of the data presented in the surveys of people's preference used for the extrapolation will be discussed in chapter 0. Use of data from Statistics Denmark should also be reflected upon though generally considered reliable. Especially predictions of future populations should be used with caution. Predictions always entail some uncertainty, which will increase over time. Since this report only extrapolates people's preferences towards 2021 it means that no unborn parts of the population will be included in the calculations, which would otherwise entail a great deal of uncertainty. This mentioned, the regional movement patterns are difficult to predict and therefore this unknown factor makes the predictions somewhat uncertain (Statistics Denmark, 2012). The financial crisis is an example of how dwelling mobility suddenly can come to a halt, or at least enforce other movement patterns.

3.4 Interviews

An important part of the data collection was interviews with planners from the four case municipalities where the purpose of the interviews was to talk to the planners and get knowledge about what the general planning discourse is in the municipalities. The interviews will thereby be used to describe how the municipalities conduct planning but also to analyse the particular discourse in which the municipalities engage and conduct planning. In this section the method used through the process of the interviews will be put forth as well as a presentation of the interviewees.

3.4.1 Discourse

Trying to understand the discourse in which the municipalities engage I will here briefly present an understanding of the notion. Discourse '*is defined here as an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices'* (Hajer and Versteeg, 2005:175). In particular this report focuses on how the municipalities interpret their reality as well as how environmental issues are interpreted. This is important because environmental issues do not by themselves create public attention. The sort and level of attention a phenomenon is given can be deducted from how society makes sense of the phenomenon (Hajer and Versteeg, 2005). Since this is a social constructivist

interpretation, and this report relies on a critical realist tradition, it should be noticed that (as mentioned in the theory chapter) agents exist under the influence of structures that limit or enable the agents' actions. An interpretation of discourse should therefore not only evolve around how actors act, but also on how the surrounding structures help shape this discourse (Fairclough, 2005). For example, environmental issues can exist without our knowledge about them as well as they can influence society without our knowledge about them, when realised they, however, have a great influence on how humans interpret them.

3.4.2 The interviewees

Since the purpose of the interviews was to understand the planning as it is carried out in the municipalities they were conducted as semi-structured interviews with an interview guide (see Appendix 3). The interviewees served as experts on their own municipality's planning. The interview guide helped steer the interviews in the desired direction and served as a checklist to ensure all topics were discussed during the interview. As mentioned four interviews were conducted, one in each case municipality, in the municipalities of Aarhus, Viborg and Langeland one planner served as the interviewee while in the municipality of Sorø a planner was interviewed as well as a development consultant. Through this section the four conducted interviews and the interviewees will be presented.

Before the interviewees were contacted to set up the interview the purpose of the interviews and the interview guide were finalised to make it easier to contact the right person to interview. The interview guide was written with a point of departure in the research questions and seeks to help answer them. Thereafter planners with sufficient and relevant knowledge to serve as experts on the subjects of the interview were contacted for each of the already chosen case municipalities to set up an interview. In the municipalities of Sorø and Langeland the interview guide was sent beforehand on the request of the interviewees. In the case of the municipality of Sorø this resulted in the interviewee inviting a colleague because she did not feel she could answer sufficiently on the questions from the interview guide. The interview was therefore conducted as a double interview, which differs somewhat from an interview with a single person. In the following, the individual interviews and interviewees will be presented. Here they will be listed in the order according to which the interviews were conducted.

Aarhus

In Aarhus the head of the municipal planning office was interviewed at his office. His main job is to direct the employees at the office and as such was not part of the daily

processing. His main education is as an architect with a subsidiary subject in social studies and he has been working as a municipal planner for 22 years with about 11 years in the municipality of Aarhus. Thereby he had a good overview of the planning in the municipality and thereby served as an appropriate interviewee.

Sorø

In Sorø a development consultant and a municipal planner were interviewed in a meeting room at the town hall in the municipality of Sorø. The development consultant coordinates the overall planning in relation to the development and planning strategy and the municipal plan. More specifically she deals with the plans in the process of setting goals and the council's visions. Before the structural reform she worked also as a development consultant but within the social area, thereby she has been working as a development consultant, within the municipal planning area, for 5 years. The municipal planner deals with the more physical planning, which is local planning and the administration of the concrete planning, as well as the planning frames formulated in the municipal plan. She has been working as environmental planner for 3 years before she started working as a municipal planner, which she has been doing for 9 years now.

Viborg

In Viborg a municipal planner was interviewed in a meeting room at the town hall. Her main job at this point is to serve as a project leader on the revision of the municipal plan of which she also served as a project leader during the creation of the first municipal plan after the structural reform in 2007. She was educated as an architect majoring in planning and she has been working as a planner ever since both for the state, in one of the abolished counties and now in the municipality of Viborg, thereby she has worked as a planner for 26 years.

Langeland

In the municipality of Langeland a municipal planner was interviewed in the cantina of the city hall. His job is to serve as a municipal planner at all levels, the strategy, the municipal plan and local plans, as well as participating in different projects related to planning. He was educated as a construction manager (bygningskonstruktør), but has been taking courses in planning during his period as a planner at the municipality. He has worked as a planner for 20 years.

3.4.3 The semi-structured interview

This interview style was chosen to make a somewhat similar interview with all the interviewees but still with the flexibility to make it fit the different cases of the municipalities. The semi-structured interview is carried out with an interview guide that steers the direction of the interview but leaves room for deviations and follow up questions when necessary. Since the native language of all the interviewees is Danish the interviews were carried out in Danish, and the interview guide as well as the following transcriptions were written in Danish. Quotes used in the report have been translated by the author. After completing the interviews they were all transcribed, which gives a better overview of the interviews for later analysis. During the transcriptions of the interviews some parts of the recorded interview were left out because they did not contribute with relevant knowledge in relation to the subject of the report. These parts are mainly in relation to specific planning examples as well as small talk.

The municipalities' planning situations differ much from one to the other. The municipalities of Viborg and Sorø can be compared in some ways because they are facing a more similar planning situation. Though the situation is similar it differs from that of the municipality of Aarhus as well as that of the municipality of Langeland (which also differs much from the other case municipalities). The main difference is that in Aarhus there is a rather large influx of newcomers (which fosters a large building activity) whereas Langeland has a decreasing population (with very little building activity) and the municipalities of Viborg and Sorø have a slightly increasing population (but with little building activity). The semi-structured interview made it possible to fit the interviews to the individual municipality's planning situation while making sure the desired subjects were discussed.

Much of this report deals with planning documents that were published in or around 2009, which is also why the extrapolation of future demands regarding dwelling types has its point of departure in that year. The interviews were all conducted in 2012 and therefor leave a time-gap from when the planning documents were made to when the interviews were conducted. The interviews all relate to the planning conducted by the municipalities at the time of the interviews, but this does not seem to be an issue because the planning focus has not changed since the planning documents validity spans over a time period of four years or more and are therefore still the planning documents in force (in some cases the planning strategy has been renewed but still this is not a problem because no significant changes have been made in relation to the housing sector).

3.4.4 Myself as an interviewer

The fact that I beforehand had not conducted interviews on my own has without doubt affected the results of the interviews. Interview is like riding a bike, it is not something that one can read and learn before practising it in reality and like riding a bike it takes more than one try to become a good interviewer. Knowing when to ask the right questions is difficult, as well as keeping track of time and whether all subjects are covered. Therefore though all interviews were conducted with the same interview guide the interviews have changed slightly from the first to the last, but also because the insight of the conducted interviews presented me with some knowledge in relation to the planning situations facing the municipalities, which would be unwise not to use in the following interviews. In addition, my own persona has affected the interviews. Being, in the beginning, in an unusual situation sitting in front of a stranger, where I would have to take initiative might have been more natural for a person with a more outgoing persona than the one I possess. Despite initial caution and nervousness this was overcome and I became more used to the situation of being an interviewer.

3.4.5 Interview reliability

The process of analysing interviews undergoes several phases and going from one phase to the other involves some sort of interpretation (Kvale and Brinkmann, 2009). The interviews thus underwent these phases of interpretation: when recorded, transcribed, reading of transcriptions, what is brought into the analysis and how this is analysed.

The interview in its most original form only exists during the interview. When recorded, transcribed and analysed details are lost and depending on the purpose of the interview these processes can be of great importance for the further understanding of what the planners actually said. This mentioned, I will argue that the purpose of the interviews here is not of a character that is compromised through the process of recording and transcription.

Obviously there are also some pitfalls when conducting a semi-structured interview and some of those will be mentioned here.

One large concern with the method of interview for gaining knowledge is whether the obtained knowledge can be regarded as objective. This concerns whether the interview is a construction of knowledge between the involved or the knowledge is considered objectively reliable. Here objectivity can be interpreted differently: as freedom from bias (where knowledge is checked and controlled and cleansed from bias and prejudice), as reflexivity about presumptions (where the researcher is

reflective about his or her contributions to the knowledge), as intersubjective consensus (where subjects agree about something, either independent or through rational dialog), as adequacy to the object (by reflecting on the nature of the object) and as the object's ability to object (when the object of study is able to object the researchers preconceived ideas). By respecting these meanings of objectivity the interview need not to be subjective, but can in principal be regarded as objective (Kvale and Brinkmann, 2009).

The methodological stands now being clear it is time to proceed to conducting the study, by beginning with reviewing two studies that have investigated people's preferences towards dwellings.

4 Review and use of two studies

In this section the aim is to present and discuss two methodologically different research studies that examine what preferences people have in relation to dwellings. This is done because it will answer the first research question as well as to prepare for the second. After a discussion of the methodological standpoints of the two studies this section will include a presentation of the relevant results and a discussion of how the results can be used. But first a short notice on why it is important to use research that is geographically close to my own research area.

It is important to use surveys from a Danish context because housing preferences can vary from country to country. Different countries have different contexts on which preferences build - politically, geographically and cultural histories (Kauko, 2006). Kauko (2006) showed that preferences not only vary between countries but also vary within a country. Concerning preferences towards surroundings and location, preferences varied between Holland and Finland, central city areas and suburban areas and between multi-family houses and single-family housing (Kauko, 2006). In addition, time is also an important factor when it comes to different preferences. As Easterlin (1973) argues people compare themselves with peer groups in relation to needs and strive to have more than others (in order to feel happy), which make an upward shift over time in what is believed to be one's needs – therefore time is important. This being clear, two studies have been chosen as reference studies, meaning they should give foundations for making a characteristic of what preferences people have in order to make crude extrapolations of future dwelling preferences as a basis for discussing future needs for dwellings. A Danish survey is chosen as the primary reference, while a Norwegian study is chosen as a reference point for the Danish survey. This is because of the different methodological approaches they have. The two studies' methodological standpoints will now be discussed.

4.1 Two studies, two methods

The first examined research study is 'Befolkningens boligønsker' (2009) by Hans Kristensen and Hans Skifter Andersen, who both are affiliated with the Danish Building Research Institute (SBI), Aalborg University. The study was conducted as a telephone interview survey, during spring 2008. In the survey 1580 people from Denmark, from age 15 and up, were asked questions within the following areas; 14 questions related to a description of their present dwelling and the preferred one (five years forth), 24 (21) questions related to features regarding the surroundings, which could influence the choice of dwelling, 10 questions related to features that

would be in favour of owning your dwelling, 6 questions related to features that would be in favour of renting your dwelling. In all 51 questions were asked, some with additional questions. As such the survey was conducted as a stated preference study.

The second study is 'Bokvalitet i by – og etterspurte bebyggelsestyper' (2007) by Morten Sjaastad, Thorbjørn Hansen and Per Medby, which was conducted as a revealed preference study. The survey was conducted by gathering information about different dwelling areas in the Norwegian capital Oslo, concerning surroundings, the dwelling itself and prise of the dwelling, and thereby with statistical analysis induced how much people value different features about the dwelling and the surroundings. The reason why this study is used as a reference study is mainly because it has another methodological approach than the Danish study. This Norwegian study will therefore be used both as a critique of the Danish study and as another way of viewing how people express their dwelling preferences.

The two research studies are fundamentally different in their methodological point of departure, but also in the general reporting. In the Danish study a segment of the entire Danish population is asked whereas the Norwegian study only is concerned with the capital area and only dwelling owners. In 'Befolkningens Boligønsker' (2009) the focus is mostly on presenting the results and not so much on analysing and understanding, likewise the methodological approach is not reflected much upon. The survey has served as a reference for publication of scientific articles and papers. In 'Bokvalitet i by' the effort has been put more on analysing the results and reflecting on the methodology than in the Danish study. The reason why the Danish survey does not reflect much upon the methodological implications and the Norwegian does could be that the first method is more used in these type of surveys than the other and that the Norwegian researchers had to defend their choice more than usually. Resources could also be a reason. As the following argumentation suggest there are pros and cons with both methods.

The survey 'Befolkningens Boligønsker' is in the category of stated preferences in contrast to revealed preferences. As Kristensen and Andersen (2009) argue themselves, this makes the survey vulnerable in some areas. One problem is that the possibility for people to realise their stated preferences, is not necessarily included in what is expressed. This can result in differences in the respondents' assumptions on which the answers to the questions are based. Some of the respondents might include the possibility to realise their preferences and others might not. This problem is also expressed through the results of the survey (see Table 4.3).

Another problem is that the stated preferences are often split into specific statements, which the respondents have to answer one by one. This thereby leaves the possibility for people to 'forget' what they just answered when new questions are asked, which might lead to contradicting answers. In reality one, most likely, cannot satisfy all preferences through one dwelling and at the time of decision all the specifics that the dwelling buyer is considering are intertwined and some might be subconscious. Sjaastad et al. (2007) point out that the lack of alternatives in such a survey makes people evaluate features one by one, which can make them come to a positive conclusion, where they in fact might have valued the feature negative, given other alternatives. The fact that people are not challenged on their priorities but can value all features equally is a problem with the stated preference method. In contrast people make priorities among a variety of factors when they stand before buying a dwelling. This is why the revealed preferences study is more robust in terms of relying on the respondents' answers, because the respondents answer through the real decision. The variety of factors, which are taken into account, can also be difficult to include in a telephone interview, as the factors also might vary between the respondents. In addition the telephone interview does not leave much time for the respondents to consider their answer in contrast to a situation where people stand before buying a house. Such a decision often involves long periods of searching and realising what is actually ones preferences. Therefore, some of the critique of a stated preference survey could be that people just express what their *dream* dwelling should be *right now* with no consideration to what is reasonable.

In the Danish survey the respondents were asked what their preferred dwelling in five years' time would be like, but this also has complications. For many people it can be difficult to know what their personal situation is in five years' time, and therefore it becomes difficult to know what sort of preferences one would have at that point. This problem is especially something to be considered for people who are in a time of their life when they have not settled down yet. For people that have not settled down many factors that influence dwelling choice are in play, therefore it becomes more difficult to know where you are in five years' time. As an example, the situation young people are in when they still live at home can be used. If they know they have to move out soon as a consequence of education, it becomes difficult to know where they will be, in their lives, in five years' time: where is their job, do they have a girl-/boyfriend, children? etc. This is also evident when examining the dwelling mobility related to age, which show that people of the age of 18 are the most mobile from where it starts descending exponentially until the age around 60 where residential mobility stays constant (H. Kristensen and Andersen, 2009).

The respondents' ability to realise what factors they in fact value is not something surveys conducted as revealed preferences has to take into account, as they assume that the price people were willing to pay was decided from a rational choice. From a mapping of the features of the dwelling, the surroundings and the price of the dwelling, an analysis of how the features are valued the most becomes possible. Such a survey can be used instead of a stated preference survey, but as will later be shown it might produce a different result. By assuming that the price paid reflects the true value for the buyer, the assumption is also that the buyer knows all about the dwelling, but it is difficult for the buyer to fully understand the implications of the purchase before settling in. Some factors might be realised after the purchase or be valued differently after taken in use, this is therefore a problem with the revealed preference survey. To the extent that this error is a idiosyncratic irrationality the market will correct it at the aggregate level, because the competition between buyers gives value to factors some might not realise, but others will (Sjaastad et al., 2007). This meaning that if a person buys a dwelling with a basement, but does not use it or if it was not a criterion when looking for a dwelling, she still has to pay for it, because other dwelling buyers need the basement and are willing to pay for it, thus the actual dwelling buyer has to pay also. Though this error might be corrected to use in the analysis it does not correct the unsatisfied individual, whose expectations were not met. It could of course also be the other way around, where the buyer realises values of the dwelling, which she was not aware of before buying.

In the Norwegian study it is assumed that dwelling buyers have a full liberal market to operate in, with full information about price and what is actually bought, a variety of alternatives to choose from and that all actors act rationally. But the dwelling market is not fully liberal, as different policies work to help people with fewer resources, the tax system is structured as it is, geographical constraints might leave out some opportunities, which availability on the market might also do etc. Some of these market restraints might of course not be as restraining in a large city as Oslo, but they still have an effect.

As the former shows there are advantages and disadvantages with both methods and as the following will show there are also differences in the conclusions from the two surveys. A short presentation of the relevant results from the two mentioned studies will be put forth before a discussion about how the results can be used as a base for the extrapolation.

4.2 'Befolkningens boligønsker'

In this report I, among other things, examine how future changes in the demographic composition will affect the general preferences towards dwellings. In order to do so, 'Befolkningens boligønsker' has been relevant because it has investigated some of these factors. As mentioned, the researchers behind the study have asked people about their preferences, and their conclusions will be presented here. It is important to recapture that when people were asked about their preferred dwelling, they were asked where they preferred to live in five years' time. From the study, knowledge about where people want to live, what type of dwelling people want to occupy and at what age they wish to do so have been retrieved.

The first aspect to examine is preferred dwelling location in 2001 and 2008, which is showed in Table 4.1.

Table 4.1 Preferred dwelling location 2001 and 2008 (Kristensen & Andersen, 2009:31).

Preferred locality	2001 pct.	2008 pct.
Centre of large city	9	19
Inner-city district	8	5
Suburb	30	27
Small/medium town	24	23
Village	12	12
Countryside	16	14
Do not know	1	1
Total	100	100

According to the results in Table 4.1 there has been a clear shift in the type of location in which people prefer to live. There has been an increase by over 100 pct. of people who prefer to live in the centre of a large city, compared to 2001, whereas almost all other locations have experienced a decrease in popularity. The suburbs have decreased their popularity in the period by 3 percentage points. Kristensen and Andersen (2009) argue that reasons for this development could be that many new central areas (harbour fronts, old industrial sites) have been turned into attractive dwelling areas and that the general housing prices have increased rapidly, turning the suburbs to become too expensive for some. According to Dam et al. (2011:48), using various data sources, the per square meter price is higher for apartments in Copenhagen than for suburban dwellings (also for northern part of Zeeland) and the increase in price have been somewhat the same, the best

explanation must thus be the improved neighbourhoods and leverage projects (as prestige projects, build in deprived neighbourhoods to increase the value of the area, are called (Brindley et al., 1996)). In spite of this development the most popular location is still the suburbs and in a small or medium size town.

Another aspect is the type of dwelling the respondents' preferred in 2001 and 2008 – this is shown in Table 4.2.

Table 4.2 Type of dwelling the respondents' preferred in 2001 and 2008 (Kristensen & Andersen, 2009:29).

Dwelling type	2001 pct.	2008 pct.
Apartment building	18.3	19,5
Terraced dwelling	10.8	12,1
Single-family house after 1990	11.5	15,8
Single-family house 1960-1990	23.6	26,8
Older villa	20.9	13,7
Farm house	11.4	10,2
Other	3.4	1,2
Do not know		0,8
Total	100	100

Table 4.2 show that the most popular dwelling type is the detached single-family house (from here just single-family house) from between 1960 and 1990, but also that apartment dwellings and new single-family houses from after 1990 are popular. What is most interesting is the change over time in preferences. The survey shows a significant shift in preferences away from older villas especially towards the new single-family houses and the single-family houses from between 1960-1990. This could maybe be argued to be a consequence of the location of the older villas, which typically are placed close to the city centre, because it was the first movement out of the city by the upper classes of society. These dwellings have increased much in price could therefore be regarded to be too expensive for most people. Another factor that might explain some of the shift is the general educational level, which shifts from craftsman educations towards service and knowledge educations making people more reluctant from moving into old expensive villas, which then will have to be renovated by professionals.

According to Table 4.1 and Table 4.2 there seems to be somewhat consistency between the popularity of suburbs, province towns and single-family houses. What does not seem so consistent is that the centres of the larger cities have become more popular but at the same time single-family houses have not decreased their

popularity much. The typical location of single-family houses is in the suburbs and province towns, which have all become less popular while single-family houses have not and the apartment buildings have only increased their popularity relatively little in comparison with how much the inner-cities have increased theirs. This inconsistency is more evident in Table 4.3 where preferred dwelling locality is divided on preferred dwelling type.

Table 4.3 Preferred dwelling locality divided on preferred dwelling type within five years (Kristensen & Andersen, 2009:31).

	Centre of large city	Inner-city district	Suburb	Small/medium town	Village	Country side
Apartment	51	22	13	7	5	3.2
Terraced	6	18	17	13	7	2.7
Single-family house after 1990	11	19	19	20	16	11
Single-family house 1960-1990	19	19	34	36	34	21
Older villa	9	18	13	19	20	11
Farm house	2.0	1.4	2.3	3.8	14.9	48
Other	0.4	-	1.0	1.1	1.5	2.3
Do not know	1.2	2.7	0.8	0.5		0.5
Total	100	100	100	100	100	100

First, Table 4.3 shows that there is a clear correlation between preferred dwelling type and preferred dwelling location. The closer you get to the centre of the city the more compact you want to live and the further you get away the more popular it gets to live in a single-family house or a farm house. Where the inconsistency shows is when only about 50% of those who prefer to live in the centre of a city wants to occupy an apartment dwelling. Kristensen and Andersen (2009) argue that reasons for this could be confusion between long term and short term prefers among the respondents. Surely there could be confusion among the respondents, but this confusion seems to fit mostly to the young people in transition, who only occupy the central city while under education and coupling and afterwards look for a more 'family friendly' dwelling, but it still seems as a relatively large inconsistency. Another reason could be the methodological choices, which has already been discussed. This inconsistency serves to exemplify that this type of survey is to 'kind' towards the respondents – it is letting the respondents answer what they prefer. If a concrete development plan was to be drawn from this it would imply that single-

family houses were built in the centre of large cities, because very few of those exist now at such locations. This is not realistic since it would require the annexation of parks and brown field areas for development of a few single-family houses. This therefore ought to leave the conclusion that critical reflections on how these results should be used in municipal planning policy are necessary.

Another relevant result is the correlation between current and preferred dwelling location for different lifecycle groups – this is shown in Table 4.4. The location where the divergence between lifecycle groups is largest is in central areas of large cities. About half of the respondents living at home and the people < 30 years prefer to live in the centre of a city or in an inner-city district, whereas from 27-30 % of couples and singles from 30-59 and the 'singles > 60' prefer to live there. Only 10-25 % among the other lifecycle groups prefer to live in the centre of a city or in an inner-city district. The preference to live in the suburbs is fairly equally distributed.

In relation to current and preferred dwelling locations, for some lifecycle groups there are more mismatches than for others. People still living at home have the greatest mismatch, but otherwise Table 4.4 shows that singles < 30 years and couples under 30 have a somewhat large mismatch. This could also be a part of the explanation why there could be confusion between the respondents, young people have a higher dwelling mobility (Statistikbanken, 2011a), high mobility might lead to the confusion between dwelling type and dwelling location.

Reasons for such a mismatch could therefore be explained by the unsettledness of these groups, whereas these mismatches are not surprising. Other than that, the other lifecycle groups seem to be more or less satisfied with their current dwelling location. Though it seems that there is a tendency that singles (> 30) in general are more unsatisfied than their same age married and co-habiting, which could be explained by the fewer economic resources singles have.

These results will not be used in the extrapolation and as such only serve to show which population groups that might be most unsatisfied with their dwelling location (which can be related to the dwelling type). This is interesting because the results show that people who could be considered to be unsettled as well as those who have fewer resources have the largest inconsistency between preferred and actual dwelling location. Should these results be used in planning it seems higher subsidies should be given to groups like 'lone providers' (and to some extent 'singles 30-59'), because they seem to be less likely to realise their preferences as well as singles and couples < 30. This is of course only if it is believed that all people should be able to realise their dwelling preferences to the same extent. It should however be noticed

that the inconsistency for the unsettled groups might just be a result of the question asked, which was in which dwelling the respondents preferred to live, in five years time.

Table 4.4 Correlation between current dwelling location and preferred dwelling location and different lifecycle groups (Kristensen & Andersen, 2009:71)*. The mixed group is households difficult to determine because more than one family live in the dwelling. The categories 'do not know' and the total on the column side have been left out.*

	Centre of large city	Inner-city district	Suburb	Small/ medium town	Village	Country side
	Preferred dwelling					
Live at home	42	5	22	17	5	8
Singles < 30	50	7	25	11	2	5
Couples < 30	24	3	27	21	9	18
Couples with children	12	6	28	24	16	14
Lone providers	21	6	33	31	6	4
Singles 30-59	26	4	29	18	6	15
Childless couples 30-59	8	6	28	26	15	16
Couples ≥ 60	13	3	29	26	14	15
Singles ≥ 60	23	7	22	30	11	8
Mixed	21	5	23	18	10	22
Total	19	5	27	23	12	14
	Difference between preferred and actual dwelling					
Live at home	27	-3	1	-24	-4	0
Singles < 30	-11	0	9	0	-2	5
Couples < 30	-19	-6	7	5	2	12
Couples with children	-2	-1	1	-4	1	6
Lone providers	6	-13	5	12	-11	0
Singles 30-59	-6	-9	5	1	-2	9
Childless couples 30-59	-3	-2	-3	1	-1	7
Couples ≥ 60	-1	-1	0	1	-2	3
Singles ≥ 60	2	2	-2	-4	2	0
Mixed	-8	-7	2	9	-4	8
Total	0	-3	1	-2	-1	5

A last interesting conclusion from the survey is seen in Table 4.5 where the current dwelling of the respondents is correlated with the preferred dwelling within five years. The last row shows the percentage of the respondents that occupied the

specific dwelling type and the last column shows the total of the respondents' preferred dwelling type.

Table 4.5 Correlation between current and preferred dwelling type (Kristensen & Andersen, 2009:36).

	Current dwelling						
Preferred dwelling	Apartment	Terraced	Single-family house after 1990	Single-family house 1960-1990	Older villa	Farm house	Total
Apartment	52	8	7	5	4		19
Terraced	10	47		3	5	6	12
Single-family house after 1990	14	11	84	12	11	5	16
Single-family house 1960-1990	11	14	5	72	7	2	27
Older villa	7	5	1	3	67	2	14
Farm house	5	5	3	4	4	84	10
Other	0			1	1	2	1
Do not know	1	2		1	0		1
Total	100	100	100	100	100	100	100
% current dwelling	23	11	7	33	17	8	100

In general Table 4.5 shows that people are most attracted towards the dwelling they occupy, though this tendency is not so clear for apartment and terraced dwellings. Still, over half of those living in those dwellings prefer to do so. This could thereby indicate that people who live in the city centre are less settled that people living in the suburbs, which again could be explained by young people being unsettled. Another conclusion that could be drawn from this is that people tend to become satisfied with the dwelling they occupy. For terraced dwellings, single-family houses from after 1990 and farmhouses more people prefer to live in these dwelling types than actually do so – the single-family house after 1990 being most preferred in this regard.

Some results from this survey were not included in the published report, but are still important for the purpose of extrapolating the future dwelling preferences. These results, which have been retrieved from Hans Skifter Andersen, are the correlation between lifecycle groups and preferred dwelling type.

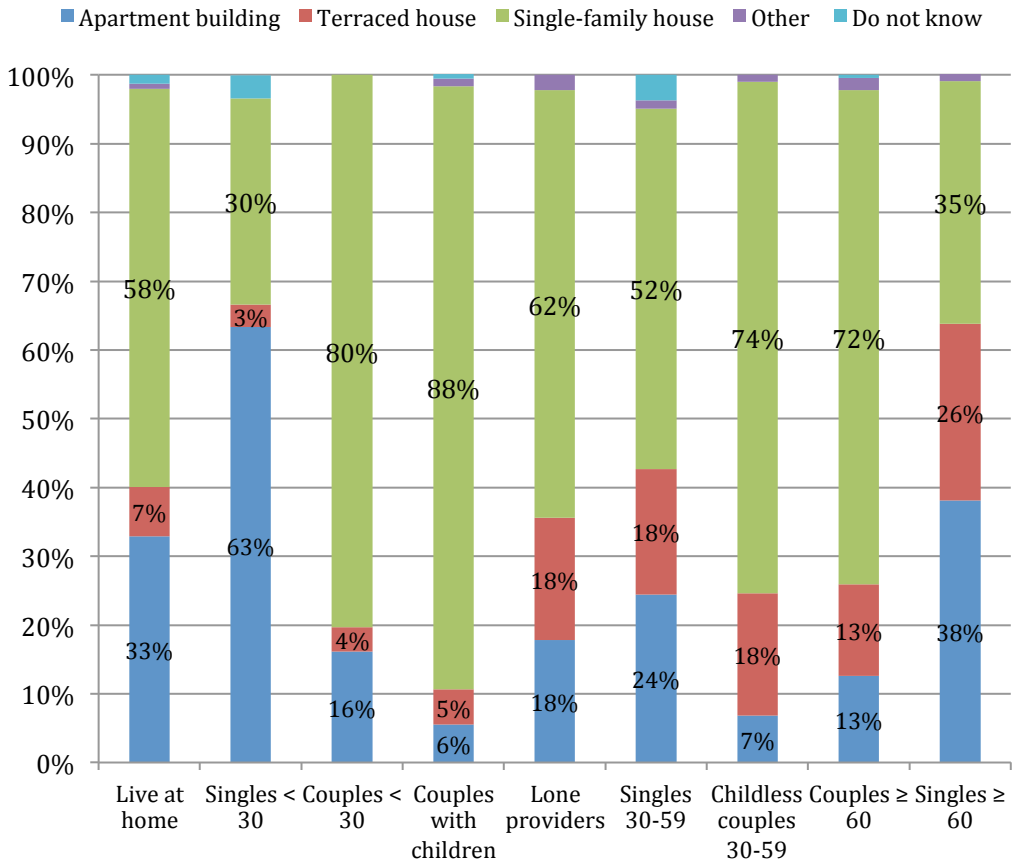

Figure 4.1 Correlation between preferred dwelling type and lifecycle group (Kristensen & Andersen 2009, correlation not included in the published report)*. The single-family house category is compiled from four originally separate sub-groups within this category. Labels only added on the three main dwelling types.*

Figure 4.1 shows the correlation between lifecycle groups and preferred dwelling type and it again shows a clear tendency that the single-family house is the most preferred. For some groups though, the single-family house is not the most preferred dwelling type. These groups are the 'singles < 30' and the 'singles ≥ 60' where the apartment building is very popular, and the 'singles ≥ 60', among whom a quarter prefer terraced dwellings. The terraced dwellings are most popular amongst the lifecycle groups 'lone providers', 'singles 30-59', 'couples ≥60' and 'singles ≥ 60'. There is also a tendency that singles in general have a higher preference towards apartment dwellings than same-age married and co-habiting persons, which could

be explained by the more limited economic resources among singles. An explanation for why the 'singles < 30' and the 'couples < 30' are so different in their preferences (for 'singles < 30', 63% prefer apartment dwellings and 30% prefer single-family houses, for 'couples < 30', 16% prefer apartment dwellings and 80% prefer single-family houses) could be the question asked. The question asked in the survey was, which dwelling the respondents preferred five years forward and for couples it might be more imaginable to see oneself in a single-family house (there might already be plans about it) than for singles, because it for couples is easier to imagine having a family with children and thereby a larger dwelling, here expressed through the preference towards a single-family house.

As has already been argued, the Danish study can be discussed in relation to method and results, which is why some alternative results are included through a presentation of some relevant conclusions from the Norwegian study 'Bokvalitet i by'.

4.3 'Bokvalitet i by'

This study is originally made to form a foundation for a discussion about quality of the dwelling and for decisions about urban form in terms of suggestions for new developments of residential areas (Sjaastad et al., 2007). Still, some of the results are relevant for this report, thus these will be presented here. Before presenting the results, a recapturing of the main method applied in the study is in place. This study was conducted by valuating different factors by putting a price on them, meaning: the price people paid for their dwelling is a result of how much they value the different features from the dwelling and the surroundings. In practice this is done by examining, by means of statistical analysis, how much one feature will affect the per square meter price.

The first interesting result is that dwellings in the inner city is more valued than dwellings in the suburbs (Sjaastad et al., 2007). The study shows that traditional urban (dwelling) blocks are some of the most valued, just as close proximity to central functions are also highly valued. In general the study shows that the inner city as a whole has qualities attached to it, which makes it the most valued, i.e. traditional dwelling streets and dwelling blocks (Sjaastad et al., 2007). Close proximity to shops is not reflected very significantly, because it can be associated with inconvenience such as unpleasantly much traffic. This conclusion is somewhat different from the Danish survey, where single-family houses were the most preferred dwelling type and suburbs and medium or small towns were the most preferred dwelling location.

Another interesting tendency shown in the study is that close proximity to low-density land use is valued negatively, mostly in the suburbs. This means that low-density land uses such as parking, industry and various low density dwelling types in close proximity of the residence are valued negatively (Sjaastad et al., 2007). This tendency is most clear in the suburbs, and less clear in the inner city, which could be because the suburbs already are low-density and therefore more sensitive towards more low-density land use. In addition, green areas i.e. parks, have a positive value in the inner city but only as a fill in function, meaning that more green areas beyond a certain amount are not necessarily valued. In suburbs open space or non-planned areas are valued negatively, this is in any form, as 'modified open space', 'nature-like open space' as well as 'wild growing open space'. The authors give four reasons why green areas are valued negatively; these are: The state of which they are in (different states, mostly badly maintained); the integration with the built environment (no clear rights of use are expressed), how they function as green areas (the functional repertoire is narrow in 'nature-like open space' and 'wild growing open space') and the quantity of the green areas (too much deprives the joy from the few) (Sjaastad et al., 2007). This shows that green areas are valued as a supplement to the urban form, not as a foundational feature.

These conclusions, that low density development and green areas are not valued high, are interesting because they are in contrast to what the Danish study concluded. The most valued preference for the surrounding in the Danish study is close proximity to green areas, though this preference is often related to peaceful conditions for children and exemption from traffic noise (H. Kristensen and Andersen, 2009). Thus these seemingly divergent conclusions might not be that far from each other, because close proximity to traffic is valued negatively, both in the inner city and in the suburbs, in the Norwegian study (Sjaastad et al., 2007). In the suburbs, segregated road systems are valued, because these systems attract less car traffic and therefore are more valued by families with small children. In contrast, good pedestrian conditions are valued higher in the inner city than in the suburbs. The reason for this is that people in the inner city tend to walk more than people in the suburbs, who drive more. This mentioned, the low traffic impact in the suburbs is the strongest contender to the inner-city living, which is comparable with the conclusion form the Danish study where the preference for green areas is interpreted as a preference for low traffic impact.

In relation to the availability of public transport the study concludes that this feature has a positive effect on the dwelling price. The tendency is most evident in the suburbs and when looking at the city as a hole. The reason why the level of service

of public transport does not show as neither a particularly negative nor positive effect for the inner city (all other left out) could be because of the general good supply of collective traffic options, but also that the inner city is viewed as a pedestrian area. This thereby show that though suburban dwellers often rely on the car for mobility the public transport system is still important, maybe because it provides freedom from not having to drive your children around as they can instead be put on the bus or metro.

In general, the study shows that it is the physical qualities related to the surroundings of the dwelling that are valued positively, rather than the qualities related to the dwelling itself (except for the unpopularity of living in tall buildings). Multi-functionality is one of the most valued features for the inner city, which does not necessarily mean near proximity to shops, but a changing environment rather than one-dimensional functionality (which is often found in the suburbs). The study has not focused on density as a feature, but throughout the survey it becomes clear that a high density gives extra value, mostly because of what it brings.

Now that the two studies have been presented the next section will focus on how their results can be used in order to enable a crude extrapolation of the future development in dwelling preferences as a basis for discussion about future dwelling preferences.

4.4 Further critique and use of the two studies

As has been discussed and shown above, the conclusions from the two studies are widely different. As argued in the beginning of this chapter, the use of studies from contexts other than the Danish can have its complications, therefore the use of the results from the Norwegian study should be critically reflected upon. Likewise the inconsistent results from the Danish study makes it evident that also these results should also be critically reflected upon before being used.

The kind of knowledge that is needed to make a crude extrapolation about the future dwelling preferences will here be recaptured. It should be about these issues: what type of dwelling people prefer, in what type of location people want to live and in what age people want these types of dwellings in these locations. This is something the Danish study provides, but with questionable results (unfortunately locational data on the urban level is not provided by Statistics Denmark, which makes it impossible to conclude anything on behalf of locational data, the implications of that will be discussed later). The Norwegian study does not conclude anything in relation to age, but provides us with a different conclusion than the Danish study in terms of dwelling and locational preferences, which mainly can be

ascribed to the choice of methodology. So what to make of these divergent results? Before going on to discussing how to apply the results in the extrapolation some additional critique and implications of the use of the two studies will need to be discussed.

4.4.1 Choosing one study as reference

In my opinion both methods are usable, but the method used by the Norwegian researchers is better in relation to extracting people's *real* preferences. As argued, the stated preference method makes it too easy to have preference for something without having to account for it. On the other hand the revealed preference method is based on market mechanisms (demand vs. supply), therefore a large supply of single-family houses in the suburbs can show to make the per square meter price cheap and thereby come out as unpopular in the results even though most people live in such. This is also what some of the conclusions suggested in relation to green areas, where they were shown to have a negative impact on the dwelling price in the suburbs, simply because of the large amount of green areas whereas the small amount in the city centre had a positive effect.

On the other hand a study by Næss et al. (2011) showed that the capital region of Oslo in Norway since the late 1980s has been increasing its population density and since 2002 the share of single-family houses constructed has decreased significantly (before 2002 the share were more than one-quarter) (Næss, Næss, and Strand, 2011a). This could thus imply that the supply/demand effect has not shown to be valid in Oslo on single-family houses as the conclusion from 'Bokvalitet i by' is from 2007 and does not show signs of single-family houses being more popular than urbanised dwellings. Arguably it could also reflect a real decrease in the popularity of single-family houses, and/or that the market for single-family houses was already saturated and that there was hence little need for constructing more of this housing type. When looking at price changes in the Oslo region for the per square meter price on single-family houses, row-houses and multi-dwelling buildings, it shows that single-family houses has not experienced a higher increase in price, in fact the price has not increased as rapidly as the two other types (terraced and apartment dwellings/row-houses and multi-dwelling buildings) (Statistics Norway, 2011). One could have expected that the decrease in supply of new single-family houses would make the single-family house increase in price, which would, in a revealed preferences survey, make the dwelling type turn out to be more popular, but this does not seem to be the case. Therefore the demand/supply theory does not seem to compromise this study. It is more likely that the smaller supply have caused people to change their preferences towards dwellings they could attain.

One factor that makes the Norwegian study difficult to use directly, besides being from a non-Danish context, is that it is not as tangible as the Danish study. From the Danish study there are exact per cent shares of people's preferences, which can be used in an extrapolation. The Norwegian study has statistical data on increase and decrease in per square meter dwelling price that indicate which factors people prefer, but these figures cannot directly be transferred to a Danish context. In addition the Danish study is a national survey and the Norwegian is conducted in the capital region, but as this report seeks to examine general tendencies the Danish study is more representative for this purpose.

Another factor that might compromise the results from the Danish study is the time lag from 2008, where the survey was made to now. In the four years since 2008 an economic crises has, among others, influenced the dwelling prices for different reasons (people's willingness to take up mortgages, people's opportunity to take up mortgages etc.). This situation could have changed people's preferences significantly, which is why Hans Skifter Andersen (one of the researchers on 'Befolkningens boligønsker') made a follow up survey in order to examine if the crises had changed the population's preferences. The original study was not remade, but the same people (only 1200 of the original 1580 responded) were asked if their preferences had changed during the recent price decrease in dwellings.

The study showed that people's preferences were largely not changed – only 5.5 per cent expressed changed preferences and mostly because the decreased prices would make it more possible for them to buy their own dwelling (Andersen, 2009). The young people seem most affected as it gave them opportunity to afford their own dwelling. People were not asked if their preferences had changed in relation to which location they wanted to live, i.e. city centre or suburb.

This conclusion is of course good in the sense that it does not compromise the use of the original survey, though the points of criticism raised against the stated preference method also apply here (people are still free to answer etc.). Still, some time has passed since 2009 and people's preferences might have changed even more since the economic crisis has not been overcome fully yet. But because the latest municipal plans were published in 2009 and their planning had its point of departure in that year, these surveys are highly up-to-date (at least for use in this report). People's preferences do not stop changing for that reason, but the effect of people's changing preferences will be discussed later.

Since the Danish survey is the most tangible and is from the most relevant context, 'Befolkningens boligønsker' (2009) will serve as the foundation for the

extrapolation. The results from the Danish study will, along with the demographic development retrieved from Statistics Denmark, be used to extrapolate the future preference for dwellings.

Statistics Denmark does not provide any statistics on where people live on the urban level (i.e. the city centre, the suburbs etc.), which makes it impossible to use the results from the Danish survey to extrapolate where people prefer to live in the future. Thereby it is only possible to extrapolate on which dwelling types the population prefers to occupy in the future. This is of course not ideal because it is then not possible to compare the two different extrapolation results, but on the other hand the results of the Danish survey show a considerable amount of inconsistency between the two, which makes it difficult to compare anyway. Another problem with using the results of locational preferences is that they are made on a national level and are therefore difficult to use in a local context. For example if a person prefers to live in the city centre of a large city, such a location will not be found in the rural municipalities, and if the person moved to a rural municipality the person might not prefer to live in the centre of the largest urban settlement. The use of dwelling types for the extrapolation is not related to the same challenge of downscaling, because all dwelling types can be found in all municipalities (later this issue will be discussed). The results of locational preference are therefore used to compare with the Norwegian study, which to a high extent concluded on locational preferences, but with different outcome. In addition it is safe to argue that location in relation to the urban centre should to some extent be correlated with the dwelling type. The closer to the city centre the higher densities should be expected and vice versa, this is both theoretically discussed (Alonso, 1964) and shown empirically (Næss, 1996; Næss et al., 1995). Therefore not extrapolating with a point of departure in locational preferences might not be a loss to the conclusions, because extrapolating from a point of departure in dwelling should give somewhat the similar results. At least when not desiring to use the results as a precise extrapolation of future preferences, but as an indication.

Before going on to concluding which findings from the two studies to use in the extrapolation, a short discussion on predicting future events is in place.

4.4.2 Predicting the future

In accordance with critical realism it is not possible to predict the future exactly, because social phenomena, which are also studied here, take place within open systems. Predicting the future entails knowing what future social events will bring, but since the possibility to describe future contingent events is incomplete it becomes impossible to exactly predict future events (Danermark et al., 2002). In

other words, unpredictable events can emerge and change the original situation, which will change the final outcome. For example the financial crisis was unpredicted (by most) and have had a large influence on a variety of social relation. This does, however, not mean that some sort of prediction cannot exist. By observing the underlying mechanisms of social structures it becomes possible, on a qualified level, to estimate the possibilities, deficiencies and limitations of the object of study (Danermark et al., 2002). Thus it only becomes possible to describe tendencies of future events with a point of departure in the underlying mechanisms. The point here is not that the next chapter should try to understand the underlying mechanisms of municipal planning (this is saved for later), but that an exact description of how the future dwelling preferences will be composed, is not possible. Therefore an exact extrapolation of future dwelling preferences from the results of the Danish survey will not be of much use for either the municipalities or this report's conclusions. I will instead use the extrapolations of the future preferences towards dwellings as an indicator of the most likely development with a point of departure in the results of the Danish survey.

4.4.3 Use of the results

The conclusions from the Danish study, which are relevant in relation to the extrapolation, will be brought together in the following. The purpose of doing this is not to present all the conclusions once again but to structure them in another fashion (without discrediting the original conclusions), in order to make them more usable in the extrapolation. The main aim with this is to make the results equal, in set-up, to the data from Statistics Denmark.

In relation to preferred dwelling type it was concluded that the single-family house was the most wanted, but that a small decrease in its popularity has occurred. In Table 4.6 the preferred dwelling types are shown again, but the different single-family house types has been merged, because the distinction is not relevant in the extrapolation as well as not retrievable from Statistics Denmark.

Table 4.6 Preferred dwelling type in 2001 and 2008. Same table as Table 4.2 but the different single-family house types has been drawn together and 'Do not know' has been left out.

Dwelling type	2001 pct.	2008 pct.
Apartment dwelling	18.3	19,5
Terraced dwelling	10.8	12,1
Single-family house	67,4	66,5
Other	3.4	1,2
Total	100	100

The table show that only a small change in preference towards the different dwelling types has occurred. The change shows that single-family houses in general have become less preferred, while apartment and terraced dwellings have increased their popularity. The relatively small change makes it possible to conduct a more indicating extrapolation, meaning that if the change had been greater the extrapolation would have been more uncertain, because the extrapolation uses the 2008 preferences and keeps them constant towards 2021.

In Table 4.5 the correlation between current dwelling type and preferred dwelling type were shown. Those results will be used to calculate the dwelling preferences in the different municipalities according to the inhabitants' preferences. In Table 4.7 the same results are shown but the group of single-family houses have been merged.

Table 4.7 Correlation between current and preferred dwelling type. Table the same as Table 4.5, but the four single-family house subgroups have been merged for simplicity.

	Current dwelling		
Preferred dwelling	Apartment dwelling	Terraced dwelling	Single-family house
Apartment	52	8	4
Terraced	10	56	4
Single-family house	37	34	91
Other	0	0	1
Do not know	1	2	1
Total	100	100	100

Using these results it is assumed that people living in single-family houses in general do not have diverging preferences when examining the individual municipalities. This means that occupants of apartment dwellings in one municipality will have the same preferences as occupants of apartment dwellings in another municipality. I realise that residents of a particular dwelling type in one municipality can differ from residents of that particular dwelling type in another municipality, but some similarities are present. There might even also be differences among the residents of a particular dwelling type within a municipality – this is a disadvantage with doing general studies. The results from Figure 4.1 are used in a similar way.

The results from Figure 4.1 will be used to extrapolate the future dwelling preferences in the municipalities on a more concrete level. After the size of the different lifecycle groups have been extrapolated the results from Figure 4.1will be used to calculate the dwelling preferene for the different municipalities in 2021.

Again here different lifecycle groups in different municipalities might have different preferences, but again similarities occur.

In order to be able to take the difference in regional preferences for the individual municipality into account, a factor has been calculated from the results of the survey shown in Figure 4.1 and the actual residential dwellings of the entire nation's population. This calculation will shortly be presented here, for a more elaborated explanation of how this factor is calculated see Appendix 1.

What I want to find out is the individual municipalities' residential preferences (M_p). I already know the national residential preferences (DK_p) and through Statistics Denmark I know the national actual dwelling composition (DK_a) as well as the municipalities actual dwelling composition (M_a). I assume that the relationship between a lifecycle group's actual and preferred dwelling type is the same relationship for the lifecycle group in all case municipalities.

Thereby the equation is:

$$\frac{DK_p}{DK_a} = \frac{M_p}{M_a} = k$$

Where

$$DK_p \; is \; national \; residential \; preferences$$

$$DK_a \; is \; national \; actual \; dwelling \; composition$$

$$M_p \; is \; municipal \; residential \; preferences$$

$$M_a \; is \; municipal \; actual \; dwelling \; composition$$

By doing so I assume that e.g. 'singles < 30' in the municipality of Langeland have the same preferences as 'singles < 30' in the municipality of Aarhus, it thereby becomes the actual residency of the 'singles < 30' in both municipalities that becomes determent for the calculated preferences. If for example the preferences of 'singles < 30' on the national level, who live in terraced dwellings have this composition: 30% prefer single-family houses, 65 % prefer terraced dwellings and 5% prefer apartment dwelling, then the amount of 'singles < 30' in the municipality living in terraced dwellings will affect how much influence this composition of preferences will have on the general composition of preferences in the municipality – if all 'singles < 30' live in terraced dwellings the composition will have great influence, if few 'singles < 30' live in terraced dwelling the composition will have small influence.

Arguably 'singles < 30' in one municipality might not have the same level of preference towards living in an apartment as 'singles < 30' in another, but this is somewhat taken into account by adjusting the preferences with how the 'singles < 30' actually resides. In e.g. a municipality with a large city where many live in apartment dwellings it will thereby result in a somewhat high level of inconsistency between where people live and what they would prefer, because as shown in the result of the survey (see Table 4.5) apartment dwellers tend to be more unsatisfied with their dwelling. That the inconsistency (between actual and preferred dwelling when occupying a apartment dwelling) in a large city municipality is at the same level as the national could be argued against. In small towns where most people occupy a single-family house, people occupying an apartment dwelling might tend to prefer a single-family house to a higher extent (because everybody else live in such) than people occupying an apartment dwelling in a large city (because many people here occupy an apartment dwelling and the level of feeling unfair treated might be lower) Being aware of this adjusting the preferences with how people actually resides accounts for some of the regional difference.

After finding *k* the preferences for the individual case municipalities can be found by multiplying *k* with the case municipalities actual dwelling composition. Doing this the difference in the municipalities' dwelling composition is considered as an influential factor on the preferences of the municipalities' population.

The calculated *k* can be seen in Table 4.8.

Table 4.8 The factor which is used to multiply with the municipalities' actual dwelling composition (own calculations based on residential preferences among different lifecycle groups reported in (H. Kristensen and Andersen, 2009; Statistikbanken, 2011b, 2011c, 2012).

Lifecycle group	Single-family house	Terraced house	Apartment	Other
Live at home	1,3	0,8	0,8	0,2
Singles < 30	0,8	0,4	1,4	0,0
Couples < 30	2,2	0,4	0,3	0,0
Couples with children	1,6	0,4	0,2	1,0
Lone providers	1,1	1,5	0,6	1,8
Singles 30-59	0,9	1,6	0,9	1,4
Childless couples 30-59	1,2	1,4	0,3	1,3
Couples ≥ 60	1,3	0,8	0,5	3,7
Singles ≥ 60	0,7	1,3	1,3	2,1

Now that the results of the Danish survey have been altered to make it possible to extrapolate future preferences it is time to carry out the extrapolations.

5 Extrapolation of future dwelling preferences

Through this chapter the aim is to extrapolate the future dwelling preferences of four municipalities in order to make comparison with how different municipal plans are put together.

Four municipalities are chosen as cases from the criterion that this study should give a rough picture of the general development in Denmark. The reason why this report does not just look at Denmark in general is, among other, because there are geographical differences in the demographic composition. These differences have increased during the recent years. For a long period there has been a movement of people from the countryside towards the city, but also a movement from the outer regions towards the larger city regions. This poses a problem for those regions with a decreasing population, because with this development follows an emigration of workplaces (because of more limited workforce), emigration of highly/specialised educated people (job opportunities are higher in large city areas), closing of schools, fewer service facilities etc. It therefore becomes more interesting to look at specific cases. Another reason for choosing not to look at Denmark in general is that it is the municipalities that do the specific spatial planning. In order to examine future dwelling preferences with the conducted planning one has to look at the municipal plans.

As a part of the work with the governmental report 'More life at the countryside' (Mere liv på landet – Landdistriktsprogrammet 2007-2013) from 2006 the Ministry of Foods, Agriculture and Fisheries in collaboration with the Faculty of Agricultural Science at Aarhus University, made a classification of the 98 municipalities into four subgroups: Outer region-, countryside-, medium- and city municipality was made. The classification was based on fourteen criterions (i.e. inhabitants, density, the agricultures importance, education level, demography). It was conducted to identify rural-district-municipalities (outer region-, countryside- and medium-municipalities) in order to (subsequent to the municipal reform) distribute different subsidies to promote; competitiveness in the food industry, climate and environment, job and attractive living conditions. The classification will here only serve as a tool to choose different municipalities for the analysis. The city-municipalities are the most inhabited and dense, whereas the outer-region-municipalities are the less inhabited, though other factors also affect the labelling (for example, a country-municipality could contain a larger town than a medium-municipality, but the fact that the country-municipality has qualities such as a large rural area and thereby also more thinly populated areas and the medium-municipality consists of a smaller area and has closer proximity to a large city,

makes the classification as it is – for a better introduction to the classification see (I. T. Kristensen et al., 2006)). From this division the four case municipalities are chosen:

- Aarhus (city-municipality)
- Sorø (medium-municipality)
- Viborg (countryside-municipality)
- Langeland (outer-region-municipality)

In Figure 5.1 the division of the municipalities into subgroups are shown, as are the four chosen municipalities. The figure also shows the effect of the tendency discussed before about the movement from some regions to others. The figure clearly shows that the further you get from the large city regions the more outer-region municipalities there are, hence the name.

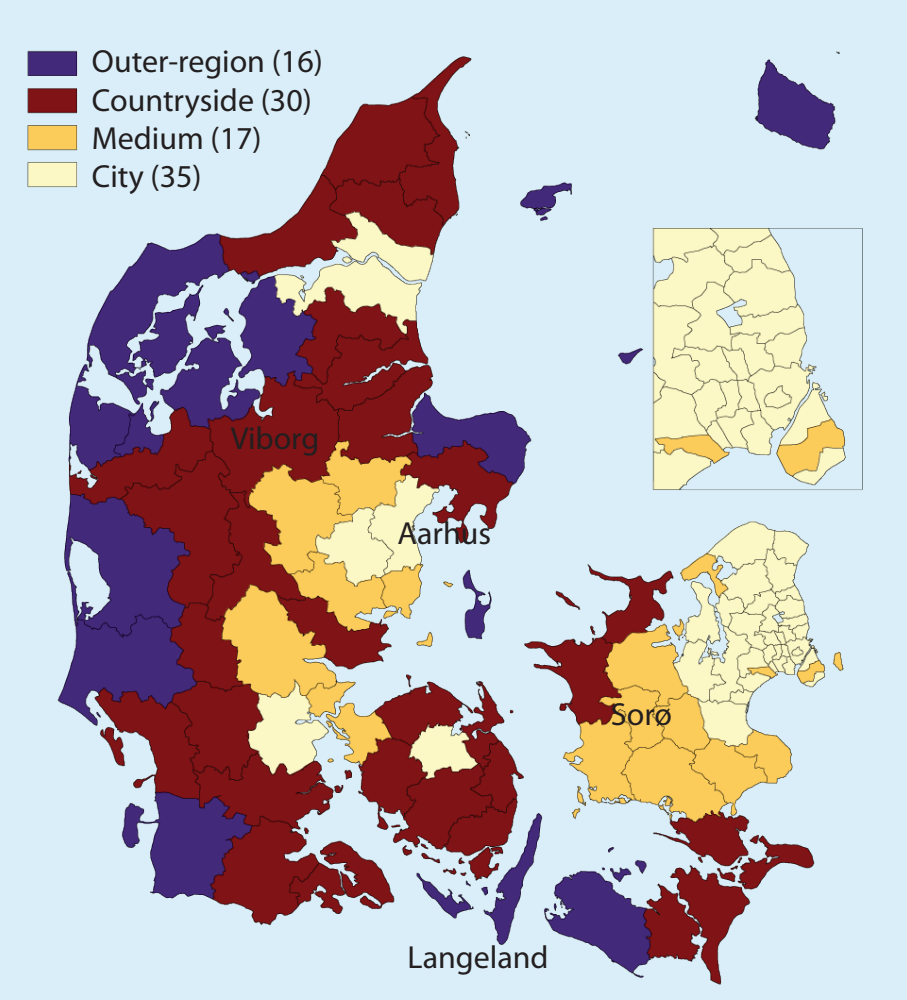

Figure 5.1 Map showing the division of municipalities into the four subgroups (Ministeriet for Fødevarer Landbrug og Fiskeri, 2006).

In the following the case of the municipality of Aarhus will be presented and be subject to an analysis examining the future dwelling preferences in relation to demographical changes. The three other municipalities will undergo the same level of analysis as well as the procedure, but will be presented in Appendix 2. A presentation of the main conclusion from the analysis of the three municipalities will though be present in this chapter.

All the individual extrapolations will have their starting point in 2009. First there will be a short presentation of some numbers of relevance in relation to the country in general. After this the municipality of Aarhus will be examined with the procedure, which is: a short presentation of the municipality, an examination of the current composition of dwellings and occupants, a presentation of the calculated preferences in the start of the planning period (2009) and then an extrapolation of the demographic composition, an examination of the different preferences in this relation and an evaluation of the changed preferences. The fact that the municipalities are examined through the same procedure means it will not serve any purpose to go through all municipalities in the main report, which is why the analysis of the municipalities of Sorø, Viborg and Langeland are presented in the appendix and only the main conclusions in this chapter. Last there will be a general comparison of all the municipalities.

As already discussed, an exact extrapolation of the future dwelling demand from the stated preferences will not give a realistic picture. For that reason the extrapolation should not be regarded as a final truth, but as an indicator of which direction the preferences will change towards, as a consequence of the demographic change when extrapolated from stated preferences. The results will be used to form the basis for a discussion about how the municipalities conduct their planning in relation to peoples preferences (as it will be concluded later the municipalities are in competition and therefore they may perceive that they should provide the dwellings people prefer in order to prevent them from moving to another municipality) and environmental sustainability. It is also important to notice that what people have stated as their preferred dwelling, might not relate to the municipality which they already live in, but could as well be related to an entirely different municipality.

5.1 The country in general

The purpose of this short section is to make comparison with by the different municipalities, not as an individual subject to the analysis. In Table 5.1 the dwelling stock of the entire country is shown and it shows that the single-family house is the most common type of residence with 44.7% of the total dwelling stock.

Table 5.1 The dwelling stock of the entire country 2009 (Statistikbanken, 2011a, 2011d).

Dwelling type	Total	Occupied	Unoccupied	Per cent of total	Per cent of occupied
Single-family houses	1,210,260	1,145,396	64,864	44.7	45.4
Terraced dwelling	383,342	364,268	19,074	14.2	14.4
Apartment dwellings	1,048,830	967,366	81,464	38.8	38.4
Dormitories	37,717	29,925	7,792	1.4	1.2
Other	24,666	14,827	9,839	0.9	0.6
Total	2,704,815	2,521,782	183,033	100	100

Also apartment dwellings are numerous with 38.8% of the total number. Terraced houses follow with 14.2% of the total number of dwellings. The table also shows a large number of unoccupied dwellings, these dwellings are presumably both out-dated, new and dwellings which have not been sold yet after the owner moved to a new. The unoccupied dwellings make up 6.8% of the total dwelling stock. This number is a consequence of the market, where a sufficient number of dwellings need to be available in order to make it fairly free for people to choose where to live. Among single-family houses, unoccupied dwellings make up a share of 5.4%, for terraced and apartment dwellings the share is respectively 5.0% and 7.8%. For dormitories and the dwelling type 'other' the share of unoccupied dwellings are higher with a share of 20.7% and 39.9%, respectively. Comparing the individual case municipalities' share of unoccupied dwellings with the national share will as such indicate how popular a municipality is to live in, as well as how popular the individual dwelling types are, though it should be noticed that dwelling types with a tendency to often change hands (i.e. apartment dwellings, because they are typically occupied by the most mobile part of the population) will probably have a higher rate of unoccupied dwellings because people move before they sell or rent out the old dwelling.

In the following the municipality of Aarhus will undergo the analysis, which has been specified in the former.

5.2 The municipality of Aarhus

Aarhus is the second largest city in Denmark and the municipal plan characterises the city as the capital of West Denmark, which is seen as an important role in relation to accompanying the future growth as well as being an efficient and attractive city (Aarhus Kommune, 2009). The municipality consisted of 314,545 inhabitants by 2012. It is expected that the municipality will erect 50,000 new dwellings to accommodate 75,000 more inhabitants towards 2030, which is a

moderate increase in relation to the 10-15 years just passed, according to the municipal plan.

The municipality consists of one main city, which is Aarhus, centred in the middle facing the Aarhus bay. The city has several satellite towns, which almost all have a direct morphological connection to the main city, and about 50 villages.

5.2.1 Aarhus in 2009

In Table 5.2 the number of dwellings in the municipality of Aarhus is shown and it shows that the most common dwelling type is the apartment dwelling, which account for 54.1% of the occupied dwellings.

Table 5.2 Number of dwellings 2009 in the municipality of Aarhus (Statistikbanken, 2011a, 2011d).

Dwelling type	Total	Occupied	Unoccupied	Per cent of total	Per cent of occupied
Single-family houses	38,491	37,406	1,085	25.6	26.0
Terraced dwelling	23,799	23,178	621	15.8	16.1
Apartment dwellings	82,152	77,769	4,383	54.6	54.1
Dormitory	5,516	5,047	469	3.7	3.5
Other	585	449	136	0.4	0.3
Total	150,543	143,849	6,694	100	100

Compared to the entire country the dwelling stock of the municipality of Aarhus has a higher share of apartment dwellings, a lower share of single-family houses and a slightly higher share of terraced houses. Apartment dwellings account for the highest number of unoccupied dwellings and the total share of unoccupied dwellings is 4.4%, which is lower than the national share. Also for the individual dwelling types the share of unoccupied dwellings is lower than for that of the entire country. Single-family houses have an unoccupied share of 2.8%, while the share for terraced and apartment dwellings are 2.6% and 5.3%, respectively. For dormitories and 'other' the share is 8.5% and 23.2%, respectively. The relatively low number of unoccupied dwellings could thereby indicate that the municipality is popular. The low number of unoccupied dwellings could make it difficult for some people to choose their dwelling freely, especially for single-family houses and apartment dwellings (this is also what Ærø concluded in a survey from 2001, where he found that 60% of the population in Aarhus, who recently moved to a new dwelling do not choose between alternatives (Ærø, 2001)).

When looking at in which dwelling types the residents live, apartment dwellings also account for the highest share (see Table 5.3), but the share is lower than for the share of apartment dwellings. The share of terraced dwellings and the share of those who occupy such is the same. For single-family houses the share of occupants is higher than the share of actual buildings. The general large amount of square meters in a single-family house and thereby the potential for a higher number of occupants per dwelling explain this tendency.

Table 5.3 Share of people (over 15 years) occupying the different dwelling types in the municipality of Aarhus 2009 (Statistikbanken, 2011e).

Dwelling type	Persons	Per cent
Single-family houses	82,785	33.4
Terraced dwelling	39,894	16.1
Apartment dwellings	117,160	47.3
Dormitory	6,824	2.8
Other	942	0.4
Total	247,605	100

Even though the municipality of Aarhus is the country's second largest a high share of people live in low- and medium-density dwellings (i.e. single-family houses and terraced dwellings). About 50% do so, which indicates that the population of the municipality of Aarhus seems to prefer low- and medium-density locations, though the share is lower than for that of the entire country.

Examining the preferred dwelling type in the municipality of Aarhus (Table 5.4) it is apparent that the single-family house has a higher share of people preferring to live in that type of dwelling than the share who actually lives in one, as 33.4% live in a single-family house compared to the 45.4% who prefer to do so. It is the other way around for apartment dwellings where 47.3% people live, but only 37.2% prefer to live there. For terraced dwellings the share of those who live there and the share of people preferring to live in such a dwelling is almost the same.

Table 5.4 Calculated preferences towards dwelling types in the municipality of Aarhus – with point of departure in lifecycle group and adjusted with how people actually reside (see 4.4.3 and Appendix 2) (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) and residential preferences among different lifecycle groups (H. Kristensen and Andersen, 2009) retrieved by mail correspondence with Hans Skifter Andersen).

Dwelling type	Total	Per cent
Single-family house	116,107	45.4
Terraced dwelling	41,640	16.3
Apartment dwelling	95,324	37.2
Other	2,858	1.1

Judging from this calculation the municipality should provide more single-family houses within the municipality in order not to 'push' people to live in other municipalities. In other words building more single-family houses would be the most rational from a planning angle (all other aspects left out), because those people who prefer a single-family house might otherwise move to other municipalities where single-family houses are more available. This of course is not an ideal situation for the municipality because it will lose its tax foundation. As there might be other factors influencing peoples choice of dwelling, than the type of dwelling, the situation is of course not as simple as just described.

As mentioned these calculations should of not be viewed as a valid foundation on which municipal planning should be built, but the results can give an idea of which direction the planning ought to go if the planners were to plan for people's preferences right now.

This leads to the next part of this analysis, which examines how the demographic development shapes the future dwelling preference in the municipality of Aarhus.

5.2.2 Extrapolating dwelling preferences in Aarhus

As mentioned the municipal plan starts by explaining how the plan gives room for 75,000 new inhabitants equivalent to 50,000 new dwellings towards the year 2030. The plan makes it clear that the municipality will strive to satisfy the preferences, in terms of dwelling type, of the different lifecycle groups and goes on to specify that it is expected that elderly people and young people will take up a greater part of the population in the future.

Unfortunately the municipality plan does not describe expectations in relation to developments in the population very precisely, but the plan explains this with the many variable factors, which influence the development. According to Statistics

Denmark the population will at first grow by just over 0.7% annually and towards 2030 the population will increase by around 1.5% annually, this will account for an increase between 2009 and 2030 by 65,000 persons, which makes the municipality's estimations slightly exaggerated compared to Statistics Denmark (Statistikbanken, 2011f). This extrapolation only extends until 2021, where Statistics Denmark expects 43,000 more inhabitants in the municipality.

When examining the demographic development in the municipality of Aarhus towards 2021 it becomes clear that lifecycle groups ≥ 60 is expected to increase as well as the groups < 30, besides the lifecycle group 'live at home'. The rest of the lifecycle groups seems to decrease (see Figure 5.2). These figures are not available through Statistics Denmark, which is why I have calculated these numbers myself. For this analysis I have divided the population in to lifecycle groups in accordance with the Danish survey 'Befolkningens boligønsker' so it becomes easier to compare and extrapolate future dwelling preferences. Since Statistics Denmark does not project how the different lifecycle groups develops over time, a projection of the current composition of lifecycle groups (all other things being equal) to 2021 has been necessary, (see Appendix 1).

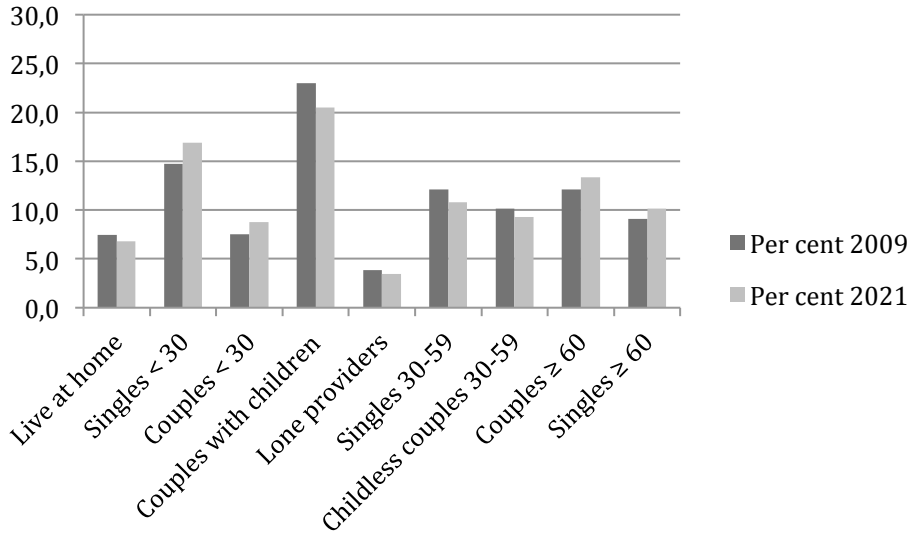

Figure 5.2 Graphic display of lifecycle groups in the municipality of Aarhus 2009 and 2021 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

The development is also displayed in Table 5.5, and here it becomes visible that the lifecycle groups 'singles < 30' and 'couples < 30' is expected to increase by 32.4% and 34.4%, respectively, but that their share of the total population only is expected to increase by 2.2 and 1.2 percentage points, respectively. The groups 'couples ≥ 60' and 'singles ≥ 60' seems to increase by 27.3% and 28.3%, respectively, while their

share of the total population will increase by 1.2 and 1.0 percentage points, respectively. The table also shows that the lifecycle group 'live at home' is expected to increase by 5.4% but that its share of the total population will decrease by 0.6 percentage points. The largest decrease is within the group 'couples with children', which seems to decrease its share of the total population by 2.4 percentage points even though the group will increase by 3.1%. This development thereby fits with the municipality's perception of the demographic development.

Table 5.5 Lifecycle groups in the municipality of Aarhus 2009 and 2021 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

Lifecycle group	Amount 2009	Per cent 2009	Amount 2021	Per cent 2021	Change points	Change per cent
Live at home	18,682	7.4	19,692	6.8	-0.6	5.4
Singles < 30	37,064	14.7	49,089	16.9	2.2	32.4
Couples < 30	18,961	7.5	25,491	8.8	1.2	34.4
Couples with children	57,770	23.0	59,588	20.5	-2.4	3.1
Lone providers	9,709	3.9	10,033	3.5	-0.4	3.3
Singles 30-59	30,416	12.1	31,330	10.8	-1.3	3.0
Childless couples 30-59	25,502	10.1	26,942	9.3	-0.9	5.6
Couples ≥ 60	30,409	12.1	38,722	13.3	1.2	27.3
Singles ≥ 60	22,925	9.1	29,406	10.1	1.0	28.3
Total	251,438	100	290,291	100		

The purpose of this analysis is partly to examine the future preferences towards dwellings, which is done by calculating the preferences by using the extrapolating of lifecycle groups shown in Table 5.5 and the factor calculated from the results of the survey 'Befolkningens boligønsker', explained in section 4.4.3. Doing so the preferences of the population of the municipality of Aarhus in 2021 becomes as shown in Table 5.6.

Table 5.6 Lifecycle groups in 2021 and the share of the groups who is expected to prefer the different dwelling types in 2021 (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) *and residential preferences among different lifecycle groups* (H. Kristensen and Andersen, 2009) *retrieved by mail correspondence with Hans Skifter Andersen).*

Lifecycle group	Single-family house	Terraced dwelling	Apartment dwelling	Other	Total
Live at home	34.2	8.6	55.7	1.5	100
Singles < 30	13.6	3.2	83.1	0.0	100
Couples < 30	57.5	6.0	36.5	0.0	100
Couples with children	78.3	9.8	10.0	1.9	100
Lone providers	44.2	26.9	25.8	3.1	100
Singles 30-59	36.4	27.3	34.9	1.3	100
Childless couples 30-59	58.5	29.2	11.2	1.1	100
Couples ≥ 60	60.8	18.9	19.0	1.4	100
Singles ≥ 60	24.8	27.1	47.5	0.5	100
Total	47.3	15.5	36.2	1.1	100

The table shows that 47.3% have preferences towards the single-family house, that 15.5% and 36.2% have preferences towards, respectively, the terraced dwelling and the apartment dwelling. The table also shows that the single-family house is the most preferred dwelling type for most of the lifecycle groups. The lifecycle groups 'live at home', 'singles < 30' and 'singles ≥ 60' prefer the apartment dwelling the most. Singles between 30 and 59 have the most equal distribution among the different dwelling types when leaving out the option of 'other'.

Comparing the totals from Table 5.6 with the results from Table 5.4 where the preferences from 2009 are shown, the development in preferences over the years become clear. Examining the difference between the two tables, Table 5.6 and Table 5.4, it seems that single-family houses will become more preferred in 2021 than in 2009 with an increase from 45.4% to 47.3% of the population preferring this dwelling type. Both terraced and apartment dwellings will decrease in popularity from respectively, 16.3% to 15.5% and 37.2% to 36.2%. The dwelling type 'other' will hold its popularity on 1.1%.

Comparing the results from Table 5.6 with Table 5.3 where the shares of people's actual dwellings in 2009 are shown, it shows that the single-family house still will be more popular (the gap between actual and preferred dwelling will increase from 2009 to 2021) than the share of those living in one and for both the terraced and apartment dwelling people will want to leave these dwelling types.

5.3 The main conclusions from the four case municipalities

Since only Aarhus will undergo an analysis in the main report (the analysis of the other three municipalities can be seen in Appendix 2) the main conclusions from all municipalities will briefly be presented here before proceeding to the comparison.

5.3.1 Main conclusions from the municipality of Aarhus

Most people in the municipality of Aarhus live in apartment dwellings but the most preferred dwelling type is the single-family house and the share of people preferring a single-family house is expected to increases over the years. The results from this analysis thereby show that the single-family house is preferred to an extent indicating that the municipality should provide more dwellings of this type in their future planning. Even the demographic change over time will only have a limited effect on the combined picture; the single-family house is still predicted to be in undersupply. Thereby, judging from these results the municipality of Aarhus should provide less of the other types and should not worry that the changing demography will significantly alter the general composition of people's preferences towards dwellings.

5.3.2 Main conclusions from the municipality of Sorø

Most people in the municipality of Sorø live in a single-family house and this type of dwelling will also be the most preferred in the future, though it seems a small decrease in popularity can occur, when comparing with preferences for 2009. On the other hand the two dwelling types, terraced dwelling and apartment dwelling, are expected to increase in popularity. These changes are all caused by changes in the demographic development.

Thereby by judging from the results from the results of this extrapolation it seems the municipality in their future planning should provide more opportunities for building single-family houses. Thereby the main conclusions from this analysis are similar to the conclusions from the analysis of the municipality of Aarhus, though it seem the gap between actual and preferred dwelling type will decrease over the years.

5.3.3 Main conclusions from the municipality of Viborg

The share of people in Viborg municipality that occupy a single-family house is lower that the share of people expressing preference for such. While the share of people preferring a single-family house seems to be decreasing in the period from 2009 to 2021, the share of people preferring the other two main dwelling types – terraced dwelling and apartment dwelling – seems to increase.

All in all this analysis though indicates that the municipality should provide more single-family houses in the future despite the changes in demography, which seems to have the effect that the preference towards this dwelling type will decrease slightly. Terraced and apartment dwellings should therefore be provided to a smaller extent than presently if the municipality is to accommodate the preferences of the population.

5.3.4 Main conclusions from the municipality of Langeland

Most people in the municipality of Langeland live in a single-family house, but even more prefer to live in one, while the dwelling types terraced and apartment dwellings are less popular than the share of people living in these dwelling types. The demographic development will increase the population of people ≥ 60 years and decrease the rest of the lifecycle groups, which will have an effect on preferences towards the different dwelling types, but still more people than live in single-family houses is expected to prefer to do so.

This analysis thereby at first indicates the municipality should provide more single-family houses and less of the other two dwelling types in order to meet the preferences of the population of the municipality. When combining the high number of unoccupied single-family houses and the decreasing population it seems the municipality have the necessary number of dwellings available within the municipality. This leaves the municipality in a difficult situation because it in reality could lean back and disregard planning of any new dwellings in the future because there are a sufficient number of dwellings available, but this will not be politically acceptable because it will be the same as to accept the downturn and believe that nothing can be done to change the situation. Later it is shown that the municipality does take action towards reversing the negative development.

5.4 Comparing the municipalities

After the individual municipalities have been presented it is now time to conduct a comparison in order to analyse the demographic development, which is documented in the previous and in Appendix 2.

5.4.1 The municipalities in 2009

The municipality with the highest share of single-family houses and terraced dwellings and the lowest share of apartment dwellings is the municipality of Langeland. The municipalities of Viborg and Sorø have almost the same share of single-family houses, both with just over two thirds, while Aarhus has the lowest share with just above one quarter of the total dwelling stock. The municipality of

Aarhus clearly has the highest share of apartment dwellings; Viborg is second with not half the share of that of Aarhus. These compositions in dwelling stocks underpin the division of the municipalities discussed in the introduction of this chapter and shown in Figure 5.1. The municipality with the most urban morphology is that of Aarhus, which is also characterised as a city municipality.

In relation to the unoccupied dwellings it is worth noticing the large number of unoccupied dwellings in the municipality of Langeland (22.8%) in relation both to the national share (6.8%) and the other municipalities. Even though as already mentioned the unoccupied dwellings have a function in the market in terms of availability and possibilities for buyers to acquire the dwelling they prefer, the large share of unoccupied dwellings in the municipality of Langeland does not all serve this purpose. To refresh, the municipality in 2009 had 22.8% unoccupied dwellings and while the municipality had the largest share of single-family houses it also had the largest share of unoccupied single-family houses with one quarter being unoccupied. The share of unoccupied dwellings gives indications towards the popularity of the municipalities for people to reside and here the municipality of Langeland seems rather unpopular. While the national average of unoccupied dwellings is 6.8% only the municipality of Aarhus gets below this share, Viborg equals it, Sorø gets just above it and the municipality of Langeland far exceeds the average. Also when exanimating the individual dwelling types the municipality of Aarhus has a lower share of unoccupied dwellings than that of the national average. In the municipality of Viborg the share of unoccupied single-family houses is also lower than the national average indicating that having a single-family house in Viborg is popular. In Aarhus the share of unoccupied dormitories is also low compared to the national share and the other municipalities. Where the other municipalities has a share of unoccupied dormitories of at least 50% Aarhus's share is only 8.5% and the national share is on 20.7% indicating that Aarhus is a popular city to study in (this was also confirmed through interview with the planner from Aarhus), but also that the low availability of cheap apartments might push people to settle in a dormitory dwelling. The low share of unoccupied dwellings in Aarhus could also become a problem, because the low availability could hinder some from having their preferences satisfied in Aarhus and thereby they might seek to another municipality in the vicinity of Aarhus.

Examining which dwelling types people actually live in, a similar tendency is present as that described in the former. Langeland has the highest share of people living in a single-family house and the lowest share of occupants in apartment dwellings. The high shares of people living in single-family houses in the three case municipalities

Sorø, Viborg and Langeland (all over 70%) indicate that the single-family house clearly is the most popular dwelling type outside large city areas.

5.4.2 Preferences 2009 – 2021

First it is interesting to notice that all examined municipalities have somewhat optimistic expectations about the size of their future population. All municipalities expect a higher increase (or in the case of the municipality of Langeland a constant level) in population than forecasted by Statistics Denmark (the municipality of Sorø at first seemed to expect less than what Statistics Denmark did, but since 2009 Statistics Denmark have changed their expectations turning Sorø's expectations slightly exaggerated). These optimistic expectations could be reasoned by the municipalities' precautions against a too low estimation (not in the case of Sorø initially though). The population prognosis is the foundation for estimating how large amounts of land should be provided for housing construction. In order to safeguard from undersupply the municipality might tend to be overoptimistic. The population estimation also serve as an indicator of how much welfare service the municipality should provide in the future, i.e. retirement, day care and kindergarten opportunities.

The unfortunate consequence of this is that too much land available for development can lead to the most attractive sites being developed (with expensive dwellings) first and thereby creates unbalance in the development of the municipality. Some would argue that the market would correct this, but contractors will of course be more interested in the sites where most money can be made. This is also why the authorities agree to provide the contractors with incentives to construct dwellings, of which the rent should not exceed a certain amount in order for low income groups to be able to afford a dwelling (e.g. the famous 5,000 dwellings for DKK 5,000 in five years posed by Lord Mayor Ritt Bjerregaard – this discussion was largely centred around the fact that for some population groups it had become too expensive to live in central Copenhagen, which at one point could be argued to stem from the fact that contractors tend to refrain from building cheap housing, but also the fact that land prices are very high in the capital area, which again is an incentive to only build expensive dwellings). Usually the municipalities provide an order of succession of the planned areas, but this order can be bypassed by an addition to the municipal plan if developers threaten to develop elsewhere. (The municipalities do have a line of succession for their development plans, but as learned from the interview of the planner from the municipality of Aarhus, this line can easily be bypassed). Another unfortunate consequence of providing too much

land for development is the incentive it makes towards developing with low densities.

Another problem posed by the overoptimistic estimation of population increase is that a too high number of dwellings gets constructed but not occupied thereby putting pressure on the dwelling price for both new and already existing dwellings in the municipality. This problem is most applicable to municipalities with already high number of unoccupied dwellings i.e. the municipality of Langeland, where the opportunity to built new dwellings can make the older dwellings loose their attraction value and thereby decrease the price for such dwellings leaving the residents in a unfavourable situation.

The changes in the demographic composition during the planning period for the municipalities have been examined and in general they show that there seems the population of people of an age ≥ 60 will increase and that people of age 30-59 will decrease. The municipality of Aarhus is likely to experience an increase in population for all lifecycle groups, but especially for 'singles < 30', 'couples < 30', 'couples ≥ 60' and 'singles ≥ 60', while the rest of the lifecycle groups seems to have a small increase. This is also likely to result in an increase in the shares for these four lifecycle groups while the other lifecycle groups seems to decrease their share of the total population. This development is different from the other municipalities, where the shares of 'singles < 30' and 'couples < 30' is likely to stay the same. That the municipality of Aarhus is the only municipality, which can expect a higher share of these lifecycle groups, indicates the tendency of the younger generation seeking towards the larger cities. While Aarhus is likely to experience an increase in the shares of the four lifecycle groups, the other municipalities seems to only experience an increase in the lifecycle groups 'couples ≥ 60' and 'singles ≥ 60', while the other groups seem to stay constant or decrease. The lifecycle group, which for all municipalities seems to decrease the most, is 'couples with children'. This group is usually considered as a source of income though also considered an expense at some point for the municipalities because the children require different institutions for care and education. The municipality, which is likely to experience the largest change in the demographic composition, is the municipality of Langeland, where the share of people ≥ 60 seems to increase the most (for all municipalities). While the municipality of Sorø seems to experience the largest decrease in the share of the lifecycle group 'couples with children' the municipality of Langeland is likely to have the largest decrease in shares for all other decreasing lifecycle groups compared to the other municipalities. This development thereby puts the municipality of Aarhus in the most favourable situation in terms of population development. Though the

municipality is likely to experience an increase in the share of people ≥ 60 (which might be considered an expense) the municipality does not seem to decrease the 'tax-supporting' population as much as the other municipalities.

As described the extrapolation of the demographic composition showed that the share of people ≥ 60 is likely to generally increase while the other lifecycle groups seems to decrease (in Aarhus the lifecycle groups 'singles < 30' and 'couples < 30' seems also to increase). These changes affect the populations' preferences towards dwelling types. When comparing the preferences calculated for 2009 with the preferences calculated for 2020/2021 (the extrapolation for the municipality of Sorø does only extend to 2020, see Appendix 2), the tendency is that there seems to be a small drop in the share of people preferring a single-family house and a small increase in the share of people preferring a terraced and an apartment dwelling in all municipalities apart from Aarhus. In Arhus the tendency is that more people seem to prefer a single-family house and less seems to prefer terraced and apartment dwellings. This is due to the fact that the population composition is likely to not change as much in the municipality of Aarhus as it seem for the other municipalities. The main reason is that the municipality of Aarhus seems to experiences a smaller decrease in the share of 'couples with children', which is the group with the highest preference towards the single-family house, than the other municipalities. Also, the municipality is likely to experience an increase in the lifecycle groups 'singles < 30' and 'couples < 30' and while 'singles < 30' have a high preference towards the apartment dwelling, 'couples < 30' have a even higher preference towards the single-family house (see Figure 4.1). Last the municipality's likely increase in the population of people ≥ 60 will not be as great as for the other municipalities, especially the lifecycle group 'singles ≥ 60' seems not increase as much, which is a group preferring apartment dwellings.

When comparing the extrapolated preferences with the dwelling types in which the population actually resided in 2009, there seems still to be a higher preference towards the single-family house than those who live in such in all municipalities. The difference seems to be largest in the municipality of Aarhus and with the lowest difference in the municipality of Langeland. This can again be explained by the high number of occupants in apartment dwellings in Aarhus and the high number of occupants in single-family houses in the municipality of Langeland. If the municipalities were to follow the populations' preferences they would all, according to these conclusions, all have to provide more single-family houses. But while the conclusions might be interpreted as a general undersupply, it is important to

remember that the respondents of which these calculations are built were able to answer freely without any consequence.

Comparing the actual composition of shares in the different dwelling types with the preferred dwelling type in 2020/2021 indicate that more people than those living in a single-family house will also prefer the latter dwelling type in the future, with the opposite tendency for terraced and apartment dwellings. This might not be surprising. What is interesting is the change, which becomes visible when comparing the calculated preferences for 2009 and 2020/2021, which for most municipalities indicate a decrease in preferences towards the single-family house and an increase in preferences towards terraced and apartment dwellings. These changes to some extent confirm the initial concern (posed by Spar Nord). The change confirms the concern that the change in demographic composition affects the total populations' general preferences towards dwelling types. It also confirms the concern that the most affected areas are the thinly populated areas i.e. the outer regions.

It can be argued that while people cannot meet their preferences in 2009 (which is what the difference between actual and preferred dwelling type show) they will most likely not be able to meet their preferences in the end of the examined planning period either. It can thereby be argued that if nothing changes in relation to people's opportunity to realise their preferences, the future change in demographic composition will result in fewer people than today being able to obtain a single-family house and more people 'having to' occupy a terraced and apartment dwelling. While the Spar Nord analysis argued this would create a 'bomb' under the dwelling market, I will argue that the most likely outcome of this would be that some of those people who cannot obtain their preferred dwelling is likely to be able to do so in the future. It might result in a decreased price for single-family houses, but not to the same extent as suggested by the Spar Nord analysis. When for example the fall in the share of the lifecycle group 'couples with children' results in a decreased demand for single-family houses this decreased demand can be filled by the people in the lifecycle group 'lone providers' who did not have the resources beforehand, but might have now. Therefore the demographic 'bomb' under the dwelling stock might not be as dramatic as was concluded by the Spar Nord analysis, but for the outer regions it might become a problem, maybe not because of the demographic change as much as because people move (this is of course also included in demographic change for the individual municipality, but the reason might not be because of the emergence of small lifecycle groups as much as emigration of some lifecycle groups).

5.4.3 Beyond the planning period

Examining the demographic development for the individual municipalities towards 2030 the tendency, which was noticed for the period 2009-2020/2021, is expected to continue. There does not seem to be any disturbance in the tendency that the share of the municipalities' population of people ≥ 60 will increase and the share of those lifecycle groups not belonging to the groups ≥ 60 will all decrease towards 2030 (own calculations based on; Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f). Even in the municipality of Aarhus the tendency seems to be getting its hold on the composition of lifecycle groups. Between 2009 and 2030 the groups 'singles < 30' and 'couples < 30' is not likely to increase half as much as they would between 2009 and 2021, indicating that the increase of these lifecycle groups seems to stagnate between 2021 and 2030. Still the municipality of Langeland seems experience the largest change in the demographic composition. Towards 2030 the tendency of falling preference towards the single-family house then seem to continue.

5.4.4 Locational preferences

The bulk of this chapter has focused on the relation of the populations preferred dwelling type, but the study 'Befolkningens boligønsker' (2009) did also examine the relation of preference towards dwelling location, which is also presented in the chapter 0. It has not been possible to make as quantitative extrapolations in this regard as in the case of extrapolation of preferences towards dwelling type, mainly because the statistical data necessary for such an extrapolation does not exist. It is though, still interesting to examine the relation between preferred dwelling location and preferred dwelling type on a more general level. Therefore the conclusions from the individual municipalities will here be put in relation to the preferences expressed by the respondents in the Danish survey.

In Table 4.1 it is indicated that 24% of the respondents prefer to live in the centre of a large city, but by judging from the extrapolations of the individual municipalities only few prefer to live in the dwelling types associated with the city centre. Only in the municipality of Aarhus the share of people who prefer to live in apartment dwellings are higher than the people who expressed a preference to live in a city centre. Comparing these two different per cent shares poses a problem, because the one percentage share is an average of the entire country and the other share is specific for the case municipality. In the municipality of Aarhus more people can be expected to prefer to live in the city centre compared to the national average and arguably there is no large city centre in the municipality of Langeland, but some people still live in apartment dwellings.

While it is difficult to compare the individual municipalities with the national average, examining the relations on lifecycle level is more reasonable. The tendency that some lifecycle groups have a higher preference towards apartment dwellings and others have a high preference towards the single-family house can be related to Table 4.4 where the same lifecycle groups who have a high preference towards the city centre are the same as those who have a high preference towards apartment dwellings and likewise for preference towards single-family house and suburbs/small towns. Though differences remain within the different case municipalities for all municipalities some groups have a higher preference towards e.g. the single-family house and these groups, when looking on the national average, have a higher preference towards the locations associated with the single-family house. Again it is difficult to know if the relation is one to one, which something indicates it is not (see Table 4.3), but the tendency is present.

This gives us a foundation to relate these studies with the Norwegian 'Bokvalitet i by' (2007), which is more concerned with the locations of dwellings in relation to the city centre of Oslo than the specific dwelling types.

5.5 Summing up

In general from the results of the extrapolation of the case municipalities it can be concluded that the preferences over time are likely to change in a manner favouring the single-family house less (not much though), and that terraced and apartment dwellings will be preferred more because of changes in the demographic composition. Relating those results to the Norwegian study, where the city centre was concluded to be the most preferred dwelling location, the case municipalities should consider thoroughly, which results they use as a reference to build their planning policy around because following one will leave a total different result from following the other. The municipalities could of course also chose a middle way, or simply chose to disregard any survey and plan as the elected politicians desire. One major factor related to this is the competition between the municipalities to attract the most resourceful inhabitants (the competition might become even more fierce now that the population of these groups i.e. couples with children, will decrease and less resourceful groups i.e. retired people, will increase), which might make the municipalities (even more) keen on providing attractive sites for single-family houses.

The point here is that if the municipalities were to follow the results from the extrapolation (which is based on the Danish survey), they would have to provide for more single-family houses, despite the changes in demographic composition. But as

the Norwegian study concluded in a way that could be considered in opposition to this it is important for the municipalities to carefully consider which conclusion they base their development path on and how they interpret the populations' preferences. In the following an analysis of the municipalities' actual planning will be carried out.

6 Municipal planning

As indicated in the previous chapters, the demand structure in relation to dwelling types does not seem to be altered significantly over the next couple of decades. Thus the municipal planning does not face a significant issue when faced with changed demographic composition, all other being equal in relation to people's preferences towards dwellings.

Through this section planning documents of the municipal planning will be examined with a focus towards analysing how the municipalities plan as stated through their planning documents. The planning documents in question will mostly be documents regulated through law, notably the planning strategy, the municipal plan and the Agenda 21 strategy, but also climate strategies, if any is adopted. Following the presentation of the main points of interest expressed by the planning documents an analysis of how the municipal planners experience the municipalities' planning is analysed through the conducted interviews. Here the main focus will be on which planning discourse that seems to be dominating the municipal planning.

First, however, there will be a short introduction to the main development trends of the housing sector, both politically and physically.

6.1 Setting the context

As has been documented throughout this report, most people in Denmark occupy and also prefer to occupy a single-family house, which in many ways can be ascribed to planning and planning policy. In the following, the context of the Danish housing policy and its implementation since 1945 will be presented. According to Kristensen (2007) the development has gone through four different phases; a build-up phase from 1945-1966, an expansion phase from 1966-1980, a management phase from 1980-2001 and a change/phase-out phase starting in 2001 (H. Kristensen, 2007). These phases will shortly be presented here.

Build-up phase: After the second world war there existed a large undersupply of dwellings and the politicians therefore turned their focus towards providing, especially through social housing companies and associations, dwellings for all. A fixed rent introduced at the beginning of the war resulted in decreasing quality of apartments in the urban centres, because prices did not rise. Combined with rapidly increasing income it made a strong incentive for many to move from their rented apartment to an owner-occupied detached single-family house (which made it difficult to find tenants for the new social housing). New tax laws had in addition made it more advantageous to own your own dwelling, which it had not been before.

The expansion phase: This phase was characterised by a huge expansion of dwellings, mostly single-family houses. As it had been in the former phase it was still difficult to rent out social housing dwellings. Renewal of old urban quarters up till the end of 1970s typically included demolishing the old dwellings to build up new instead.

The management phase: The problems with social housing only increased in this period, as the dwellings had fallen into physical decay and attracted social problems. This also resulted in increasing segregation. From the political side several attempts were made to turn this development but they only curbed the development. Tax benefits for owner-occupiers were reduced and alongside with the 'potato diet' (which made it more expensive to take up mortgages for consumption and housing construction) it resulted in falling prises for owner-occupiers and a construction standstill. This situation turned in 1993 where prises started to increase again.

The change/phase-out phase: This period has been characterised by a rising demand for owner-occupied dwellings as well as a rapid increase in prices. Since Kristensen (2007) described this development there has been a financial crisis and a structural reform, which has decentralised planning.

All in all the development after 1945, seems to favour the owner-occupied dwellings and in particular the single-family house. Ærø and Jørgensen (2005) argue that although planning might have focused on the large city as a problem in the beginning of the period, the end of the period has been characterised by a shift in the planning focus towards the central parts as providing opportunities instead. In other words there has been a shift from focusing on segregating functionalities and promotion of urban sprawl towards integrating functions and densification (Ærø and Jørgensen, 2005). In addition rising awareness on environmental issues, but also on competition between urban centres characterised the second half of the period. Ærø (2001) advocates that the welfare society's ideal about 'the good dwelling' is the idea that there should be a dwelling for all (preferences), which has resulted in a diverse composition of dwellings throughout the country, but as this report also has showed, 'the good dwelling' seems to be conceived of as some form of a low density dwelling, mainly the single-family house. Now that the context for municipal planning is set the following sections will deal with how the case municipalities plan.

6.2 The planned development and policies

Through this section the case municipalities' planning policy and concrete plans for urban planning will be presented. The planning of the municipalities will be

presented individually, thus this section will also serve as a further presentation of the municipalities. First, a quick introduction to the Danish planning system is given.

The Danish planning system is structured so the government have to lie out the overall planning policy, which the regions and municipalities should respect and plan in accordance with. The government's interests are articulated through the 'Landsplanredegørelse'. The regions make development plans, which the municipalities should take into account, but they are not legally binding. The municipalities conduct municipal plans which is a 12 year planning document that sets up specific land use planning scopes for the planning period, and to supplement this every four years the municipalities conduct a planning strategy, which gives overall guidance for the planning (Naturstyrelsen, 2011). The municipalities might have given different names to this document, but here it will only be called 'planning strategy'.

Agenda 21 commitments is a strategy regulated through law, which the municipalities should formulate every election term. It should basically describe the municipalities' strategy to plan for a sustainable municipality. The law states that five issues should be taken into consideration through the strategy, i.e. how to promote a reduction in the environmental impact, how to promote a sustainable urban development and renewal, how to promote biodiversity, how to include the public and local businesses in the Agenda 21 planning and how to promote interdisciplinary planning (Miljøministeriet, 2009). In addition some of the municipalities have voluntarily adopted climate strategies, which also have some relevance for this report.

Some of the municipal planning strategies referred to in this section and Agenda 21 are from 2010 and 2011 and thus formulated a considerable period after the municipal plans, which were adopted in 2009, but I assume that period did not foster a large change in the strategies concerning issues related to this section (this was confirmed through interviews with the planners).

There is a large difference between the levels of information given in relation to expected housing development in the different municipal plans, which will be reflected in the following descriptions

6.2.1 Aarhus

In the planning strategy from 2008 the municipality's overall policy concerning the topic of urban planning is formulated. The planning strategy concerning housing is partly based on a survey conducted to gain knowledge about the residents dwelling

preferences. Through the planning strategy it is argued that the municipality will need to adjust to the high number of young people settling to study, which means more small dwellings. It is also mentioned that the general increasing level of affluence will increase the need for larger and better equipped dwellings (Aarhus Kommune, 2008a). Another aim indicated in the strategy is the consideration to the environment and climate, which should be articulated through a more dense development. One of the central goals is that the development should enhance shorter distances in the city and thereby induce people to use public transport, the bike or walk. New settlements should be connected to the public transport system (i.e. trams and local rail). At the same time the strategy argues that greenfield development is necessary to meet the future demand.

The most interesting in regards to the Agenda 21 commitments is that this obliges the municipality to work towards a more sustainable municipality. This, in practice means that the municipality will work for a sustainable urban development including e.g. greenfield development close to already existing urban settlements and limiting the use of resources. The argument here is that these greenfield developments are more sustainable than other greenfield developments. Later it will be argued that greenfield development does not meet the criterions for an urban development, which by many researchers is considered sustainable.

The municipality has by 2008 adopted a climate strategy where the overall goal is for the municipality to become CO_2 neutral by 2030. In relation to dwellings the focus is on technical improvements of the existing dwellings and high climate friendly technological standards for new developments of the dwelling stock (Aarhus Kommune, 2008b). Better and safer bike lanes, as well as the implementation of light-rail is the focus in relation to climate and transport.

As already mentioned the municipality expects an increase of 75,000 new inhabitants and it is estimated that 50,000 new dwellings will be needed towards 2030.

Through the municipal plan from Aarhus it gets specified that the municipality desires a residential development, which in a reasonable manner fits all groups in the municipality and meet the needs of the entire population. In addition it is indicated that the municipality will work for a more sustainable development, which means the municipality seeks densification rather than a sprawling development (Aarhus Kommune, 2009). These intentions are coupled with an idea of the plan as flexible in relation to the needs of the population, which means the plan gives room for shifting preferences among the population. The densification should be

incorporated with consideration to people's '*natural desires towards air, light and openness towards the surrounding landscape and a preference for own house and garden.'* (Aarhus Kommune, 2009:102 own translation)

The municipal plan also states that a development with focuses only on densification cannot satisfy the demand for new dwellings, thus greenfield development must be included, which among other things means building new satellite towns around the main city of Aarhus.

In relation to greenfield development the municipal plan makes room for a development of between 25,000-50,000 dwellings (depends on chosen density) in addition to the 6,000 dwellings, which the preceding plan gave room for and which have still not been developed (Aarhus Kommune, 2009). Brownfields and densification are considered to have a development potential of 15,000 to 20,000 dwellings. It is specified that this development potential is generous in the sense it gives room for a development need, which stretches over 30-40 years.

6.2.2 Sorø

In the municipality of Sorø's planning strategy from 2011 it is described that the municipality seeks to incorporate the principles for a sustainable urban and infrastructural development, which were articulated through a project called the Zealand project. This project was conducted by the 17 municipalities in the Zealand region and the Ministry of the Environment (seeking to promote a sustainable region with high accessibility, good growth conditions and lively urban settlements) (Sorø Kommune, 2011a). Here five principles for a sustainable urban development were put forth, which basically have the consequence that the municipalities should build more densely around the existing railway stations, only to a small extent develop on greenfield sites and promote a development, which seeks to minimise the use of the car.

The municipality focuses on the effort to attract people to settle in the municipality. In the latest municipal-immigrant analysis different factors were concluded to have value for newcomers (i.e. nature, infrastructure, tax, etc.) (Sorø Kommune, 2011b). These factors have influenced the strategy. In addition the urban development should take into consideration an environmentally sustainability aspect, meaning greenfield development should leave the possibility to incorporate renewable energy, toughen the requirements for energy efficient buildings and higher density and close proximity to the railway station.

In relation to the Agenda 21 commitments the most interesting aspects is the municipality's attention towards reducing impacts on the climate. In relation to urban settlement and buildings the aims are the same as those articulated through the Zealand project (Sorø Kommune, 2011c). The municipality has as well adopted a climate strategy in 2011, but the goals, related to dwellings and transport, are basically the same as those articulated through the Zealand project as well as the Agenda 21 strategy (Sorø Kommune, 2011d).

The municipality of Sorø expects an increase in population of 923 people towards 2020. This modest increase does not give incentive to reserve more greenfield development areas because the preceding municipal plan still gives room for development of over 1800 dwellings (they have not been developed yet), which should be more than sufficient to satisfy the demand from the new inhabitants (Sorø Kommune, 2009).

The municipal plan of Sorø indicates that the dwelling development should take into account the preferences of the people already residing in the municipality as well as future residents. This also means a development, which meets the needs of all groups in society. The main urban settlement of Sorø is situated in such a way that it is not possible to expand outwards without intruding on forests or lakes, therefore much development here will be in the form of densification while greenfield development will be conducted in relation to other urban settlements. Therefore it is also expected that that the largest population increase within the municipality will occur in urban settlements outside the main settlement of Sorø.

6.2.3 Viborg

The municipality of Viborg has formulated individual documents regarding dwellings, thus they will be also be presented here. During 2008 the municipality conducted a settlement analysis asking different population groups about their needs and preferences towards their dwelling, local area and the like (Viborg Kommune, 2008a). The analysis laid the foundation for the formulation of a policy regarding dwellings, which indicates that the current dwelling structure and composition should not be diverted from in the future (Viborg Kommune, 2009a). The policy indicates that environmental considerations should be taken in relation to dwelling technology. Through the municipality's population prognosis it was concluded that the population of elderly people and young people would increase. This is also reflected through the policy. Through the planning strategy from 2011 it is indicated that the urban settlements in the municipality should continue to develop.

In relation to the Agenda 21 commitments the planning strategy states that the municipality is obliged to plan for sustainability, which means to plan for a more environmentally friendly and a less resource-consuming development (Viborg Kommune, 2011). The municipality has adopted a climate strategy, which focuses on both climate mitigation and adaptation. In relation to mitigation the overall goal is for the municipality as a whole to become CO_2 neural, though there is no stated end date (Viborg Kommune, 2009b). The strategy focuses mostly on technical solutions in relation to the dwelling area, e.g. planning sites for 'null-energy-development' should be made possible. And in relation to transport it is stated that more bike lanes should be provided as well as busses should use climate friendly technology.

The municipality expects an increase of 6,500 people during the planning period and in the municipal plan of Viborg it is indicated that all urban settlements, which are included in the 'urban zone', should have available areas for development in accordance with the specific demands of the urban settlement. Small villages, which are not included in the urban zone, can only experience limited development within the village borders (Viborg Kommune, 2009c).

Every year the municipality conducts a population prognosis in which the population development is examined. The prognosis gives a foundation for an estimation of the future need for dwelling construction. In the population prognosis running from 2008 to 2023 it is indicated that a small decrease in the demand for new dwellings will occur towards 2021. The first four years it is estimated that 525 new dwellings are needed annually and afterwards the need will drop to between 300 and 400 dwellings annually (Viborg Kommune, 2008b).

6.2.4 Langeland

The overarching policy for the municipality of Langeland's development is the planning strategy from 2008, which has an overall focus on settlement, meaning the attention is directed towards attracting people to settle down in the municipality (Langeland Kommune, 2008). This focus gets, among other, articulated through development of new and 'attractive' dwelling areas and a new school structure.

In the municipality's Agenda 21 strategy from 2010 it gets specified that the urban development should be concentrated around densification and renewal of already existing urban areas (Langeland Kommune, 2010). At the same time the plan gives room for building new dwellings, but with respect to the surrounding environment.

The municipality seems to experience a decrease in the population in the planning period, which poses a special challenge to the municipality because it has to plan for an decreasing population.

Despite this, the municipality aims to have an increasing population in the planning period, by among other relying on a new school structure, and 'attractive' sites for new dwelling in close connection to the new school, which results in planning for construction of 780 dwellings (Langeland Kommune, 2009). In comparison 421 dwellings were constructed in the preceding 12-year planning period. The new dwellings should all be situated in relation to already existing urban settlements and will mainly be concentrated around the main settlement of Rudkøbing.

6.2.5 Summing up

In general the municipalities seem to follow the tradition of the welfare state's ideal about providing good dwellings for all through their planning as well as focussing on the environmental issues in relation to this. While the municipality of Aarhus seems to experience a large increase in population in the future the other municipalities all seem to focus on how to attract new inhabitants.

Now that the different planning documents have been presented for the individual case municipalities it is time to examine the results from the interviews. The interviews will add another dimension to the analysis, which the documents cannot answer. The planning documents can provide an account of the desired development, which is what the public sees, but interviews with planners from the municipality can provide a more thorough understanding of the rationalities and challenges behind the conducted planning.

6.3 The planners' view

The aim with this section is to discuss how the municipalities conduct their planning and which planning discourse that lies behind. This is with the interviews as reference. In this section the planners' answers will not be presented individually but the different answers will serve to point out some of the similarities and differences between the municipalities. The planning documents will also be referred to in the analysis of the interviews because, naturally, the conversations were all related to the planning documents. Since the interviews were all conducted in 2012 the analysis will therefore relate to the present planning situation faced by the municipalities.

6.3.1 Rationalities behind planning

Through all the interviews it has become evident that the overall planning agenda for the case municipalities is to, through planning, provide for an economically sound operating municipality. The planners' task is to provide the frames for attracting investments and provide the frames for an attractive daily life with many opportunities, which will draw people to settle in the municipality. But the overall aim with the planning is to ensure economic sustainability. As the planner from Aarhus answers after a short discussion about how the greenfield development risked encroaching on groundwater catchment areas and when asked if this is where the largest focus is*:*

> *"No, right now there is mush focus on that it should be sustainable, and sustainable that would actually also entail that it should be economic sustainable, so the thing about that you will have to handle a continually smaller budget in the municipality does that there is a large focus on that we should make plans that are realistic in relation to the market [...] we have to think economy, so sustainability without economic sustainability that does not exist, so that is a great exercise for us and a set assignment and that is why the chief accountant sits at the head of the table, because if we can't get the economy of the municipality of Aarhus to connect, then everything ells doesn't matter [...]"* (Planner from Aarhus, 2012).

This is the overarching rationality of in the municipality of Aarhus as well as in the other case municipalities. The municipality of Langeland does at this point not produce a balanced budget, which is why they to some extent rely on contributions from the state and other municipalities to be able to provide the necessary public services. This is of course not a desired situation for the municipality because they thereby lose some self-determination as the planner from Langeland argues:

> *"Well, the greatest political attention on Langeland, I don't know how to put it, but one could imagine that it simply is ones ability to survive and it's not, we do have a budget with a certain deficit and that we have had for some years, we get some different compensation schemes from the government, but that is not quite enough so that we are all sustainable and so that we can live by our self, so we are still dependable on getting some public subsidies, that is something which there is focus on and then there is a focus on keeping the budgets that we actually do work with and then look into which cutbacks, cost saving opportunities we actually have [...]"* (Planner from Langeland, 2012).

The politicians of the municipality of Langeland have to put a lot of effort into balancing the budget and therefor it is likely it leaves little room to invest in improvements of the municipality's facilities. As an example the municipality has cooperated with private investors to centralise the schools and build a new modern one to support the main objective of their planning strategy – to turn over the decline in population.

Though the overall focus of the municipalities is to ensure economic sustainability the municipalities have to approach the planning in different manners, because they exist in different contexts. In the municipality of Aarhus the planner argues that since the financial crisis there has been an increased immigration of students each year because of the university (in times with high unemployment people might be more willing to undertake longer educations), and a decrease in emigration from the municipality because people might see more job opportunities in Aarhus or the fact that the lack of a well-paid job does not encourage people to move to their dream dwelling outside the municipality. Therefore the focus in the municipality of Aarhus is not so much oriented towards the attraction of good tax-payers, this is to some extent already provided for.

> *"Well we have this growth [in population], which we have and that we are happy for [...]"* (Planner from Aarhus, 2012).

The only challenge is to make the newly educated stay in the municipality. This is of course a very privileged situation for a municipality to be in and this is also something the planner from the municipality of Aarhus is aware of:

> *"We are very much privileged, because we have these clever people that keeps entering in the one end and need a place to stay, but that's just not all, it's not just only luck, it's also planning, but we are very privileged in that way, we are. When you work in a municipality, which I have done, in many years, which is in decline, then it's very difficult to make these magic tricks [better basis for negotiation with contractors], it's almost impossible, so there the municipal planning looks very different [...]"* (Planner from Aarhus, 2012).

As the quote also shows, other municipalities with smaller urban settlements and thereby a smaller attraction value are facing a different planning situation. The municipality of Aarhus has a better basis for negotiation with the contractors because the immigration of people is high and thereby creates a high foundation for investments. The other municipalities do not have that large immigration if any at all, and they are therefore in a situation where they will have, to a higher extent, to try to make the municipality attractive for newcomers and investors. While this

leaves the municipality of Aarhus in a position where the planners to a relative large extent can focus on environmental sustainability in regards to dwellings (which is discussed later) the other municipalities have to focus on making the municipality attractive so people choose to settle in the municipality.

> *"[...] even though it's the same subject which every other municipality, or most of the municipalities in Denmark have, they do have something 'settling down' in one or the other form as a theme, so that will entail that, well our tax base is something we will have to improve and that is not done by siting down waiting on things to pass [negative population growth, financial crisis], there you will have to do something pro-active [...]"* (Planner from Langeland, 2012).

In the case municipality of Langeland there is a clear prioritisation on how to solve the issue of settlement.

> *"[...] and that you actually do by relying on a development around these first time families, some attractive responsible opportunities to built close to schools and so forth, so that's the approach that has been taken [...]"* (Planner from Langeland, 2012).

This focus on young families is found in the assumption that they are good taxpayers and will provide the municipality with a steady income in a considerable period. In the case of the municipality of Langeland the strategy has been to centralise the schools in one at the main urban settlement of Rudkøbing on a field just outside the settlement. This, the planner argues leaves available buildings and sites for building attractive dwellings (i.e. where old school facilities in central parts of the urban settlements were placed) for the older parts of the population who might prefer close proximity to e.g. groceries and care centres. This shows the municipality, although desiring to attract young families, also is aware that the ageing population have some needs in relation to the dwelling and that they are willing to provide these opportunities. In the municipality of Sorø the planners explain the fine political balance between focusing too much on one lifecycle group.

> *"No, well the city council has discussed this [...] the thing about getting precise about which particular groups that we focus on [...] there was much discussion about, if it primarily should be families with children, but that was not something they would decide on, the formulation has just become like 'we should be an attractive municipality for settling, also for young families' [...]"* (Development consultant from Sorø, 2012).

"[...] it's politically sensitive in that way to specific choose something actively, then you actually also deselect the others, or it has the disadvantages that it sounds like there is someone that you would rather not have, but they would in fact like to have them all, they would just rather have those, many from the good category, right?" (Planner from Sorø, 2012).

In both the municipalities of Sorø and Langeland there was high awareness about which groups in society the municipality approached in relation to the dwelling supply, but also through campaigns to attract people to settle in the municipality. Through a time period before the financial crisis the municipality of Langeland experienced influx of an increased number of socioeconomic disadvantaged people, who are an expense for the municipality and therefore usually not a group municipal politicians from already economically unbalanced municipalities prefer.

The strategies of which the municipalities use to attract good taxpayers vary from municipality to municipality. Even in the municipality of Aarhus, where the increased population is more or less self-supportive, the planner argues that planning is important (as the former quote showed) to keep developing the municipality to be attractive for newcomers and of course also in relation to businesses.

In the municipalities of Sorø and Viborg the strategy to attract potential newcomers is among others put into practice through a policy stating that people are more or less free to choose where they want to build, but with regards to the service structure.

"Well the point of departure is of course that we have some towns, which we call centre-towns, but the political opinion is that you can settle any place you like [...]" (Planner from Viborg, 2012).

"Yes, we have also in relation to localisation put emphasis on that there should be opportunity to settle in every part of our municipality, that we have designations in all our settlements and in limited, well in the villages there has been a cut to the bone, but in most of them you can find a spot and squeeze in a single house here and there, right?" (Planner from Sorø, 2012).

In the municipality of Langeland the centralisation of the schools has made the development of new dwellings to be concentrated around the main settlement of Rudkøbing, but still with development opportunities around the island.

All the planners argue that their task is to provide the opportunity for a diverse dwelling development potential so that the market can provide the dwellings people

want. None of the planners seemed to pay attention to the connections, which the conclusions from 'Befolkningens boligønsker' showed – that some dwelling types are more preferred by some specific lifecycle groups. Though some of the planners acknowledged that students demand cheap dwellings and that elderly people might demand dwellings designed and placed to accommodate walking disabilities. The provision of such dwellings, the planners argue, is not their task. Their task is to provide the planning frames for the needed development and then let the market provide the necessary number of the right types of dwellings. In the case of dwellings for elderly people it is often a social office within the municipality that analyses the need and then seeks to accommodate what is thought to be necessary. When asked if the single-family house was the most preferred and if that dwelling type was thought to be preferred by families with children (as the Danish survey concluded) the planners did not believe it to be so. Only relating to new developments the planners argued that it was mostly the wealthy couples of a certain age (kids maybe moved out), which were believed to be able to afford building a new single-family house. In Aarhus the planner argued that because little development took place in the periphery of the city and the most occurred in the centre of the city, this proved that the central part was where people wanted to live – in apartment dwellings close to the city centre. This does not prove families with children do not prefer the single-family house but it shows that the planners does not believe the preference is pursued by the families to a high extent, and that when the choice has to be made they seem to prioritise differently. As the planner from Aarhus argues:

> *"[...] if you look at what people actually buy, then it's not only because the market is insufficient, then it's because they suddenly prioritise when they have to pay up the money, then they say, well it might also be a good place to live where one of us can bike to work, or that the school is close by, or that there is opportunity to get a new job if I at one point get out of work. Then you start to make a whole different realistic reflection on how to settle down [...]"* (Planner from Aarhus, 2012).

This quote shows some of the considerations people make when they stand before buying a new dwelling and as the planner argues, it might not be the dream about a single-family house in the suburbs that wins, because there is an everyday life that has to fit as a whole. This, the planner argues although he acknowledges that the upturn before the crises might have had an effect on young people and their expectations towards dwellings:

"[...] the development which occurred from 2002 to 2007, you would almost not whish for it to come back, because it made an entire generation of young people believe it should be so [that children should be raised in a single-family house], that's a giant problem to society, that those five years happened, where there were no limits and that was not only in Denmark, it was in all of Europe, where expectations were built about an increasing wealth, which had no justification [...]" (Planner from Aarhus, 2012).

The planner here points out the conflict between an increased wealth with related consumption and the environmental sustainability of society. Ærø (2001) also found that people (in Aarhus at least) seem to prefer the dwelling types, which they grew up in. The planner from Aarhus expresses his concerns about what people expect from their dwelling and the impact these expectations might have on the environment. This leads to the next focus of this analysis, which relates to the legally required Agenda 21 commitments.

6.3.2 The municipalities' implementation of Agenda 21

As mentioned the Agenda 21 commitments are a legally required task (since 2000) where the municipalities have to formulate aims and concrete projects to reduce pollution and use of resources. This should be conducted in a trans-sectorial, interdisciplinary and long-term fashion. It is especially the area of reducing the environmental impact and the advancement of a sustainable urban development and renewal, which is of interest in this analysis.

Even though this is a mandatory task none of the municipalities see the Agenda 21 commitments as a very interesting one and especially not as one exerting influence on the planning.

"[...] I would not say that the Agenda 21 strategy, that there is particularly large political, neither political nor public, neither understanding nor support about it, it has actually more some sort of 'something you have to do' thing about it [...]

[Interviewer] So it does not mean anything in particular for planning as such?

No, it's not much, it's more a 'to do' thing and then some fine words about Rio, and that is that" (Planner from Langeland, 2012).

In the municipality of Viborg the Agenda 21 is not implemented to a high degree in the planning and does not have much effect on the concrete developments of the municipality.

"It is something we presented the politicians, which they are interested in [to incorporate Agenda 21 more in planning], we have a structure-plan on this area [points to a map], which is a brand new part of the town that should inhabit, 750 dwellings I believe it is, and there is actually much sustainability involved, but it is not an Agenda 21, but it is used, we refer to the concept of sustainability in our planning up there and it has been a very carrying element" (Planner from Viborg, 2012).

From this quote and in combination with the policy that people can settle where they want it could be argued that the Agenda 21 commitments do not have great consequences in relation to the urban development. The sustainability principle is referred to but only in relation to individual development projects, which could be suspected to be as a part of a promotion of the municipality or the main urban settlement.

In the municipality of Aarhus they have taken another approach to the climate challenge.

"[...] so there is a catalogue, which you so to speak answer to and that we do, but the public is not much preoccupied by the Brundtland report any more, so in reality it's a bit out of date this Agenda 21 account, and therefore it's not something we go out and talk much about, it's more interesting to go out and do something, really, and that is why the city council of Aarhus also has adopted a climate strategy where they want to be CO_2-neutral in 2030 and there you have a whole bunch of activities where you adjust to that and that's then in relation to CO_2 [...]" (Planner from Aarhus, 2012).

The planner from the municipality of Aarhus thereby argues that the Agenda 21 commitments do not have a large effect on planning and that they have developed their own climate strategy, which is similar to what the municipality of Sorø and Viborg have done. This enables the municipalities to formulate their own idea of sustainability as well as direct the attention as they please.

The municipalities of the administrative Region Zealand have in collaboration formulated a strategy (the Zealand project) for a beneficial development of the region, including environmental sustainability aspects as well. The Agenda 21 strategy by the municipality of Sorø is very similar to the Zealand project in relation to urban development, but even though both the Zealand project and the Agenda 21 strategy specify that the municipality should work to decrease the use of resources, build more densely and build in close proximity to the railway stations, this has little consequence for the urban development in the municipality. As mentioned before,

the municipality of Sorø has a policy stating that people should be able to live wherever they prefer as long as it is compatible with the service structure in the municipality.

> *"[Interviewer] [...] you mention that you have land designations in almost every settlement, how does that relate to the Zealand project and Agenda 21?*
>
> *It's not sustainable! No it's political, but we are in that fortunate situation [...] we have this local train that runs through the [old] northern municipalities, it stops in Ruds Vedby and in Skellebjerg, which is our second smallest village included in the urban zone and in Dianalund and Stenlille and Nyrup, we have a series of stations, which then is railway towns, it's not a DSB section, but this roughly means that we can categorise all of our settlements as being railway towns"* (Planner from Sorø, 2012).

The main argument from the municipal planner is that as long as there is a railway station in relation to the urban settlement it would not go against the Zealand project and Agenda 21 strategy. This seems to have been a political pressure.

> *"Well, I could just imagine the Mayor saying that, in Sorø the town of Sorø is also close to a station, which is a bit of a creative interpretation of the Zealand project, because there they draw some circles around [the stations] and we have the problem that the station of Sorø actually lies in Frederiksberg [approximately two kilometres from Sorø], so you can't even categorise Sorø as a railway town, it's kind of sad [...]"* (Planner from Sorø, 2012).

So the local politicians were not necessarily in agreement with a strict interpretation of the strategies even though they formulated and signed the documents themselves. This liberal interpretation has thus meant that the practical implementation of the policies have not had the desired effect. To be fair, in the case of the municipality of Sorø a strict interpretation would mean that the main urban settlement, Sorø, as the quote states, would not be entitled to any new developments, because of the distance to the railway station and the still available areas around the station. Therefore it is difficult to see how the policies should be implemented in planning, if not interpreted less strict. The conducted planning does likewise not seem to be in line with the other aims of the policies, concerning a more dense development, using fewer resources and making it easier to use public transport as well as bike or walk. Allowing (low-density) urban development all around the municipality in connection to railway stations, might improve connection to (some) public transport modes, but all other aspects of the Agenda 21 strategy are neglected. This could thereby indicate how the use of more sustainable

transport modes (i.e. public transport instead of private car) as a factor for sustainability has become dominant, while other factors have been pushed aside.

All in all this gives a picture of how the Agenda 21 commitments are not taken very seriously. This might be a political pressure because most of the planners express concern towards the environment and would like to work towards a more sustainable development of their respective municipalities.

> *"[...] it's more if you personally can have some ideals which stretches a bit further, but we are put here to serve them, so to speak, we ought to do that by definition, but some of us do have some green incorporated in our education and that we do try to emboss the concrete reality with, but they are the politicians and they are those who are elected to govern, so we can just point at some solutions, which we believe to be good and try to affect it in that way, right?"* (Planner from Sorø, 2012).

> *"[...] but we do actually want to have influence, also to get some more urbanity and sustainability [...]"* (Planner from Viborg, 2012).

All the interviewed planners argue that it is not the planners but the politicians who take the decisions regarding planning and that all they can do is to present the planners with the best alternatives. This might be right, but the planners have a great amount of influence if they are capable of presenting some well-documented and well-argued alternatives, which the politicians are to choose between. The politicians are of course not empty shells that can be convinced of everything, as some of the planners argue; they are well-informed and have their own agenda, which relates to their political standpoint. This being said the dissociation, which the planners take from their influence in planning, could also be regarded as dissatisfaction towards the conducted planning policies. But on the other hand the politicians do have the last say in planning situations and in the end they are the responsible towards the public.

6.3.3 Provision of dwellings and structures

Now that the planning rationalities and the implementation of Agenda 21 strategies are presented it is time to examine how the municipal planners conceive of how the provision of dwelling types as well as the urban structures should try to accommodate people's preferences. To this the focus will also be on how the planners conceive of the relation between supply and demand of the different dwelling types. The following will thereby also contain an analysis of the planners' perception of the population's dwelling preferences and needs.

The planners' perceptions of the population's preference towards specific dwelling types have briefly been presented in the previous and it showed that the planners from the municipalities of Sorø, Viborg and Langeland perceived the single-family house to be the most popular but not necessarily especially ascribed to the families with children. This is in relation to new developments. Still in all municipalities except the municipality of Aarhus the primary new developments are single-family houses. So while the planners might recognise that families also live in terraced dwellings and apartments (if the adequate floor space is available and placed in close proximity to childcare facilities, schools and friends), they also accommodate the '*potential for always having a quite large land designations for single-family houses*' (Planner from Viborg, 2012). In the municipality of Sorø there seems to be an opinion that families with less economic resources should be able to live in a single-family house. While discussing large villa parcels and the unsustainability aspects of such the planner argues:

> *"[...] but we do also have areas where it's actually is a combination of low and medium density, where it is, detached dwellings, but on smaller plots, so actually a single-family house as medium density where you have 400 square meters, it is so to speak more sustainable in that way, but where it's not, you could say argh, it's not for the wealthy well-off families with kids, but where the lone provider has the opportunity to live in their own house with a garden, but in another scale, at the same time you cut back on use of land recourses, right? [...]"* (Planner from Sorø, 2012).

This is to point out how the municipality relies on a diverse supply of dwellings to be able to attract all types of lifecycle groups. The planner argues that this solution at the same time is more environmentally friendly because of fewer land resources used (400 square meters in comparison with the usual 700 square meters per parcel), but it is questionable if any land resources are saved. Though fewer land resources are used per dwelling, it still provides more people with the opportunity to move into a single-family house, and these people might otherwise have chosen a terraced dwelling or an apartment, which consumes even less land resources. This leads to the question if the planners are aware of the relationship between the supply and the demand of different dwelling types.

All the planners are fully aware that the supply of different dwelling types and where they are placed affect how and where people settle, but they are all reluctant to plan for other than people's preferences.

In the municipality of Viborg the planner gives an example on how the demand for new terraced houses increased as well as how the existing building stock changed hands faster in the period up to the financial crises. The lack of available single-family houses made the other dwelling types more attractive.

> *"[...] so we were actually close to having sold out and then a change will of course happen, because then people demand something else, when they can't have what they would like to have and there is a queue, then they start demanding something else, so it meant two things, respectively that more terraced houses were built, which people then demanded and a circulation of the existing dwelling stock, but you could say that it was something that happened out of necessity, and I don't think that, politically it was not something they whished for, they prefer that there at all times is availability of what people demands, and we ought to have that as well, but we just couldn't keep up, so actually there were waiting lists for single-family houses and they came into bidding rounds and they went up in price, it was a fantastic situation, the municipality could actually earn some money on that"* (Planner from Viborg, 2012).

Though the planner at the end mentions the benefits of such a situation, what the planner describes here is actually an undesired situation for the politicians, which the planner also considers to be unfavourable. But at the same time it shows how the planner is aware of the relation between supply and demand.

As can be seen above, the planners have a notion of how the relation between the supply of dwellings, influence where people settle. But as the former quote shows this is not something the planners desire to use as a conscious tool in planning. They, of course to some extent, have to take a stand when choosing new greenfield areas for development, but besides that the planners as well as the politicians seem to prefer a market-oriented planning situation, where people should be more or less free to choose where they want to settle down. In the case of the municipality of Aarhus the planner does not believe that people have preferences towards the single-family house to a high extent. The planner argues that the planned development where land designation for single-family houses has been reduced to a minimum is in accordance with the market and hence people's preferences. The municipal plan has only few areas for single-family houses and most of these areas have been carried on from the old municipal plan.

The development of the municipalities is of course very much related to their ability to attract new inhabitants, which is also the primary objective for the politicians and

planners in most municipalities. This might explain the reason why the municipalities have a focus on which preferences the population have in regards to dwelling types and location. The municipalities compete among each other about attracting inhabitants, who pay their taxes and thereby contribute to a balanced budget. The municipalities' perception (politicians as well as planners) of what people prefer thereby becomes important, because they provide the necessary planning for the development. Arguably the market to some extent is an expression of people's preferences, but if we acknowledge the influence that urban structures exert on the settlement pattern of the population, it is evident that the plans the politicians and planners conduct also affect people's preferences. But as long the general belief is that the market should more or less guide the direction of planning the municipalities have to play by its rules.

The municipality of Aarhus might be in a more preferred situation because it has a higher attraction value and thereby to some extent is in a better negotiation position when dealing with different contractors that might have another opinion about development projects than the planed (as a former quote showed). This is also something the planners from the municipality of Sorø can relate to. Before the municipal reform the municipal planner worked in a smaller municipality and argues:

> *"[...] we would of course like to have these newcomers, so you were very compromise-oriented or what to say, well it was a small one, it's again this thing about the smaller the municipality the more skewed the balance of power is, or what to say, this negotiation situation, where you maybe in Sorø to a larger extent have been able to say, well we don't want you at any price, so that is also something you would encounter, the more outer-region the more you clap your hands when something comes your way and the more they get to dictate the agenda, right? that is a tendency I don't think you can ignore [...]"* (Planner from Sorø, 2012).

This might also be why the municipality of Aarhus to a larger extent has incorporated sustainability aspects in a more holistic extent than the other municipalities.

> *"[...] their [the politicians] opinion about this, that if we are to conduct some local plans with some more strict regulations in relation to sustainability and that sort of stuff [...] and most actually believes this is the right thing to do and that it's what we ought to do, but with reference to the fact that we are surrounded by municipalities, that as well, to such an extensive degree focuses*

on getting people to settle, then they are also worried about, well to scare people away [...]" (Development consultant from Sorø, 2012)

The quote, as well as the former one, is a fine illustration of the difference between the municipality of Aarhus, where the planner expressed satisfaction by the increase in inhabitants, and the other municipalities, who all struggle to attract new inhabitants. At the same time the planner expresses, in the quote, a worry amongst the politicians that if they are first moves on implementing more strict sustainability requirements in planning, this might push some contractors to invest in other municipalities that have a more loose regulation. In relation to Klosterman's article on why to conduct planning from 1985 this is a classic example of a prisoner's dilemma situation. A prisoner's dilemma situation occurs in this particular case when a common good (mitigation or complete halt of negative environmental and climate impacts) goes against an individual good (pursuit of profit and growth). If one municipality acts alone in favour of the environment it might lose some inhabitants to other municipalities and pay for other municipalities' negative environmental impacts. If the municipality does not act it might attract some of the inhabitants from municipalities, which have acted, and does not have to contribute to limit the detrimental behaviour. If all act at one time there is a possibility that both problems could be solved. The actions of the municipalities is also evidence showing that the municipalities have a larger focus on their individual goals than on common goals even though the common goal might be just as important, in the long perspective. The issue of how to resolve the prisoner's dilemma situation will be discussed in the following chapter.

7 Discussion

Before going on to discuss the implications of people's preferences and the conducted planning there will here be a brief summation of the main conclusions from the extrapolation as well as the analysis of the municipal planning.

The conclusion from the extrapolation was that the demographic development will have an effect on the general population's preferences, but all in all the general picture will not change – still more than those who live in single-family houses will prefer to do so in the future. There are also considerable regional differences that will urge the municipalities to take different actions to accommodate people's changing preferences as a consequence of the demographic development and immigration. It was concluded that the municipality of Aarhus was in the most favourable situation because it can rely on a steady influx of new inhabitants. The other municipalities, however, have to a higher extent to compete to attract newcomers, which especially is the case for the municipality of Langeland. In the municipality of Langeland the changing preferences is largely a result of emigration of the younger parts of the population, while the older parts tend to stay and live longer. This thereby leaves the municipality in a different situation than the situation of the municipality of Aarhus where to the younger people immigrate.

The overall conclusion from the Analysis of the municipalities' conducted planning is that the main objective for the planners is to accommodate an economically balanced budget and since the municipalities face different challenges in relation to their population this is approached differently. The planning documents mostly focuses on creating an attractive municipality and in relation to dwellings to accommodate a growing demand (or create a growing demand), while there as well is a focus on how to reduce the impact on the environment from this development. According to the planning documents as well as the interviewed planners, all the municipalities try to accommodate the populations' preferences towards dwellings, when hierarchies of urban centres and land use considerations are followed. All municipalities seek mostly to fulfil these objectives through greenfield development. Through interviews it was learned that the greenfield developments in all municipalities (apart from the municipality of Aarhus) will consist of low-density developments, i.e. single-family houses and terraced dwellings. In Aarhus the greenfield development would mostly take the form of higher densities, i.e. apartment dwellings, the planner argues. All municipalities also had plans for urban renewal projects, which would increase densities, where the municipality of Aarhus has the highest share of this type of development. Through the interviews it was also concluded that the municipalities to a high extent try to accommodate people's

preferences to their dwelling as well as to most other aspects concerned with municipal planning (e.g. good service, lively urban centres etc.). Another conclusion is that the Agenda 21 commitments do not have much political focus and are therefore not considered to be a tool for achieving a sustainable development, it was more considered as a 'have-to-do' task. Some municipalities conducted their own climate plan instead. In addition the goals set up in the Agenda 21 commitments (as well as other climate strategies), did not seem to have much consequence in relation to the conducted spacial planning, and where climate mitigation initiatives were implemented it was in most municipalities only in relation to technological initiatives.

While there, in most aspects, does not seem to be a direct conflict between what the municipalities can expect from the demographic development in terms of preferences towards dwellings and how the municipalities plan, there seems to be a lack of political focus on the environmental consequences of the planning focus. This is unfortunate, as the following discussion will show.

The following will include a brief review of knowledge about the environmentally friendly city, and then a discussion about why it seems the municipalities do not use this knowledge. The discussion will examine the competitive relationship between the municipalities as a factor for not implementing more environmentally friendly planning as well as other underlying societal structures that might influence planning. But first a short discussion of whether the municipalities plan in accordance with knowledge about the environmentally sustainable city.

7.1 Issues of environmental sustainability

As the extrapolation showed, the preferences among the case municipalities' populations seem to favour the single-family house. And the manner in which the municipalities plan does not seem to be at odds with the population's preferences in general. Already over 70% live in a single-family house in the municipalities except in the municipality of Aarhus where most people live in apartment dwellings, but here more people prefer to live in a single-family house. This composition of dwelling types already has its consequences in regards to the environment. Continuing this trend will cause even greater damage to the environment and make it more difficult to reach the stated goals for a sustainable urban development. Many researchers have dealt with the subject of a sustainable city and found that the urban form, which is most likely to be environmentally friendly, is a compact one and this for many different reasons. Here I would like to review some of the main conclusions from the work of these researchers.

Frist, energy consumption for space heating of dwellings is closely related to the types of residential buildings and hence to the density of housing areas. Single-family houses have higher energy consumption per square meter for both space heating and cooling than multifamily houses such as apartment dwellings (Brown & Wolfe, 2007; Høyer, K.G., Holden, 2001). This is mainly due to the smaller outward-facing surfaces of apartments and thereby their smaller areas where heat is leaking out of the dwelling in the cold season (and heat is leaking in during hot periods when there is a need for cooling). In other words apartment dwellings are isolated by the dwellings around it (this also applies for terraced dwellings but to a smaller extent) and thereby prevent heating to escape in the cold season as well as undesired heating from the sun to enter in the summer causing the residents to use cooling systems. Cooling systems are of course not so widely used in Denmark yet, but with the expected increase in temperature and more extreme weather situations it is not unthinkable that they will be introduced to a larger audience in a near future (Marsh et al., 2010). In addition to this apartment dwellings require much less materials for construction (Burchell et al., 1998). This also includes sewers, cables and access roads.

Another aspect of a sprawling urban form is the traffic it generates, and as it is widely known that the high amount of travel conducted has consequences in relation to the environment. A compact city seems to favour other modes of transport than the car (Næss, 2012) and a low-density city increases the need for car use (Newman and Kenworthy, 1999). Thereby limiting the sprawl of a city by focusing on a densification of the city instead, will most likely reduce the use of the car. The main reason for the reduced travel by car is the shorter distances between potential destinations, which make people more willing to use the bike or walk, but also the shortened distances make the trips taken by motorised vehicles shorter. When people live more concentrated the foundation for public transport is also increased, which thereby makes it easier and less expensive to make good transport opportunities by public means. In addition car driving and parking is less convenient in the city centre and the inner city district and shortened distances makes more possible destinations within walking and biking range. Thus by placing new buildings (residential development and office workplaces) close to the city centre a reduction of greenhouse gas emissions and energy use from transport is likely to be obtained (Hartoft-Nielsen, 2001; Næss, 1995, 1996, 2006; Næss & Jensen, 2004). The accessibility in the compact city is thus reached by increased proximity in contrast to higher mobility, provided by roads and the car, in the low-density city. Facilities like kindergartens, primary schools and grocery shops with a more general audience should be spread evenly around the city where people live.

Another aspect to be put forth here in relation to the environmental sustainability of the urban form is how the low-density city and low-density development encroaches on natural areas close to the city. Low-density urban development causes a confiscation of farmland, forests and natural areas, which are essential for a variety of functions in relation to the environment. Farmland (though often in a condition of monoculture), forests (also to some extent a monoculture) and natural areas serve among other to preserve biodiversity, restore groundwater, prevent flooding during heavy rainfall and as a recreational function. It thereby becomes important to reduce a sprawling urban development in this regard.

Arguably the case municipalities in general cannot be directly compared with a larger city, which is the context dealt with in many of the studies presented in the former, but the conclusions are still important to consider. In all case municipalities the current development takes place around the main urban settlements (if any takes place at all, because of the financial crisis), and the main urban settlement can in most case municipalities be considered to be the local centre of attraction in relation to vital services in the municipality. In the case of the municipalities of Sorø and Langeland the picture is more complex because other larger centres with facilities that might attract the population of these municipalities are located in close proximity or connected with good transport opportunities. Also peripheral urban settlement of the case municipalities might be placed in other centres' catchment areas than those of their own municipality. But if we acknowledge that the municipal centres have a natural attraction on the municipalities' residents because they are most likely the largest town with closest proximity to the other settlements in the municipality and provide services such as schools, kindergartens, citizen services centres, commercial retails, jobs etc., it is also most likely that the location of dwellings in relation to the main municipal settlement will have an effect in relation to environmental impacts of the individual household. At least in relation to travel. Næss and Jensen (2004) empirically concluded that urban structures also matter in small urban settlements in relation to travel behaviour of the residents. It was concluded for a small town of about 30,000 residents that the longer the distance the dwelling was located from the centre (in this case Frederikshavn), the more travel the residents conducted in a week (Næss and Jensen, 2004). The urban structure of Frederikshavn can largely be compared with the three towns of Sorø, Viborg and Rudkøbing (but Rudkøbing to a lesser extent).

Though not directly related to the urban form technological improvements of the building stock are also important to obtain a sustainable development, in particular in relation to the older parts of the building stock (Marsh et al., 2010). Better

insolation, improved water treatment, natural circulation of air, solar and wind power, more energy efficient interior etc. are all important elements of a more sustainable housing stock, which municipalities to a certain extent can regulate through local planning. Sometimes though, the technological improvements do not come to justice, because the improvements are circumvented by larger products that consume the same or more energy. For example better isolation in dwellings have caused energy savings but at the same time the individual dwellings have become larger and less people occupy them, therefore some of the savings obtained in the first place are lost by the increased size of the dwellings and lower number of occupants.

If all this is related to the planning conducted by the case municipalities it shows the municipal planning does not implement sufficient and necessary measures to obtain a more environmentally sustainable development. The planning will more likely, according to the theory about the compact city, have further negative environmental consequences than what is already caused. The municipalities seem to put their main effort in technological solutions (or just following the standards of the law) while still to a large extent relying on an outward development of new urban settlements. Since all municipalities are obliged to formulate how they will approach reductions in relation to environmental impact through the Agenda 21 strategies it is interesting to examine the municipalities' efforts in more detail. Here will follow a short analysis of each of the case municipalities' planning efforts in relation to the presented theory on the compact city and environmental impact.

7.1.1 Aarhus

The municipal plan of Aarhus does seem to be the most ambitious in relation to a sustainable development when compared to the other case municipalities, though there are several points of criticism that could be raised. The planning strategy and the municipal plan state that new dwellings should be built with a high density and the interviewed planner also states that most new dwellings will be apartment dwellings, which have lower energy use than single-family houses. Also all new dwellings should be built in close proximity to rail or light rail stations, which increases the accessibility to public transport. In addition the municipality has advanced the time for implementing the more environmentally strict regulations imposed by the building regulations (bygningsregelementet) originally to be implemented in 2015 in new developments. These are all steps to insure a more environmentally sustainable development of the municipality, as argued by the planner as well as the planning documents. As the interviewed planner argued the space for greenfield development in the municipality is limited because of various

reasons but one main reason is to prevent encroachments on groundwater catchment areas and thus to ensure a clean and steady provision of drinkable water for future inhabitants. All usable land now seems consumed by the municipal plan for future greenfield developments. The municipal plan states that it is not possible to find room for the increasing population within the present urban boundary, which is why the new towns are developed in greenfield areas. In addition large brown field areas within the city of Aarhus have been planned for to accommodate the increasing population. The overall conclusion must though be that the development of which the municipality engages in could have been more environmental sustainable. The fact that the majority of the new dwellings planned for are located in greenfield areas will probably have the consequence of increased travel by motorised vehicles and lower densities than if the development took place within the existing urban form (Næss et al., (n.d.)) (Næss, 2011a). Also the claim that it is not possible to find available areas for the increasing population seems to be exaggerated when comparing with the development which has taken place Norwegian cities like, in the capital region of Oslo, Bergen, Stavanger/Sandnes and Trondheim where almost no expansion has occurred with the result of a densification (Næss, Næss, and Strand, 2011b).

7.1.2 Sorø

The municipal plan of Sorø includes some environmental sustainability declarations that have been formulated through the Zealand project, which the municipality partook in together with the other municipalities in the Zealand Region. This included that new dwellings should be built in close proximity to railway stations, with relatively high density in new areas as well as it should promote the use of public transport, the use of bike and walking. Through interview with planners from the municipality of Sorø the conclusion was, however reached that these initiatives did not have any apparent consequence for the municipal planning in relation to new dwellings. Because of a local railway connection going through the northern part of the municipality almost all of the urban settlements in the municipality had a railway station with regular departures. In reality, the planners agreed, the locally operated train connection can hardly be compared with the nationally operated train connection, which is serviced by one station in the southern part of the municipality. Going by the local rail connection to the capital would include more than one interchange and in combination with the low operating speed of the trains (compared to that of DSB) it would take '*three days*' to reach Copenhagen as one of the planners said (it is also very expensive to operate). Therefore people would probably choose the car as the preferred mode of transport when living in one of the northern railway station settlements. On the other hand not providing a higher

passenger foundation through planning will not improve the sustainability of the railway line. In addition the main settlement of Sorø does not have a railway station in the centre of the city like most railway towns in Denmark, the station is situated approximately two kilometres south of the main town with a small low-density settlement around. This poses some problems, also in relation to the Zealand project, because only placing new developments in close proximity to the station will exclude new dwellings in the main settlement. Also when the main centre of attraction is not located in near connection to the main railway station it raises some questions in relation to location of dwellings and related transport.

Though the planners did not see any apparent development in relation to new dwellings because of the financial crises the majority of the planned dwellings were to be single-family houses and spread around the municipality in the railway settlements, but also a few apartment dwellings were planned within the main settlement of Sorø. All in all, the development the municipality of Sorø plans to conduct does not seem to be much in line with an environmentally sustainable development, but the context of the municipality makes it difficult.

7.1.3 Viborg

In the municipal plan of Viborg there are as well as formulations about sustainability, but only one project seems to consider environmental sustainability measures. The overarching strategy and planning in relation to dwellings is that the municipality should provide available sites for development of new dwellings wherever the population prefers to build, but in connection to existing urban settlements. In practice this means the municipality always ensures enough available sites for development around the municipality and thereby lets people decide where to build. The interviewed planner described how the local plans almost always made use of wide planning frames because it made it possible for the developers themselves to decide which dwelling types should be built. This leaves a situation where the municipality does not have a strong regulation on what is built, which mostly is single-family houses. This strategy does not support an environmentally sustainable development of the municipality in general even though the municipality has started individual projects to include sustainability measures. On the other hand unlike the other case municipalities there does not seem to be only one natural main centre of attraction because the municipality is geographically large. Though the town of Viborg is far the largest urban settlement in the municipality, there are several smaller settlements and one medium (the old municipal centres) that still have some attraction value. This makes it, both in

relation to planning and politically difficult to only focus on one settlement for development alone.

Though the municipality's Agenda 21 strategy states the municipality should promote an environmentally sustainable development, which contains a reduction of consumption of resources and a reduction of the environmental impact, the conducted development does not seem to be in line with such goals.

7.1.4 Langeland

The municipality of Langeland is small in number of inhabitants but geographically large, the size of population taken into consideration, and therefore the municipality is rather thinly populated. This poses some planning challenges because it is expensive to sustain service facilities in the most thinly populated areas. In addition to this the population foundation is decreasing, which only enforces the challenges. This is also the reason for the current development strategy that has centred the local schools and sports facilities in one central school and one site for sports, both in the main urban settlement of Rudkøbing. This is while providing areas for greenfield development of new low-density dwellings in close proximity. The municipality hopes this will change the negative development making it more attractive to settle in Rudkøbing and thereby provide the municipality with an increasing population in the future. One consequence of this is that school children from 4th grade and above residing on the northern and southern part of the island have to travel longer by bus to get to school than usually. Another consequence is that people with children might be more positive towards settling in or near the main settlement Rudkøbing because of shorter distance to the local school. Another factor in relation to the willingness of people to settle in the thinly populated areas of the island is law requirements that make it mandatory to install proper sewers, which some dwellings lack. This will probably have the effect that the, in some regards, already obsolete building stock will become even more unattractive for potential buyers. This could push newcomers to choose a new dwelling in the main settlement instead.

The centralisation process taking place in the municipality is positive in relation to travel in the long perspective because it might cause people to settle in the main settlement, but the new dwellings and already existing building stock is mostly low-density and therefore not the most energy efficient. Also the already large number of unoccupied dwellings and the fact that the municipality desires to construct a relatively large number of new dwellings poses the question whether it is more environmentally sustainable to renovate the existing dwellings around the island or instead providing new state of the art dwellings near the main settlement.

7.1.5 Summing up

All in all this gives a picture of the municipalities' planning as not being sustainable to a extent which comply with the knowledge about an environmentally sustainable urban development. In the following it will be discussed why this might be. First there will be a discussion of the nature of the environmental impact stemming from the urban build environment as well as the relation between the municipalities in this regard. A discussion of how the municipalities conceive of the notion sustainability leads to a discussion about the growth imperative. Last there will be a discussion of other structures, all related to the welfare society, which might also influence people's preferences and thereby the municipalities' planning.

7.2 Competition between the municipalities

Why is it that some of the municipalities have not implemented stronger regulations on the urban planning in favour of a more environmental sustainable development, when the academia seems to be somewhat agreeing on the necessary development path? As already mentioned (see section 6.3.3) one reason for this could be the state of the municipalities' interrelations. The interviewed planners all agreed that the municipalities are in competition with each other to attract good taxpayers and business. In the case of the municipality of Aarhus the situation is slightly different, which soon will be discussed. Here I will argue that the competing environment amongst the municipalities results in a prisoner's dilemma situation, which is a contributing factor for the municipalities not to implement a more strong environmentally sustainable development. They fear that if they are 'first movers' they will lose good taxpayers. In the case of the municipality of Aarhus the situation is different because they do not to the same extent have to struggle to attract inhabitants and therefor have a better negotiation standpoint in relation to contractors, as well as newcomers. The municipality does not fear people choose to settle in another municipality because of the conducted planning, they rely on the general attraction value, which the municipality has, to keep a steady increase in inhabitants. But as has also been argued before, the municipality of Aarhus could have planned for an even more environmentally sustainable development, why they do not do so could as well to some extent be ascribed to a prisoner's dilemma situation, because they as well might fear that people then would choose another municipality.

When discussing the municipalities' ability to plan for an environmentally sustainable development it would be fruitful to discuss the nature of the 'environmental sustainability' aspects, which the municipalities should take into

consideration. In other words, how are the different environmental issues related to the municipal planning? Some environmental issues are locally founded but have international or global consequences, some are locally founded and have local consequences. Unfortunately environmental problems are not bound by administrative boundaries; the fact that the environmental challenges are common was also specified by the Brundtland commission. While many of the environmental problems the world face today are locally founded it might not always be obvious how the local governments should deal whit the issue. International and global problems might have a solution locally but the benefit by solving the problems might not be obvious for the local government because the consequences might not be local or within a foreseeable timespan. This also relates to the prisoner's dilemma situation. The relation of the environmental problems makes it clear that the responsibility is not either local, national or international, but a combination.

Jon Naustdalslid (1992) has sketched out a conceptual framework to illustrate how environmental problems can be characterised as being created locally or over-all and if the impact is local or over-all (see Figure 7.1).

		Problem generating	
		Local	Over-all
Allocation of environmental problems	Local	A	B
	Over-all	C	D

Figure 7.1 Origin and allocation of environmental problems (Based on Naustdalslid, 1992:41)

Some environmental problems are both easily identified and clearly demarked (i.e. an old oil tank leaking oil) while others are both difficult to demark and locate in time and space (i.e. greenhouse gases).

In the A area the problems are both generated and allocated locally. This type of problem can therefore be both generated and allocated within the boundaries of one municipality e.g. the noise and local pollution from traffic.

In the case of congestion problems, and the thereby following detriments, it could be argued that some of the problems are generated by surrounding municipalities (because this is where most of the car commuters live), but the problems are to a large extent only allocated to one municipality (e.g. the example of the metropolitan area of Copenhagen). This case could be ascribed to the B area.

The C area illustrates a situation where a local polluter has consequences for other municipalities. An example could be if a waste dump in one municipality was leaking toxic waste into a water stream, which lead the pollution through other municipalities and ended in a lake far from the originating municipality.

The last combination is of a more collective nature, where the environmental problems are both created by all and have consequences for all. This could be emission of greenhouse gasses.

The environmental issues caused by urban planning discussed beforehand, can now be placed in one of the areas of the figure and discussed in more detail in terms of which policy implications they present and which solutions should be considered. Unfortunately the environmental problems related to the building stock are of a diverse nature and as such difficult to place in only one of the areas. This will depend on how the problems are defined and demarked, which in itself is a large task, and will therefore not be discussed here in detail.

Energy consumption related to the building stock relates both to the materials used, the building style (dwelling type, densities, design etc.) and the use of the constructed building. Here the focus will only be on the building style as a generator of energy use, where the municipality can affect several aspects in this regard. The problem with energy consumption is also diverse and can relate to both local and global problems depending on which energy resources are used (the use of firewood to heat the dwelling can cause local emissions of polluting particles, as well as convert natural forests to production forests less rich in biodiversity, while the use of coal and oil causes global consequences to the climate). This thereby outlines a problem, which is locally generated but depending on the used technology can be both locally and globally allocated.

Traffic caused by urban structures also has a diverse nature in this regard. As already argued traffic can be generated locally and cause local problems, as well as it can be generated more generally and have global consequences.

When urban expansion encroaches on forests, farmland and natural areas the problem for the environment is usually of a local nature. The attention towards not encroaching on ground water catchment areas in the municipality of Aarhus is an example of how urban expansion can cause local problems. On the other hand urban expansion also causes more national, international or global problems in relation to encroachments on natural areas. En example is biodiversity an issue where the municipalities are not able to oversee the entire complexity. A municipality might be inhabited by a large population of otters but if the only natural habitat is located in

the municipality it should not be disregarded by the local government. The international agreement signed in Ramsar, Iran in 1971 to protect wetlands and waterfowls (The Ramsar Convention on Wetlands, 2012) and the European Union's Natura 2000 protection areas (Naturstyrelsen, 2012) serve as examples of international agreements for protection of biodiversity. Many natural areas also serve to bind CO_2 from the atmosphere.

While Naustadalslid's model mostly illustrates how environmental issues are generated and allocated in space (across administrative boarders) it could also be fruitful to include how the problems are allocated in time as well as they have consequence to other species (which briefly have been discussed). To illustrate some of the ethical implications of the diverse nature of environmental impacts, Arler (2006) has sketched out a three-dimensional model (see Figure 7.2).

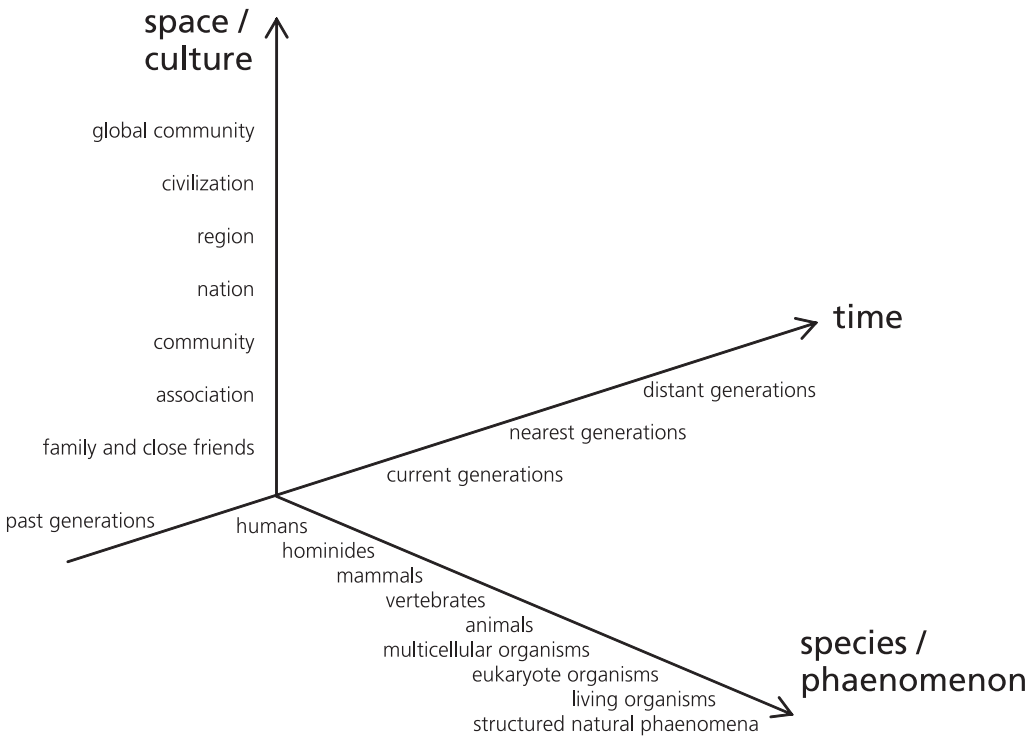

Figure 7.2 The three dimensions of what to take into consideration when dealing with environmental issues (Arler, 2006).

The figure illustrate how environmental impacts have consequences in space, which also include how other cultures than our own are affected, which might be an issue because it can be more difficult to argue why we have to limit our development to protect cultures we do not feel related to. Another dimension is how impacts are allocated in time, which is very relevant when discussing greenhouse gas emissions

because the caused global warming has long-term effects. This in relation to the space dimension, a question could be how much effort we should put into saving cultures existing five generations from now that we cannot relate to. The last dimension is other species/phaenomenon. This dimension is related to biodiversity, and where to set the limit (should we also protect insects? bacteria?). I will not get into the discussion of where the limit should be set but just state that I generally believe in a strong interpretation of sustainability where only very few natural resources can be substituted by other (e.g. oil can be substituted by wind and solar energy), in contrast to a weak interpretation where 'natural capital' (natural resources) can be substituted by 'human capital' (if the gain from oil resources are used to e.g. build roads and houses or educate people).

Adding the three-dimensional aspect the diversity of the issues brought up in relation to the environmental impact of urban development becomes clear and it shows that many of the issues have a nature that requires involvement of more than one local authority. When authorities are to cooperate to solve the problems there is a risk of conflict. In relation to impacts on the climate caused by the urban structures of which the local governments are responsible, they could be argued to be located in the area D. This is because the nature of the problem seems to be generated by most municipalities in Denmark (as well as in other countries). The problems are generated by dispersed urban structures resulting in high-energy consumption (which, depending on the source, emits greenhouse gasses), mobility based on the car (the fuel of cars emit greenhouse gasses) and encroachments on natural areas (loss in biodiversity). To some extent the problems might also lie within the areas of B and C and result in conflict between few municipalities, which thereby will need attention from a superior authority to create consensus. In the case where the problem lies within the area D the situation is slightly different, because it might result in a prisoner's dilemma situation (in this case with many participants so called 'free riders' can occur). Such cases are typically characterised with a common interest by the individuals to solve the problem, because they all benefit from it. The dilemma is that the individual (in this case an individual authority, e.g. a municipality, or a nation) might be reluctant to impose the necessary regulations because there is no guarantee that the other individual authorities will follow suit. Likewise for the individual it might be tempting to let the other individuals impose regulations but refrain from doing so (and thereby become a 'free rider'). In the first example the individual will end up paying for the environmental damage, but not gain any benefits because to obtain any effect the majority has to take action. In the second example the individual will gain all the

benefits by doing nothing, because the other individuals took action and since the effect is global, all benefit from the actions.

Such a situation is likely to end in status quo because no one wants to be first movers and pay while the others draw the benefits. This seems to be the issue when examining the municipal planning in relation to how well they incorporate sustainability measures in their planning effort. A third opportunity is for all the individuals to work together and all impose the necessary regulations thereby resolving the environmental problems jointly. Naustdalslid (1992) (and to some degree Klosterman (1985)) argue that in the cases of environmental issues, which can be placed within the areas of B, C, and D a superior authority should resolve conflict and prisoner's dilemma situations through regulation. Næss (2001) likewise argues that higher authorities should regulate and resolve prisoner's dilemma situations threatening to undermine the municipalities' efforts against global and national environmental problems. This will result in a situation where the municipalities and the higher authority enter a principal-agent relationship (Naustdalslid, 1992), which is a case (as described in the theory chapter) where, in this case the state tells the municipalities what needs they have to accommodate through planning. Naustdalslid (1992) however argues that a principal-agent relationship in itself is not enough. The Agenda 21 commitment strategies, which by law force the municipalities to considerate an environmentally sustainable urban development, serve as an example of a principal-agent relationship between the state and the municipalities. As the municipal planners argued the Agenda 21 strategies did not have any real effect for the conducted planning and it does not seem to have resolved the prisoner's dilemma situation. To blame for this is probably the nature of the regulations, which only serve to make the municipalities considerate measures for a more environmentally sustainable development. There are no consequences by not following the strategy as well as there are no real goals to be obtained. This also depicts a problem in the principal-agent relationship, where both parties can blame the other for not having played their part satisfactory. The municipalities can blame the law formulations for not being specific enough, while the government can blame the municipalities for not taking the task seriously.

The municipalities do not seem to be planning in accordance with the academia's notion of an environmentally sustainable urban development. To understand why, the nature of the environmental issues have been characterised in accordance with a model that positions the problems as either being generated and allocated, local or over-all. Thereby it has become clear that some problems need to be regulated from a superior authority to avoid conflicts and prisoner's dilemma situations. It also

became clear that the principal-agent relation is not a guarantee that the problems get solved and that it is important to configure durable solutions. Another factor that might influence the municipalities' level of implementation of environmental sustainability measures could be the municipalities' interpretation of the very concept of sustainability.

7.3 What is sustainability?

In this section the municipalities' perception of sustainability will be analysed in more detail, because it might show that there is an inconsistency between what the municipalities perceive to be sustainable, how the municipalities conduct planning and how the concept is understood formulated the Brundtland report.

Especially through the interviews it became clear how the municipalities perceive the concept of sustainability, but also through the analysis of how the municipalities conduct planning the perception of sustainability is interesting to examine.

Through the interviews it became clear that all the municipalities think of sustainability as being, above all, a balanced budget. As the planner from Aarhus expressed it: '*well, sustainability without economic sustainability, that does not exist*' (Planner from Aarhus, 2012). It might be true, but does it exist without social and especially environmental sustainability? While the economic and the social aspects of the sustainability concept are social constructions the environmental is not. Being social constructions the economic and social aspects can be reshaped, depleted, replaced and restored over short or long time periods. The inter-war period Germany is an extreme example of that (and the post-war restoring of the social aspects). The environmental aspects of sustainability cannot to the same extent be restored or replaced again (some neoliberalists agitate for a weak notion of sustainability where natural goods can be replaced with human capital, but as mentioned I will argue for a strong notion of environmental sustainability). While the restoration of straightened streams (e.g. Skjern Å), is examples of how nature can be restored the loss of biodiversity or extinction species from either flora or fauna are examples of how the damage done can be very difficult to rectify if even possible. Some of these irreversible degradations can be vital for the human race to survive (lack of rainfall causing draught) while the degradation of others can limit living conditions (rising water levels).

The reason why the municipalities have a strong focus on the economic aspects could be because they are more tangible and have short-term local consequences. The budget is renegotiated annually and has direct consequences for the municipality if it does not balance, thus it has a very high priority amongst the

politicians and thereby also the planners (the budget does also have long-term effects, but the economic consequences can somewhat easily be taken into consideration). The fact that the politicians are elected for a four year term might also have an effect, because they might focus on projects that are short-term and can secure them another term in office. The two other aspects of sustainability do not have a budget, which has to balance every year, but have more abstract and long term consequences. These aspects are therefore easily left out in the considerations and the need for a superior authority to regulate these aspects might be necessary, which has already been discussed. The growth imperative does no doubt also have an effect on this, because for the municipality it is vital to attract new investments (business as well as new inhabitants), which would otherwise move to other municipalities and make them thrive. When comparing the municipalities of Aarhus and Langeland it becomes clear that growth and investments are important for the municipality to stay afloat.

Another point of the municipalities' perception of sustainability, to be highlighted here, is how the municipalities seemed to focus on technical solutions for limiting the effect of spacial planning on the environment. The municipality of Aarhus seemed to be the only municipality with a focus on other than just technological solutions to the environmental problem. Their densification plan is a more holistic solution because it takes care of a variety of aspects concerning the environmental impact of a city's development, as described earlier (though the municipal plan argued to promote higher densities the conducted urban planning mostly depends on greenfield developments). But similar to the other municipalities the planner from Aarhus seemed to rely on technical solutions for limiting the individual persons impact on environment through their daily life. These technical solutions were mostly related to the dwelling itself (e.g. low-energy houses). Even though the planner on a personal level believes the consumption, which the society is built around, is not healthy in the long run for the planet, he does not believe the municipalities have a responsibility in changing people's behaviour or the way society works – that is a job for a superior authority.

All in all it seems the municipalities have a notion of sustainability as being economic sustainability above all, which gives the municipalities a narrow focus that excludes consideration for the surrounding society by large. In addition the municipalities seem to rely on technical solutions to a high extent rather than trying to change the behaviour of the population. After this short analysis of the municipalities' perception of sustainability it could be beneficial to compare with the most commonly used definition of a sustainable development, as it is described

in the report from the United Nations' World Commission on Environment and Development (often referred to as the Brundtland report).

The most used phrase to define sustainable development (which is also used by the municipalities) is probably the first part of paragraph one in chapter two of the report of World Commissions on Environment and Development (Brundtland Commission): Our Common Future: '*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.´* (World Commission on Environment and Development, 1987:Chapter 2, point 1). To this two key concepts are linked: ' (1) *the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and (2) the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs*.' (World Commission on Environment and Development, 1987:Chapter 2, point 1). On needs the Brundtland commission underline that perceived needs (needs above absolute basic needs) are socially and culturally determined, and that the requirements of a sustainable development therefore must include a promotion of consumption levels that are within the limits of the ecologically possible. On the state of technology the commission highlight that the carrying capacity of the resource base can be enhanced by accumulation of knowledge and development of technology, but that there exists limits, which is why, in good time, the technological effort should be reoriented. Apart from the main definition the Brundtland Commission emphasizes the importance of economic growth, not only in developing countries but also in the developed countries, as a strategic measure to ensure a sustainable development. In such, the definition of sustainable development also includes the mentioning of a social, an environmental and an economic aspect.

By this definition the Brundtland Commission can be identified with the same ideas, which the first definition of the theory of ecological modernisation subscribes to. The early definitions of Ecological Modernisation Theory focuses on the role of technological innovation in industrial production, critique of the (bureaucratic) state, a favourable attitude towards the market (viewing capitalism as a contributor for expanding ecological limits (Mol and Spaargaren, 2000)), orientation at the nation-state level and a system-theoretical perspective with a underdeveloped idea of human agency (Mol, 2000). The original ideas sprung from the critiques of the modern society, which can be found in the ideas of demodernisation and deindustrialisation. While these ideas focus on the modern society and the use of technology as the origin of environmental deterioration the ecological modernisation theorists argue that this is where the solution lies, though a

reorganisation of institutions and technology might be needed (Mol and Spaargaren, 2000).

> *"In all of the literature on the subject, ecological modernisation operates by identifying certain institutional, political, economic and ideological actors and processes, which are deemed both possible and desirable, from others which are (by corollary) deemed impossible/radical and undesirable. A key aspect of distinguishing possible from impossible options and courses of action in terms of the environment, from the point of view of ecological modernisation is the economic feasibility of any environmental option (policy, technological or political innovation). Economic feasibility here is strictly understood in terms of continued orthodox economic growth, profitability and international competitiveness."* (Barry & Paterson, 2003:3)

As such the idea of ecological modernisation (as well as the idea of a sustainable development) emphasise a decoupling of the environmental impact from economic growth through change in social institutions and technological innovations. Though this early definition of the Ecological Modernisation Theory might be out-dated and replaced with a more nuanced definition it still serves as a good departure for explaining the ideas of the Brundtland Commissions definition of a sustainable development, as well as a frame for analysing the political definition of sustainable development. If an urban development should be considered to follow the ideas of ecological modernisation and a sustainable development, it would therefore entail a continued growth of the building stock while using less energy and resources as well as emitting less greenhouse gases.

Comparing these ideas to the municipalities' perception of sustainability it becomes evident that similarities exists. All perceptions have the understanding that economic prosperity needs to be present to ensure considerations towards environmental problems. Also the emphasis on the state of the technology as a limit for expansion and thereby technological innovation as a means for expanding the limited natural resources is a common feature of the perceptions. The municipalities might not express this directly but when examining the development path of the municipalities, it becomes clear that technological solutions are widely used in projects with sustainability touches. Though the municipality of Aarhus has a more holistic approach to the sustainability issue than the rest of the case municipalities the planner still emphasises the use of technology rather than a restructuring of society. One thing is to express these intentions through planning documents and interviews and another thing is what is actually carried out through practical planning. Through the following it will be argued that the Danish planning system

has not adopted the ideas of ecological modernisation or sustainable development to an extent that can justify using the terms.

Næss (2009) argues that the Danish planning system (especially through the reign of the right wing government (Venstre, Konservative) from 2001), have undergone a change influenced by the ideas expressed through neoliberalism. This process will briefly be presented here and should be seen in relation to the four phases of housing policy and physical development described in section 6.1. At first a legitimation of an incremental planning approach, meant that the planning process became characterised by ad-hoc decisions rather than being long-term goal based. In addition the planning process also became influenced by the ideas of collaborative planning, which again further removed planning from being goal based towards being focused on the process (Næss, 2009). As a result the practical planning changed from being a product of 'government' to becoming more characterised by 'governance'. Government being a top-down planning process following long-term goals set by the planners and politicians and governance being collaboration between stakeholders (politicians, companies, locals, etc.) for individual projects, where the planner assume a role of a mediator rather than a planner. At the same time the policy documents have had increasing focus on economic growth and the competition between the municipalities. A decentralisation of the planning authority through the legislation has given the municipalities more responsibility and loosened the top-down determination of land use and consideration to the environment. This has led urban planning to follow a business-as-usual approach where urban sprawl by developments of new areas for single-family houses and a reliance on the car for transport are predominant. This is also what has become evident through the analysis of the planning conducted in the four case municipalities, where only the municipality of Aarhus to some extent has altered its urban development (though not much). To compare this development with one that might be characterised as following the idea of ecological modernisation the urban development in Norway the last 20 years can be a relevant case, especially the capital of Oslo where market forces seem to have pulled in the direction of densification (Næss, 2009; Næss, Næss, and Strand, 2011a). In Oslo a process of densification has taken place and the continuous region of Oslo as well as the municipality of Oslo itself have managed to increase its number of residents per hectare of urbanised land while experiencing growth in GDP (Næss et al., 2009).

So, what is described here, about the development of Danish planning, is that through deregulation a further strengthening of liberal ideas and market forces have

occurred. Although, as Næss (2009) argues, the policy formulations for a promotion of a sustainable development also have turned in the direction of promoting growth and competition rather than promoting sustainability, the municipal documents still formulate aims of reducing the environmental impacts, thus there must still be a general desire towards this aim. What has also been shown in the former is that this desire towards growth as a prerequisite for a sustainable development is founded in a cross-national policy formulation (Brundtland report), local policy formulations (municipal strategies) as well as from a theoretical standpoint (Ecological Modernisation Theory). In the following it will be argued that these two goals might not be possible to achieve simultaneously and that the idea of sustainable development (as formulated in the Brundtland report) might be an oxymoron, because continuous growth most likely cannot be combined with environmental sustainability.

7.4 Sustainable development?

Closely related to the ideas of ecological modernisation the Environmental Kuznets Curve can be used to illustrate the main theory behind growth being a measure of achieving environmental sustainability.

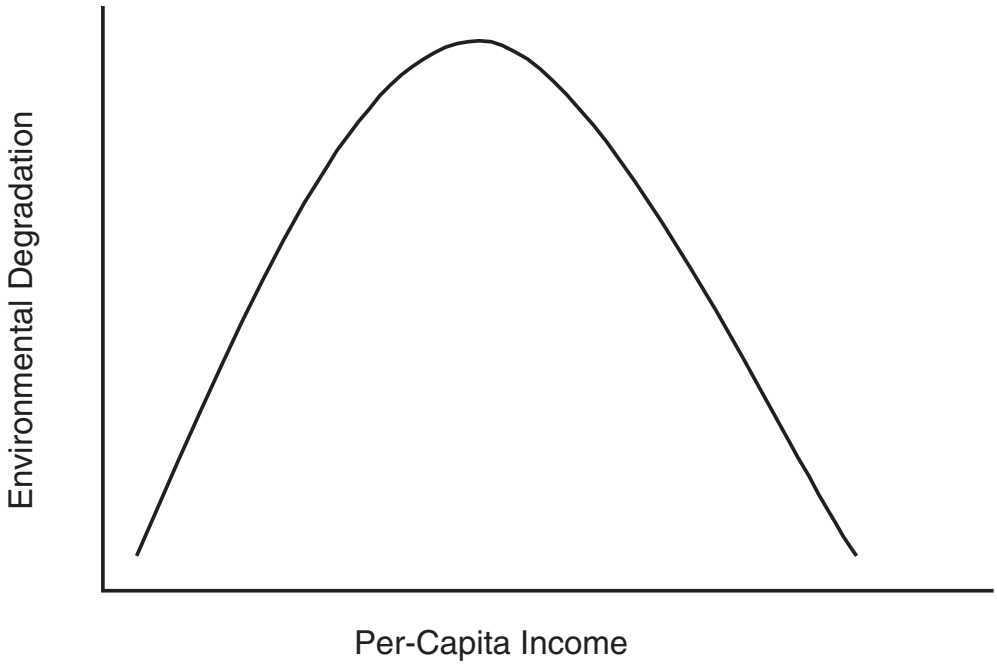

Figure 7.3 The Environmental Kuznets Curve. (Hayward, 2005).

Figure 7.3 shows the theory about how countries with a high per-capita income will start decreasing the environmental impact after a period of increasing impact. The Brundtland commission also emphasises how developing countries should be allowed to increase their environmental impact until they are financially capable of reducing their impact on the environment. As such the Brundtland commission argues that the developed countries should start decoupling their environmental impact from growth. However, the theory behind the Environmental Kuznets Curve is highly theoretical and has not yet empirically been verified.

A decoupling within urban development could come in the form of a densification of the urban built environment. And a densification does not have to be at odds with the pursuit of economic growth. According to the central place theory (originated by Walter Christaller) retails tends to attract more customers the bigger they get or as multiple retails cluster. The theory is that the greater the opportunities for the consumers the greater the attraction is (Brown, 1995). With this theory in mind it could be argued that while there is an ever greater pressure to be effective for both public and private companies and institutions there might be a need to be located where the best opportunities for customers and workforce are, which is in the larger cities. Empirically Carvero (2001) showed that '*All else being equal, bigger areas with large laboursheds, good accessibility between jobs and housing, and well-functioning transport systems appear to enjoy some economic advantages*' (Cervero, 2001:1668), which is something that large and dense cities provide. The emergence of the car has, however, made it possible to spread out the city and expand catchment areas for most facilities. This has resulted in the construction of large-scale infrastructure such as bypasses, orbital roads and motorways, but as Cervero (2001) argues, such roads in regions with economic growth tend to get congested, which is counter-effective for growth, which only is enforced by the inertia of expanding these roads. In addition it could be argued (as will be in the following) that such large constructions take up large amounts of capital, which could be used on promoting growth by other means than infrastructure, if efforts were put on a dense city increasing proximity rather than mobility. Densification could therefore be argued not to be at odds with the growth paradigm.

The effectiveness of living densely is also showing in the general development of where people settle in Denmark. As the case studies showed, people seem to move from the outer regions towards the central areas and there is an ongoing discussion about how to secure the local societies that now fear total closure. This tendency can be argued to emerge from the capitalist structure of society as well as increased mobility.

However, there are limits to a densification strategy to secure environmental sustainability, if growth in the built environment is to continue. Areas within the city not yet occupied will at some point be used up, which means that continued growth in the building stock will at some point entail greenfield development. Densification of the urban built environment could as well compromise some of the social aspects of the city. Green areas (i.e. parks) within the city limit could be reduced as densities rise and stacking people ever higher will also have its limits. The idea of full decoupling of environmental impacts from growth in the building stock has, as well, yet to be proven empirically. Xue (2011) has showed through an empirical study of the Hangzhou region, China, that although political goals were formulated towards a decoupling of environmental impacts from growth this has not happened and that a coupling was most likely to be the case in the future (Xue, 2011). She also examined the Copenhagen metropolitan area with very similar results (Xue, 2012).

The idea of decoupling through technological innovations (which is a main argument of the idea of sustainable development) can also be argued against from a theoretical standpoint using the IPAT equation mentioned in the theory chapter. To briefly sum up, the equation is an expression of how the impact on the environment (I) can be expressed by a function of the population (P), affluence (A), measured in consumption or production per capita and technology (T), which refers to the level of technological efficiency at which the commodities are made (Commoner, 1971). As the world population has just exceeded seven billion and is expected to reach ten billion in 2100 (United Nations, 2011) and the politicians strive towards economic growth the only factor that can decrease the environmental impact is improvements within the technology by which we produce our consumer goods as well as the socio-technical institutions. The limits of technological innovations as the path towards decreasing environmental impacts from growth can be illustrated by the ideas of a 'factor 4 reduction' (as some argue to be a solution). A factor 4 reduction is a doubling of wealth while halving the use of resources. With a growth rate in GDP of 3 % (the growth rate which industrial countries should attain on the medium-term is 3-4%, according to the Brundtland commission) a doubling of wealth would be reached within twenty-four years, which also means that the consumption of resources should be reduced by a factor 4 within these years as well (thus halving the consumption of resources which is used today). This might be possible within the first hundred years, but as this kind of development is exponential it soon becomes evident that the development cannot continue. After three hundred and fifty years the GDP will be thirty thousand times higher. This shows the absurdity of such a development path, as it seems impossible to continue to reduce resource consumption that much (with a factor of more than sixty thousand or that the use of

resources should be thirty thousand times lower than what it is today). Even if the use of resources should be kept constant, meaning a high degree of substitution as the natural resources deplete, it seems unlikely this will be a sustainable path. It is therefore highly likely that the natural environment will suffer damage if the economic growth should continue with a 3% annual rate. It could, in addition, be argued that by improving technology the price for either production or use is reduced and that this reduction might result in increased consumption of other goods, thereby the improvement in technology has not resulted in any reduction of the environmental impact.

It therefore seems another development trajectory should be considered rather than following the idea of a sustainable development, in the sense where it entails growth.

7.5 Other influences on planning

It is highly possible that what has been discussed in the previous (the relation between the municipalities) is not the only factor inducing municipalities to conduct an unsustainable planning. It is therefore time to examine other potential structures that could influence the planning conducted by the municipalities. Since the municipalities argue they plan in accordance with what people prefer this discussion will also relate to how people form their preferences.

This discussion will not be an exhausting list of structures affecting the individual preferences and choice, but a discussion, which lies in continuation of the described theory (which also the previous did) as well as the reviewed studies.

Here I will argue that the idea of the democratic welfare state combines a variety of structures, which affect people's preference towards the dwelling. The welfare state is a state that through a policy of redistribution of wealth, seeks, among other, to secure health, provide security and ensure a certain level economic standards for all (Den store danske, 2012).

Although many of the discussed structures can occur in other societal configurations I believe a point of departure in the welfare state can be used to describe many of the structures in a combining manner. As has also been discussed there exists a notion of 'the good dwelling' as a consequence of the welfare state. The following will point at some of the structures, which affect the notion of the good dwelling.

7.5.1 The welfare state

First, the idea of a welfare state is also to secure peoples individual right to choose what they want with their lives (or at least it has become) and therefore also the right to choose within the dwelling sector. While there used to be a philosophy/idea of how good dwellings are provided to the broad population there seems to be a preference among planners today to let the market decide. That the planners relied, not on a dwelling ideal, but on the market to accommodate the preferences of the population was also what was concluded from the interviews. Not one of the planners wanted to 'decide' on the behalf of the population, which dwellings they could choose from, this they said was not up to the planners, they should provide whatever the market demanded, which was not at odds with the overall planning direction. As such this can be argued to be a result of the idea about the 'the good dwelling'. As already described the good dwelling is related to providing the opportunity for all to choose which dwelling they prefer. The idea of someone choosing your behaviour on your behalf seems very distant from (in this case) the politicians, planners and the population. This discussion lies in continuation with what was discussed about the principal-agent relationship, this time it is the politicians and the individual citizens that acts as principals and agents, respectively. Though the idea might seem distant for at least the planners it is often discussed in relation to other aspects of society, whether the politicians should rule over the population. The general health of the population is often discussed and shifting governments have different agendas to evoke a healthier population. Age limits on sale of cigarettes and alcohol, as well as prohibition from smoking in public buildings. Tax on unhealthy foods. But also other areas are covered by a guiding hand from the state. Speed limits. Tax on disposal of water. Tax in general. Laws to evoke proper social behaviour (physical and mental violence). Regular payments to the Danish Broadcasting Corporation. And many more. These regulations all impose some restrictions on the individual, but are considered reasonable (by most), because they seek to secure a well-functioning society. The fact that a political party (Liberal Alliance) in parliament has deregulation as one of their prime objectives show that it is something which is debated continuously.

Arguing that the local government all seek to accommodate what people prefer and not try to regulate which dwellings people settle in, is not correct. Already now there are quite strict limitations on which dwellings people settle in and where they settle. The local plans provide the planners with the ability to regulate on a variety of aspects about the dwelling and the area included in the plan and in combination with the building regulations this can set up strict frames for what people can choose and what they cannot. In addition there are a variety of restrictions on land

use. Among others, the coast and forest buffer zone, as well as the before-mentioned protection of ground water catchment areas. These restrictions seek to protect and limit the annexation of natural areas and thereby impose a restriction for urban expansion. So where is the conflict? If the authorities already to a high extent regulate which dwellings people settle in and where they settle, why not impose more strict regulations? This can be related to the frameworks by Naustadalslid (1992) and Arler (2006), discussed earlier, about where to place the origin and allocation of environmental problems. Local problems are easy to relate to for the public as well as for the politicians, if you want drinkable water in the future we should not build a waste dump on top of the catchment areas. When the problems are allocated globally it becomes more blurred to relate to and more difficult for the planners and politicians to convince the public about the necessity of stronger regulations. This leads back to the discussion of the democratic welfare state, because it could be discussed whether the public should be included in this discussion or the planners should just provide the necessary planning to ensure an environmentally sustainable urban planning. As the planner from Aarhus argues people might be willing to accept arguments when told, but when it comes to concrete changes in their own daily life they might be more reluctant to accept the arguments.

> *"[...] when I am out having a lecture about these things we are talking about, then people say okay, then they better understand [...], then they think it's interesting and then they are glad to be a part of it and when they get home and there is some kind of a problem that screams over the hedge, then they get angry again, but there, when we sit in the local hall and talk about how the city should develop, then they do understand it" (Planner from Aarhus, 2012).*

The NIMBY phenomena might become very present in these discussions; people seem to favour initiatives that support an environmentally sustainable development, as long it does not affect them. This is also why the planner from Aarhus argues that solutions to a more sustainable urban development, mostly in relation to the daily doings related to the dwelling itself, should not affect people's routines. He advocates for technological solutions rather than trying to change people's behaviour.

This discussion thereby becomes concentrated about how we interpret the welfare state – should it be liberal (as it is now) or should it be more regulating. If the urban development is to become sustainable there seems to be a great need for politicians as well as planners to regulate more in favour of the compact city. This is especially clear because people's preferences seem to favour an even more low-density

development. In the following structures that might influence people to prefer the single-family house will be discussed.

7.5.2 Tax and hidden subsidies

Harvey (2010) argues that the urbanisation, which occurred after the Second World War (in the United States) helped absorb the large amounts of surplus capital that was generated during the huge mobilisation of the work force for the war effort. This did not just help absorb surplus capital but changed the lifestyle of the west:

> *"The suburbanisation of the United States was not merely a matter of new infrastructures. As happened in Second Empire Paris, it entailed a radical transformation in lifestyles, a new way of life based on the highway and the automobile. It relied upon the production and marketing of new products, from suburban tract housing and shopping malls to refrigerators, air-conditioners, TVs and telephones. It meant two cars in the driveway and a boom in the rubber, oil and steel industries. Even the demand for lawn mowers surged! After all, those suburban lawns had to be kept neat. Suburbanisation (alongside militarisation) thus played a critical role in helping to absorb the surpluses of both capital and labour in the post-war years in the United States. The spread of similar tastes and technologies – the automobile culture, in particular – helped spread these processes globally."* (Harvey, 2010:170).

As this quote shows individuals are an important part for letting capital flow. Consumption of goods lets the capitalist make profit, therefore it is important that society also entails a consumerism, which is also related to what Easterlin (1973) argues about the upward shift in needs. This also makes it evident that there is a need for, on an individual level, to accumulate capital. Here the housing sector has played an important role. Historically investments in dwellings have been a secure investment and with prices rising steadily it has not been difficult to obtain loan to by a house. The following will show that the state plays a role in easing this flow of money in relation to the housing sector.

A part of the welfare state is to collect taxes and redistribute societal goods fairly among the population so no matter which situation you are in you are entitled to help, if needed. However, some researchers argue that suburban single-family house occupiers receive both tax benefits and hidden subsidies compared to the central city apartment building occupiers.

> *"Since 1980 owner-occupied housing has amounted to about 50-52% of the housing stock. Housing investments receive an indirect subsidy through the tax*

system, because imputed rent from equity invested in the house is taxed at a lower effective rate than the rate at which private market rents are taxed. Specifically, interest payments are deducted from capital income to arrive at the taxable income, to which a tax rate of about 33% is applied, whereas the property tax on a typical owner-occupied house is only about 15%." (Vestergaard 2006:5).

By these tax-structures it becomes economically favourable over a period of 30 years to own your dwelling instead of renting it (Socialministeriet, 2006).

The substituted payment of one's loan can in addition be regarded as payments to ones savings as well as the increase in the value of the dwelling can (as long the inflation does not rise above the increase in the value of the house it is considered a real increase in value) (Socialministeriet, 2006). The more expensive the house is the more rents it is possible to deduct from your income, and the more you save in the end. This means high-income groups gets the larges share of subsidies in this regard (Det Økonomiske Råd, 2001). In comparison tenants does not have both the benefits of getting their interests payments deducted from their capital income and the benefits of putting money aside as savings every month (these are disbursed to the proprietor's savings).

When comparing this with the ownership situation shown in Table 7.1, it becomes evident that the dwelling type, which receives the most benefits, is the single-family house. The table shows that the dwelling type, which has the larges share of owner-occupiers is clearly the single-family house with 90.1% where terraced and apartment dwellings are, respectively, occupied by the owner by 34.3% and 12.1%. A reason for this could partly be the demographic composition within owner-occupiers. The majority of younger people live in apartment dwellings and are less likely to afford an owner-occupied dwelling, while people of a certain age are more likely to have a job and can therefore afford it. The fact that most apartments are offered as rentals, which is not the case for single-family houses must though be considered as the best explanation.

Table 7.1 Ownership of the entire country divided on dwelling types in 2011 (Statistikbanken, 2012).

	Single-family house	% of total	Terraced dwelling	% of total	Apartment dwelling	% of total
Occupied by owner	1,036,564	90.1	128,101	34.3	118,780	12.1
Occupied by tenant	101,865	8.9	231,642	62.1	803,553	82.1
Not specified	12,067	1.0	13,189	3.5	56,704	5.8
Total	1,150,496	100	372,932	100	979,037	100

Also the tax-freeze policy (skattestop) imposed by the right wing government have resulted in a limit for increase in taxable value of the dwelling (the limit is the taxable value which the dwelling had in 2002, the tax can get below this point but not increase above it (Finansministeriet et al., 2002)). The tax-freeze policy has been favourable for the owner-occupiers, because of the relatively large increase in dwelling prises in the last decade before the financial crises (which some argue was started by a housing bobble that was formed by new lending opportunities (Harvey, 2010), and in Denmark also to some extent the tax-freeze policy (Dam et al., 2011)).

In addition to these tax driven subsidies, the suburban single-family houses have also received another form of subsidies. The infrastructure costs (sewage, roads, pavements, light, maintenance etc.) are mainly paid by the local governments and thereby by the taxpayers in general. When detached single-family houses take up more space they also require more infrastructure to be constructed compared to a centrally located apartment dwelling. It is not only the nearby infrastructure, which can be argued to be a product of the suburban developments. Also larger infrastructure projects and especially large road constructions could be argued to be a result of the suburban living (which in most cases requires the use of a car for mobility, because public transport becomes too expensive to operate in the thinly populated suburbs). Thereby it could be argued that also through distribution of infrastructure the suburban dwellers receive more from the local governments as well as the state, than the central city dwellers does.

In relation to the growth imperative the individual, who wants to use the dwelling as an investment, will have difficulties overseeing the benefits of having an owner-occupied house in the form of a single-family house. While the liberal-welfare state might have a philosophy that people should be able to choose their dwelling freely (within the given planning frame), there are different more or less hidden economic benefits by choosing a single-family house. And while there are benefits by choosing

a single-family house it might not be fair, even from a liberal standpoint, because liberalists philosophy is also that one of the preconditions of a free market is that all costs should be included in the price of what is sold. In the following it will be argued that this is not the case with suburban single-family houses.

7.5.3 Externalities

The suburban dwellers might have a dream about a certain life in green surroundings with a quiet and clean atmosphere, which could be a part of the reason for the high preference towards this dwelling type as well as the high number of occupiers (this was also indicated through the conclusions of the Danish survey 'Befolkningens boligønsker'). Because of ample land resources the per square meter price for land in the suburbs are in general most likely to be lower compared to that of the per square meter in the city centre (Dam et al., 2011). This is also why the size of dwellings in general is larger in the suburbs. But as argued earlier the detached suburban single-family house and the lifestyle, which it requires, is by many researchers associated with unsustainable levels of consumption of resources as well as emission of greenhouse gases. At some point someone will have to pay for this behaviour by either sacrificing the use of vital resources, economically contributing to adaptation measures or paying the bill for cleaning up. This is again related to Figure 7.1 and Figure 7.2 where it is uncertain who will be allocated the consequences and thereby who will have to pay and therefore the cost for the environmental impact has not been included in the price for land use as well as for use of resources. Local consequences such as loss of arable land, should by the market be included in the price for land or at be least corrected by the planners, but it might still be difficult to fully comprehend (loss in biodiversity even more difficult). The externalities, here environmental consequences, are not a part of the price – not for land consumption, construction and running costs of the dwelling (some are though included through levies, e.g. levies on consumption of tap water).

In addition it could be argued that while trying to escape from the noise and pollution in the inner city the suburban dwellers are a large contributor to noise and pollution in the inner city. This they are because they have, or are at least strongly encouraged by the urban structural conditions, to use private motorised vehicles to get to work and leisure in the inner city. So while getting all the benefits of the suburban lifestyle with green surroundings and a quiet and clean atmosphere the suburban dwellers create environmental (and social) consequences for the inner city population as well as on a global scale, without having to pay for it.

7.6 Short summary

Through this chapter discussions about the how the case municipalities' planning relate to knowledge about environmentally sustainable urban planning and which structures that seem to influence the conducted planning have been put forth. It was concluded that the municipalities in general do not plan in accordance with knowledge about an environmentally sustainable urban development though it seems all municipalities have formulated policies that advocate an environmentally sustainable development. Reasons for not planning in compliance with environmentally sustainability have been explored and several structures have been pointed at as explanations. These are; the competitive relation between the municipalities, the municipalities interpretation of the notion sustainability and the welfare state, which provide a dwelling ideal that support the right to choose and different subsidies in support of the single-family house. In the midst of it all it has been argued that the general focus on growth and competitiveness cannot comply with the ideas of an environmentally friendly urban development.

8 Conclusions and reflections

Before going on to discuss an alternative trajectory for urban planning there will be a summation of the main conclusions drawn throughout this report. The main objective will be to draw conclusions on the research questions posed in the beginning and which have been sough answered throughout this report.

8.1 Conclusion

At first a theoretical frame of understanding was formed with an understanding of needs and preferences as being two different, but related concepts. It was especially noticed that the perception of needs are culturally dependent and in a capitalist society the perception of needs seem to shift upwards in terms of wealth. Different aspects of needs were discussed and an understanding that needs can both be individual and collective, together with an understanding of how different structures affect individuals, as well as the individuals can change the structures, it formed the basis for discussing relevant societal needs.

The method used to answer the research questions were a comparative case study where four different municipalities served to examine the development in people's preferences as well as how the municipalities conduct planning. The first sub-research question was:

- Which preferences do different lifecycle groups have in relation to the dwelling and what are the methodological implications of gaining such knowledge?

To answer this question two methodologically different studies that examine people's preferences have been critically reviewed. The two studies were a national Danish study called 'Befolkningens boligønsker' from 2009 and a Norwegian study concerning the capital region of Oslo called 'Bokvalitet i by' from 2007. It was concluded that both studies have pros and cons related to using the results. The Danish study was considered too kind to the respondents, letting them answer without consequences (which not represent a real house choosing situation) and the Norwegian study relied on the market to show people's preferences in relation to the dwelling, which also has its flaws. The main critique for using the results from the Norwegian study, however, was that the results were too difficult to transfer to this study for use in the extrapolation of people's future preferences. The Danish study provided tangible results and were therefore used.

The Danish study showed that people preferred the single-family house the most, then the terraced dwellings and the least preferred dwelling were the apartment

dwelling. Locations for the dwelling most preferred were in suburbs or small and medium towns, which also relates to the most preferred dwelling type. The results also showed that different lifecycle groups have different prefernces. Some inconsistencies in the results were found, which should lead to critical reflections on the use of the results. The review of the Norwegian study showed some alternative conclusions in relation to people's preferences regarding dwellings. These results showed that people tend to prefer the city centre and the dwellings related to that area for different reasons. The next sub-research question was:

- What is the demographic development over time for a number of different Danish municipalities and how will this affect the general picture of the populations' preference towards dwelling types?

The four case municipalities all underwent the same level of analysis, and it showed some similarities as well as some differences. At first the preference towards the different dwelling types were analysed and it showed that the most preferred dwelling type in all municipalities was the single-family house (even though residents in the municipality of Aarhus mostly resided in apartment dwellings). In general the demographic development seemed to be that the population of elderly people grew in all municipalities, while most of the other lifecycle groups stayed constant or declined. Only the municipality of Aarhus also had an increase in the population of young people. In general this resulted in a slight change in preferences, where the single-family house seemed to decrease slightly in popularity for the municipalities of Sorø, Viborg and Langeland, but still more seemed to prefer the single-family house in the future than those who actually resides in those. In Aarhus the single-family house seemed to increase its popularity, which can be ascribed to the lower increase in the older parts of the population as well as the increase in young people.

- How do the case municipalities conduct planning for residential development and how does this relate to people's dwelling preferences?

As the extrapolation of the future dwelling preferences showed the municipalities stand before different developments in population and demographic change, which is why they also stand before different challenges regarding planning, though some similarities occurs. The municipality of Aarhus' planning is the most different from the other municipalities because they can rely on a somewhat steady influx of inhabitants, while the other municipalities to a higher extent has to struggle to attract new inhabitants, the situation in the municipality of Langeland being the worst as they have an decreasing population. The struggle to attract new inhabitants have lead the municipalities to provide wide planning frames so that the market more or less decides which dwellings gets constructed. In the municipality of Aarhus

the situation is slightly different because they have an outer pressure from limited land resources that is part of the reason why they plan for higher densities than the other municipalities. All municipalities mostly rely on greenfield developments for new dwellings, but also old industrial areas in the central parts of the settlements are being renewed. Through the Agenda 21 regulations the municipalities have to formulate aims towards a environmentally friendly urban development, which all have done and in addition the municipalities (besides that of Langeland) have voluntarily formulated individual climate strategies. Through interviews it was learned that the Agenda 21 regulations did not have much interest in politics as well as in planning and as such did not have great consequence for planning. The municipalities mostly seemed to rely on technological solutions for reducing impacts on the climate stemming from urban development. An interesting conclusion drawn from the interviews was that some of the reason for not planning more environmentally friendly was the fear of loosing new inhabitants.

- How does the municipalities' conducted planning comply with knowledge about an environmentally sustainable planning, and what barriers exist for the municipalities to conduct such a planning?

A short review of knowledge about an environmentally friendly urban built environment showed that the compact city is generally considered to be most preferred in this regard. Comparing this with the municipalities' conducted planning it seemed that their planning did not comply with the ideas of a compact city, in fact in all municipalities there was a reliance on greenfield development for new constructions. So while there does not seem to be a conflict between the municipalities planning for 'the good dwelling' and the populations' preferences the municipalities planning seems to be at odds with their own formulations in relation to a sustainable development as well as knowledge about the environmentally friendly urban settlement. Different barriers were discussed as influences on why this might be.

The competitive relation between the municipalities as well as the nature of the environmental impacts from the urban environment was argued to be possible barriers and it is suggested that higher authorities should regulate this problem, because it otherwise could result in prisoner's dilemma situations.

Another barrier discussed was the municipalities' perception of sustainability, which mostly related to economic sustainability. It was argued that the municipalities perception of sustainability were related to the perception put forward by the Brundtland commission and the Ecological Modernisation Theory, but it was also argued that the municipalities planning was highly influenced by the

ideas of neoliberalism, which promotes further competition and a weakening of the sustainability notion.

Structures related to the welfare state were also argued to be of influence in relation to why the municipalities do not conduct environmentally friendly planning. The idea of the right of the individual to choose by them selves seemed to be present throughout the interviews and as most people seem to prefer the single-family house this becomes a barrier. However, the idea of freely choosing does not seem to be made entirely possible through the tax system, where different subsidies are given to owner-occupiers which especially the single-family house occupiers are. Also different external negative consequences of owning a single-family house in the suburbs are not included in the price and as such also benefits the occupiers of such dwellings.

The main research question can then be answered with a foundation in the sub-research questions.

How will the demographic development of lifecycle groups effect the general composition of people's preferences and how does this development comply with the municipalities' planning as well as with an environmentally friendly urban planning?

The demographic development of different lifecycle groups does not seem to affect the general picture of people's preferences as still more in the future is expected to prefer a single-family house than those occupying such a dwelling today. This complies very well with the municipalities planning because they to a large extent wish to plan in accordance with people's preferences in order to attract more inhabitants. This however does not seem to be in line with knowledge about the environmentally friendly urban built environment. One of the basic barriers for this seems to be the municipalities desire to be economically sustainable and thereby to grow. Through the discussion it was argued that the growth imperative does not seem to be sustainable in the long run. The following will therefore reflect upon another trajectory for society to follow. This is degrowth.

8.2 Reflections on a degrowth strategy

In addition to the concerns raised in the previous chapter it seems that the issue of sustainable planning needs to be dealt with on different levels of society. In order to understand how a change can come about. Here, the theory of transition and the multi-level perspective as presented by Geels and Schot (2007) could add insight. In the following, only a brief, overall theoretical frame for understanding will be

presented, not a deep theoretical elaboration of the concept. Transition theory deals with transitions and system change with a focus on technological transitions and it is in particular the branch of the theory that deals with a sociotechnical approach that will be applied here through the multi-level perspective. The multi-level perspective is a typology of sociotechnical pathways, which depicts transition through alignment between developments at multiple levels, reflecting variations of timing and nature of multi-level interactions (Geels and Schot, 2007). The multi-level perspective distinguishes between three conceptual levels: niche innovations, sociotechnical regimes and sociotechnical landscapes. In this report the 'technological' transition deals with urban development, which can be argued to involve a great deal of complexity, which is why applying such concepts (that has been developed to conceptualise less complex technological innovations, such as the transition from horse carriage to the car) involve a variety of challenges (Næss and Vogel, n.d.).

First, the focus will be on a change in the sociotechnical landscape where the dynamics of growth, which seems to be guiding urban development to a large extent, can be described as such a landscape. Environmental issues do not seem to be dealt with in sufficient depth through the capitalist paradigm, thus a pursuit of infinite economic growth as well as growth in the building stock might not be the desired trajectory to follow if we are to obtain environmental sustainability.

Xue, showed that a decoupling of environmental impacts from growth in the building stock is very difficult to obtain in the future even if eco-efficient location and design is applied for new housing construction and eco-friendly retrofitting measures are applied on the existing housing stock (Xue, 2012). Since the current building stock already contributes considerably to the Danish ecological footprint (International Energy Agency, 2011) it seems that another aim should be set for the future urban development. Here, degrowth should in my view be considered as a solution. Degrowth is not symmetrical to growth, it is rather a political slogan that aims at an abandonment of the pursuit of growth for the sake of growth (Latouche, 2010). Degrowth can thereby be defined as an equitable downscaling of production and consumption while increasing human wellbeing as well as enhancing ecological conditions at the local and global level, in both the short and long term (Schneider et al., 2010). It is thus a shift from the ideal of economic and material value towards an appreciation of social relations and ecological phenomenon. This does not mean that all that has been developed through the ideas of ecological modernisation should be discarded, the idea of decoupling should still be pursued since the state of the

technology in many ways is not environmentally sustainable even if a downscaling occurs.

Such a change is not a small transition of the current trajectory of urban development, but one that most likely will change most aspects of people's daily life. And to make such a change the current incremental planning approach, where powerful stakeholders through the planning process greatly influence planning to their advantage, will have to be abandoned. A more normative long-term goal-based planning should instead be incorporated. To this purpose a backcasting approach could be beneficial, because it makes it possible to set up normative long-term goals as background for a scenario and then examine backwards by which strategies and measures this scenario could be reached (Vergragt and Quist, 2011). As such the backcasting process would be to describe a desired end for urban development that includes an environmentally sustainable structure of the urban form, and then try to align the sociotechnical apparatus necessary for reaching that end. A normative goal could be to obtain sustainability of the urban built environment, including travel. As already argued, a degrowth strategy should be considered in this regard.

Degrowth applied to urban planning would in general mean a decreased use of square meters of floor area per person as well as a focus on proximity rather than mobility (Næss, 2011b). This could entail demolishing of suburban neighbourhoods as they become worn down. Use of individual modes of transport (except the bike and the like), should be limited through regulation as well as through urban structures and public transport should be promoted. The main mode of transport should though be walking. This could in line with demolishing of old dwellings in the periphery of the urban settlements entail demolishing of large infrastructure structures such as orbital and bypass roads but also motorways. In addition this would include that large shopping centres alongside major infrastructure nodes outside the city would have to close down, since car based shopping would decrease (Gunnarsson-Östling and Höjer, 2011). It might have a positive effect on central shopping districts/streets, where small specialised shops again would come to their right (though shopping in general would decrease).

One challenge that makes it difficult to conceptualise a common transition for Danish urban settlements is the context-dependent situations in which they exist. The described case municipalities will probably not all benefit from the same degrowth scenario if applied. If the ideas of degrowth were to be applied, as a sociotechnical landscape in Denmark, a movement from rural areas towards the city regions is still likely to happen (it might even be enforced). As more and more people are educated to serve as knowledge-workers less will have a purpose by

living in rural areas (but on the other hand, if agriculture were to undergo a transition to truly ecologically sustainable forms, it would probably become more labour-intensive and less energy- and chemicals-intensive (Patal, 2012)). Degrowth would also entail a downscaling of new infrastructure (or even demolishing of already existing) that would increase friction between centres and thus lead to an emphasis on proximity rather than mobility as the way to obtain accessibility to facilities. This would of course make it difficult for employees in (large) urban settlements to live too far from the job, because the commute time would be too long (it could, however, have a negative consequence if people insisted on long commute times, because emissions and energy use would increase). Therefore the ideas of degrowth might not be desirable for politicians in an outer-municipality like the one of Langeland. This poses the question of how far we should go in order to obtain environmental sustainability – should the outer regions be liquidated because contact with those areas requires too much motorised travel or can contact be kept on a level (without secluding them from society) that would be considered environmentally sustainable, or is it possible to keep contact without motorised travel? On the other hand, the municipality of Langeland does seem to have a centralisation strategy deployed, but this is to create a stronger centre, which they hope will enforce the attraction value of the main urban settlement in order to attract new taxpayers.

Another issue of implementing a degrowth strategy in Denmark is that it would go against the discourse of 'good dwellings for all' (which also should be found at the landscape level, but below the growth paradigm). As argued, the discourse seems to be that all people should be able to choose to settle where and how they prefer, and as the extrapolation showed, it does not seem that people's preferences will change significantly due to changes in the demographical composition. So while the single-family house is the most preferred by the public it is not the most preferred if environmental sustainability is to be reached. Therefore, the discourse of 'good dwellings for all' goes against a degrowth strategy. A degrowth strategy, however, does not mean all people should not have good dwellings, but it does mean that these 'good' dwellings will have to come in another form i.e. apartment dwellings. It will then be up to planners and architects to design the urban environment and dwellings so that there is 'something for every taste' within some given frames.

It is important to remember that a change on the landscape level naturally will affect the sociotechnical regimes. Therefore apart from obtaining a transition on the landscape level, the sociotechnical regimes, which have also been pointed at in the discussion chapter, should as well be altered in order to enhance the transition

towards an environmentally sustainable urban development. National planning should be enforced and should in particular be aimed at providing a common goal for municipal planning that would decrease competition between the municipalities (which enforces the discourse of 'good dwellings for all') and promote an environmentally sustainable development. A change in the tax system so that it favours high-density dwellings and social equality, would also be necessary. This however, might be difficult to obtain through the democratic system, as Øllgaard (2011) argues. Since the majority of the Danish population are owner-occupiers, political parties that run for office by arguing for increased costs for owner-occupiers are most likely not to be voted for government (Øllgaard, 2011). This is also what Vestergaard argues: '*Neither the Right to Buy nor any other housing issue was a theme in the February 2005 election campaign, when the government retained office. Housing seems to be a no-go area for political parties wanting to get into office'* (Vestergaard, 2006:10).

As mentioned before, in order to obtain an environmentally sustainable development of the urban built environment a change in one regime will not be sufficient. Næss and Vogel (n.d.) argue that to obtain a sustainable urban development is rather a matter of increasing well-experienced old solutions than developing new solutions. That is to a large extent relying on a densification, using known dwelling types i.e. apartment buildings, rather than technical innovations. Retrofitting the existing building stock is of course still important, but only in combination with densification of the urban built environment. Niche-innovations such as 'zero-energy houses' might be considered to be 'non-green' because they are most likely to promote further sprawl (if old single-family houses were retrofitted, through renovations, to 'zero-energy houses' it would be an improvement, but not as valuable improvement as a densification strategy). Niche-innovations such as 'couch surfing' and 'holiday-rentals', where travellers either sleep on a couch or rent a, at the time available, home of local residents at the destination, might decrease the need for hotels which could give away to dwellings instead, but on the other hand it might increase international travel because of reduced cost for accommodation. However, an internalisation of environmental impacts from traveling in the expenditures for traveling (for any mode), would limit travel in general. Niche-innovations should therefore be implemented with caution, while applying known solutions in a degree that accommodates the requirements of an environmentally sustainable urban development.

Such interactions between the multiple levels causing change will of course not occur over night (mainly because changes in the urban form are slow) but over a

long period, which is also why the long-term goals are important. As argued in relation to a change of the tax-system, the democratic system might be a barrier for a change to a degrowth strategy, because the thought of degrowth instead of growth is very far both from the political elite as well as for the public. However, the democratic welfare system could through education create awareness of environmental issues facing the planet and the contributors as well as the (true) solutions. Here the academia plays a central role. If people are willing to act when becoming aware of the complex reality of sustainability is another question.

Bibliography

Aarhus Kommune (2008a) *Debat om fremtiding byudvikling og det åbne land - forslag til planstrategi 2008 og Agenda 21-redegørelse (kort udgave)*. .

Aarhus Kommune (2008b) *Klimaplan 2008-2009*. .

Aarhus Kommune (2009) *Aarhus Kommuneplan - Hovedstruktur*. .

Allmendinger P (2009) *Planning Theory*. Planning, Environment, Cities.

Alonso W (1964) *Location and land use: toward a general theory of land rent*. Harvard University Press. Available at:http://www.answers.com/topic/bid-rent-theory.

Andersen HS (2009) *Har boligkrisen ændret boligpræferencerne 2008-09?* .

Arler F (2006) Ethics of large-scale change. *Danish Journal of Geography* 106(2): 131-144.

Assiter A and Noonan J (2007) Human needs - A Realist Perspective. *Journal of Critical Realism* 6(2): 173-98.

Barry J and Paterson M (2003) The British state and the environment: New Labour's ecological modernisation strategy. *International Journal of the Environment and Sustainable Development* 2(3): 237-249.

Bech-Danielsen C and Gram-Hansen K (2004) Bolig og identitet - Husets sjæl og personlig prægning. In: Beck-Danielsen C, Jensen OM, Kiib H and Marling G (eds) *Urban Lifescape - Byrum, Livsstil, Forbrug*. Aalborg Universitetsforlag, 140-187.

Brindley T, Rydin Y and Stoker G (1996) *Remaking Planning: The Politics of Urban Change*. Routledge.

Brown M and Wolfe M (2007) *Energy Efficiency in Multi-Family Housing A Profile and Analysis By*. *Energy*. Washington DC.

Brown S (1995) Christaller knew my father. *Journal of Macromarketing* 15(60): 60-72.

Buch-Hansen H and Nielsen P (2005) *Kritisk realisme*. Roskilde Universitetsforlag.

Burchell RW, Shad NA, Listokin D, et al. (1998) *The Costs of Sprawl — Revisited*. *Transportation Research*. Washington DC.

Cervero R (2001) Effcient Urbanisation: Economic Performance and the Shape of the Metropolis. 38(10): 1651-1671.

Commoner B (1971) *The Closing Circle - Nature, Man and Technology*. .

Dam NA, Hvolbøl TS, Pedersen EH, Sørensen PB and Thamsborg SH (2011) Boligboblen der bristede: Kan boligpriserne forklares? Og kan deres udsving dæmpes? *Danmarks Nationalbank Kvartalsoversigt 1. kvartal Del 1*, 47-70.

Danermark B, Ekström M, Jakobser L and Jan Ch. K (2002) *Explaining Society - Critical realism in the social sciences*. Routledge.

Den store danske (2011) *Præferencer. Gyldendal*. Available at:http://www.denstoredanske.dk/Samfund,_jura_og_politik/økonomi/Forbrug/præferencer?highlight=præferencer.

Den store danske (2012) *Velfærdsstat*. . Available at:http://www.denstoredanske.dk/Samfund,_jura_og_politik/Samfund/Moderne_demokrati_og_konstitutionelt_monarki/velfærdsstat?highlight=velfærdsstat.

Det Økonomiske Råd (2001) Kapitel III: Boligmarkedet - skævt og ineffektivt. *Dansk Økonomi Forår 2001*, 217-306.

Development consultant from Sorø (2012) Interview Sorø. .

Easterlin RA (1973) Does money buy happiness ? *The Public Interest* 30: 3-10.

Fairclough N (2005) Peripheral Vision: Discourse Analysis in Organization Studies: The Case for Critical Realism. *Organization Studies* 26(6): 915-939. Available at:http://oss.sagepub.com/cgi/doi/10.1177/0170840605054610.

Finansministeriet, Skatteministeriet and Økonomi- og Erhvervsministeriet (2002) *Skattestoppets fortolkning og implementering. Notat*. Available at:http://www.skm.dk/publikationer/notater/592.html.

Geels FW and Schot J (2007) Typology of sociotechnical transition pathways. *Research Policy* 36(3): 399-417. Available at:http://linkinghub.elsevier.com/retrieve/pii/S0048733307000248.

Goldstein IF, Hartel D, Andrews LR and Weinstein AL (1986) INDOOR AIR POLLUTION EXPOSURES OF LOW- INCOME INNER-CITY RESIDENTS. *Environmental International* 12: 211-219.

Gordon MJ and Rosenthal JS (2003) Capitalism's growth imperative. *Cambridge Journal of Economics* 27(1): 25-48. Available at:http://cje.oupjournals.org/cgi/doi/10.1093/cje/27.1.25.

Gunnarsson-Östling U and Höjer M (2011) Scenario Planning for Sustainability in Stockholm, Sweden: Environmental Justice Considerations. *International Journal of Urban and Regional Research* 35(5): 1048-67. Available at:http://doi.wiley.com/10.1111/j.1468-2427.2010.01002.x.

Guttu J (2003) Eneboligen - som ideal for folket og utfordring for fagfolket. *Tidsskrift for Kulturforskning* 3: 23-40.

Hajer M and Versteeg W (2005) A decade of discourse analysis of environmental politics: Achievements, challenges, perspectives. *Journal of Environmental Policy and Planning* 7(3): 175-184.

Hartoft-nielsen P (2001) *Arbejdspladslokalisering og Transportadfærd*. .

Harvey D (2010) *The Enigma of Capital - and the crises of capitalism*. Oxford university press.

Hayward SF (2005) The China Syndrome and the Environmental Kuznets Curve. *Environmental Policy Outlook* (December).

Høyer, K.G., Holden E (2001) Housing as basis for sustainable consumption. *International Journal of Sustainable Development* 4: 48-58.

International Energy Agency (2011) *CO2 Emissions from Fuel Combustion - Highlights*. OECD Publishing. Available at:http://www.oecd-ilibrary.org/energy/co2-emissions-from-fuel-combustion-2011_co2_fuel-2011-en.

Jespersen J (1998) *Miljøøkonomi*. Jurist- og Økonomiforlagets Forlag.

Johansson T and Miegel F (1992) *Do the right thing*. Stockholm, Sweden: Almqvist & Wiksell International.

Kauko T (2006) What makes a location attractive for the housing consumer? Preliminary findings from metropolitan Helsinki and Randstad Holland using the analytical hierarchy process. *Journal of Housing and the Built Environment* 21(2): 159-176. Available at:http://www.springerlink.com/index/10.1007/s10901-006-9040-y.

Klosterman RE (1985) Arguments For and Against Planning. *Town planning review* 56(1): 5-20.

Kristensen H (2007) *Housing in Denmark*. Centre for Housing and Welfare - Realdania Research.

Kristensen H and Andersen HS (2009) *Befolkningens boligønsker*. .

Kristensen IT, Kjeldsen C and Dalgaard T (2006) *Landdistriktskommuner - indikatorer for landdistrikt*. .

Kvale S and Brinkmann S (2009) *Interviews - Learning the Craft of Qualitative Research Interviewing*. Sage Publications.

Lane RE (2000) *The Loss of Happiness in Market Democracies*. New Haven and London: Yale University Press.

Langeland Kommune (2008) *Planstrategi*. .

Langeland Kommune (2009) Langeland Kommuneplan. .

Langeland Kommune (2010) *Lokal Agenda 21. Agenda*.

Latouche S (2010) Degrowth. *Journal of Cleaner Production* 18(6): 519-522. Available at:http://linkinghub.elsevier.com/retrieve/pii/S0959652610000417.

Lian SO (2000) Behovet for helsetjenester - naturgitt eller sosialt bestemt? *Tidsskrift for Den norske lægeforening* 120: 111-114.

Marsh R, Larsen VG and Kragh M (2010) Housing and energy in Denmark: past, present, and future challenges. *Building Research & Information* 38(1): 92-106. Available at:http://www.tandfonline.com/doi/abs/10.1080/09613210903226608.

Maslow AH (1970) *Motivation and personality*. Harper & Row Publishers.

Merbitz H, Buttstädt M, Michael S, Dott W and Schneider C (2011) GIS-based identification of spatial variables enhancing heat and poor air quality in urban areas. *Applied Geography*. Elsevier Ltd 1-13. Available at:http://linkinghub.elsevier.com/retrieve/pii/S014362281100124X.

Miljøministeriet (2009) *Planloven*. . Available at:https://www.retsinformation.dk/Forms/R0710.aspx?id=127131#K6a.

Ministeriet for Fødevarer Landbrug og Fiskeri (2006) *Mere liv på landet - Landdistriktsprogrammet 2007-2013*. .

Mol APJ (2000) The environmental movement in an era of ecological modernisation. *Geoforum* 31(1): 45-56. Available at:http://linkinghub.elsevier.com/retrieve/pii/S0016718599000433.

Mol APJ and Spaargaren G (2000) Ecological Modernisation Theory in debate: A Review. *Environmental Politics* 9(1): 17-49.

Mortimer KM, Neas LM, Dockery DW, Redline S and Tager IB (2002) The effect of air pollution on inner-city children with asthma. *European Respiratory Journal* 19(4): 699-705. Available at:http://erj.ersjournals.com/cgi/doi/10.1183/09031936.02.00247102.

Naturstyrelsen (2011) *Kommuneplanlægning*. .

Naturstyrelsen (2012) *Natura 2000*. . Available at:http://www.naturstyrelsen.dk/Naturbeskyttelse/Natura2000/.

Naustdalslid J (1992) Miljøproblema Som Styringsmessige Nivåproblem. .

Newman P and Kenworthy J (1999) *Sustainability and Cities - Overcomming Automobile Dependence*. Washington DC.: ISLAND PRESS.

Næss P (1995) Travelling Distances , Modal Split and Transportation Energy in Thirty Residential Areas in Oslo. *Journal of Environmental Planning and Management* 38(3): 349-370.

Næss P (1996) Workplace Location, Modal Split and Energy Use for Commuting Trips. *Urban Studies* 33(3): 557-580. Available at:http://usj.sagepub.com/cgi/doi/10.1080/00420989650011915.

Næss P (2001) Urban Planning and Sustainable Development. *European Planning Studies* 9(4).

Næss P (2005) *Bedre behovsanalyser; Erfaringer og anbefalinger om hehovsanalyser i store offentlige investeringsprosjekter - Concept Rapport nr. 5*. .

Næss P (2006) *Urban Structures Matter - RESIDENTIAL LOCATION, CAR DEPENDENCE AND TRAVEL BEHAVIOUR*. New York: Routledge.

Næss P (2009) Nyliberalisme i byplanlægningen. In: Lundkvist A (ed) *Dansk Nyliberalisme*. Frydenlund.

Næss P (2011a) "New urbanism" or metropolitan-level centralization ? - A comparion of the influences of metropolitian-level and neighborhood-level urban form characteristics on travel behaviour. *Journal of Transport and Land Use* 4(1): 25-44.

Næss P (2011b) Economic growth , urban development and environ- mental sustainability. In: Moccia FD (ed) *Living in the ecologic city-Abitare la Città*. Naples: CLEAN.

Næss P (2012) Urban form and travel behavior : experience from a Nordic context. *Journal of Transport and Land Use* 5: 1-34.

Næss P, Hansson L and Tennøy A ((n.d.)) Knowledge-based land use and transport planning ? Consistency and gap between state-of-the-art knowledge and knowledge claims in planning documents in three Scandinavian city regions. *Draft of paper in proggress* 1-32.

Næss P and Jensen OB (2004) Urban structure matters, even in a small town. *Journal of Environmental Planning and Management* 47(1): 35-57. Available at:http://www.tandfonline.com/doi/abs/10.1080/0964056042000189790.

Næss P, Næss T and Strand A (2009) *The challenge of sustainable mobility in urban planning and development in Oslo Metropolitan Area*. .

Næss P, Næss T and Strand A (2011a) Oslo's Farewell to Urban Sprawl. *European Planning Studies* 19(1): 113-139. Available at:http://www.tandfonline.com/doi/abs/10.1080/09654313.2011.530395.

Næss P, Næss T and Strand A (2011b) Oslo's Farewell to Urban Sprawl. *European Planning Studies* 19(1): 113-139. Available at:http://www.tandfonline.com/doi/abs/10.1080/09654313.2011.530395.

Næss P, Røe PG and Larsen SL (1995) Travelling Distances, Modal Split and Transportation Energy in Thirty Residential Areas in Oslo. *Journal of Environmental Planning and Management* 38(3): 349-370.

Næss P and Vogel N ((n.d.)) Sustainable urban development and the multi- level transition perspective. 1-19.

Patal R (2012) Fremtidens landbrug findes på Cuba. *Dagbladet Information*, 25 April, page side 15, sektion 1. Available at:http://www.information.dk/299331.

Planner from Aarhus (2012) Interview Aarhus. , Contact auther for transcription.

Planner from Langeland (2012) Interview Langeland. , Contact auther for transcription.

Planner from Sorø (2012) Interview Sorø. , Contact auther for transcription.

Planner from Viborg (2012) Interview Viborg. , Contact auther for transcription.

Ross Z, Kheirbek I, Clougherty JE, et al. (2011) Noise, air pollutants and traffic: Continuous measurement and correlation at a high-traffic location in New York city. *Environmental*

research. Elsevier 111(8): 1054-1063. Available at:http://www.ncbi.nlm.nih.gov/pubmed/21958559.

Sager T (1991) *Planleggning med samfunnsperspektiv - analysemetode*. Tapir Forlag.

Schneider F, Kallis G and Martinez-Alier J (2010) Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue. *Journal of Cleaner Production*. Elsevier Ltd 18(6): 511-518. Available at:http://linkinghub.elsevier.com/retrieve/pii/S0959652610000259.

Sjaastad M, Hansen T and Medby P (2007) *Bokvalitet i by - og etterspurte bebyggelsestyper*. .

Socialministeriet (2006) *Den almene boligsektors fremtid*. .

Sorø Kommune (2009) *Sorø Kommuneplan*. . Available at:http://soroe.dkplan.niras.dk/dkplan/.

Sorø Kommune (2011a) *Fra vision til strategi*. . Available at:http://www.soroe.dk/cms/site.aspx?p=6816.

Sorø Kommune (2011b) *DELTEMA: BOSÆTNING*. .

Sorø Kommune (2011c) *TEMA 7: AGENDA 21-STRATEGIe*. . Available at:http://www.soroe.dk/cms/site.aspx?p=6650.

Sorø Kommune (2011d) *Klimahandlingsplan 2011-2020*. .

Statistics Denmark (2011) *Statistisk Årbog*. .

Statistics Denmark (2012) *Regionale befolkningsfremskrivninger*. . Available at:http://www.dst.dk/da/Statistik/dokumentation/Varedeklarationer/regionale-befolkningsfremskrivninger.aspx.

Statistics Norway (2011) *Table: 07221: House price index, by type of building and region (2005=100)*. . Available at:http://statbank.ssb.no/statistikkbanken/Default_FR.asp?Productid=08.02&PXSid=0&nvl=true&PLanguage=1&tilside=selecttable/MenuSelP.asp&SubjectCode=08.

Statistikbanken (2011a) *BOL33: Boliger (samtlige) efter område, boligart, ejerforhold og opførelsesår (AFSLUTTET) (2007-2010)*. . Available at:http://www.statistikbanken.dk/statbank5a/default.asp?w=1280.

Statistikbanken (2011b) *FAM133N: Børn pr. 1. januar fordelt efter kommune, husstandstype, antal personer og antal børn i husstanden, køn og alder*. . Available at:http://www.statistikbanken.dk/statbank5a/default.asp?w=1280.

Statistikbanken (2011c) *FAM100N: Voksne pr. 1. januar personer fordelt efter kommune, familietype, antal personer og antal børn i familien, køn og alder*. . Available at:http://www.statistikbanken.dk/statbank5a/default.asp?w=1280.

Statistikbanken (2011d) *BOL11: Beboede boliger efter område, boligart, udlejningsforhold, opvarmning og antal værelser (AFSLUTTET) (2007-2010)*. . Available at:http://www.statistikbanken.dk/statbank5a/default.asp?w=1280.

Statistikbanken (2011e) *BOL66: Beboere efter område, boligart, boligens udlejningsforhold, alder og køn (AFSLUTTET) (2007-2010)*. . Available at:http://www.statistikbanken.dk/statbank5a/default.asp?w=1280.

Statistikbanken (2011f) *FRKM111: Befolkningsfremskrivning 2011 efter kommune, alder og køn*. . Available at:http://www.statistikbanken.dk/statbank5a/default.asp?w=1280.

Statistikbanken (2012) *BOL204: PERSONER I BOLIGER EFTER OMRÅDE, ANVENDELSE, UDLEJNINGSFORHOLD, HUSSTANDSTYPE, ANTAL BØRN, ALDER OG KØN*. . Available at:http://www.statistikbanken.dk/statbank5a/default.asp?w=1280.

Store norske leksikon (2011) *Behov-Økonomi*. . Available at:http://snl.no/behov/økonomi.

The Ramsar Convention on Wetlands (2012) *Final Act of the International Conference on the Conservation of Wetlands and Waterfowl*. . Available at:http://www.ramsar.org/cda/en/ramsar-documents-cops-1971/main/ramsar/1-31-58-136_4000_0__.

United Nations (2011) World Population to reach 10 billion by 2100 if Fertility in all Countries Converges to Replacement Level. *Population (English Edition)*. United Nations - Press release.

Vergragt PJ and Quist J (2011) Backcasting for sustainability: Introduction to the special issue. *Technological Forecasting and Social Change*. Elsevier Inc. 78(5): 747-755. Available at:http://linkinghub.elsevier.com/retrieve/pii/S004016251100062X.

Vestergaard H (2006) SINGLE-FAMILY DETACHED HOUSING : A BRANCH OF PARADISE OR A PROBLEM ? In: Doling J and Elsinga E (eds) *Home ownership. Getting in, getting from, getting out. Part ll*. Housing and Urban Policy Studies, Delft University Press, 1-17.

Viborg Kommune (2008a) *Bosætningsanalysen*. , 1-19.

Viborg Kommune (2008b) *Befolkningsprognose 2008 - 2023*. .

Viborg Kommune (2009a) *Politik for boligområdet*. .

Viborg Kommune (2009b) *Klimastrategi*. .

Viborg Kommune (2009c) Viborg Kommuneplan - Hovedstruktur. .

Viborg Kommune (2011) *Udviklingsstrategi 2011*. .

World Commission on Environment and Development (1987) *Report of the World Commission on Environment and Development : Our Common Future*. .

Xue J (2011) DECOUPLING HOUSING-RELATED ENVIRONMENTAL IMPACTS FROM ECONOMIC GROWTH : THE HANGZHOU. *5th International Conference of the International Forum of Urbanism*.

Xue J (2012) Potentials for Decoupling Housing- related Environmental Impacts from Economic Growth. University of Aalborg.

Yin RK (2009) *Case Study Research - Design and Method*. Sage Publications.

Ærø T (2001) Boligpræferencer, boligvalg og livsstil. Statens Byggeforskningsinstitut.

Ærø T and Jørgensen G (2005) 20 år med bypolitik i nordisk regi. *Byplan* 6.

Øllgaard J (2011) *Paradisvænget - småborgeren og det småborgerlige*. Frydenlund.

Appendix 1

How residential preferences in different municipalities are found

The calculations described here results in an extrapolation where it is accounted for the composition of dwelling types as well as lifecycle groups in each case municipality. It will also be explained how the different data sets from 'Befolkningens boligønsker' and Statistics Denmark are altered to fit together.

In order to extrapolate the share of people preferring the different dwelling types for the case municipalities in 2021 I have to calculate the preferences of different lifecycle and household groups among the population in the case municipalities from the national preferences found through the survey 'Befolkningens boligønsker'. When I have the preferences of the national population I can compare them to where people actually live. The ratio between the two numbers make a constant which equals the relation between the preferences of the case municipalities and where people actually live in the municipalities. This makes

$$\frac{DK_p}{DK_a} = \frac{M_p}{M_a} = k$$

Where:

$$DK_p \; is \; national \; residential \; preferences$$

$$DK_a \; is \; national \; actual \; dwelling \; composition$$

$$M_p \; is \; municipal \; residential \; preferences$$

$$M_a \; is \; municipal \; actual \; dwelling \; composition$$

I could also decide to write the equation like this,

$$\frac{DK_p}{M_p} = \frac{DK_a}{M_a} = k$$

but this makes no difference, besides I then have to calculate k for each case municipality. With the first array I can just multiply the one k with each municipality.

Since I want to know $M_{p,}$ I isolate M_p on one side of the equation, this makes

$$M_p = k \times M_a$$

Now that the method is found the data needs to be altered to make it useable.

The results from 'Befolkningens boligønsker' about the national preferences (DK_p) come as presented in Table 8.1.

Table 8.1 Percent of each Lifecycle group preferring the different dwelling types (H. Kristensen and Andersen, 2009)*. Total and do not know left out.*

Lifecycle group	Apartment	Terraced	Single-family house after 1990	Single-family house 1960-1990	Older villa	Farm house	Other
Live at home	32,9%	7,2%	21,7%	23,0%	2,0%	11,2%	0,7%
Singles < 30	63,3%	3,3%	13,3%	6,7%	3,3%	6,7%	
Couples < 30	16,1%	3,6%	33,9%	21,4%	12,5%	12,5%	
Couples with children	5,5%	5,1%	20,5%	32,7%	20,0%	14,6%	1,1%
Lone providers	17,8%	17,8%	11,1%	28,9%	22,2%		2,2%
Singles 30-59	24,4%	18,3%	17,1%	14,6%	14,6%	6,1%	1,2%
Childless couples 30-59	6,8%	17,8%	15,2%	33,0%	14,7%	11,5%	1,0%
Couples ≥ 60	12,6%	13,3%	9,5%	39,6%	14,7%	8,1%	1,8%
Singles ≥ 60	38,1%	25,7%	8,6%	12,4%	10,5%	3,8%	1,0%
Mixed	21,3%	7,4%	10,2%	25,9%	15,7%	15,7%	2,8%
Total	16,0%	11,0%	16,2%	29,2%	14,8%	10,9%	1,2%

The actual national composition of residents in dwellings (DK_a) can be retrieved from Statistics Denmark and comes as shown in Table 8.2

Table 8.2 Actual national composition of residential age groups in dwellings 2011

	Single-family house	Terraced house	Apartment	Dormitory	Other
12-17	282066	50941	81080	598	3035
18-24	170729	40513	228124	24251	4643
25-29	87013	25197	181216	9456	2940
30-39	367867	80190	266766	2662	5773
40-49	498228	95125	203976	547	5591
50-59	442977	95809	163931	267	4483
60-69	405472	103051	155236	89	3423
70-79	193949	73680	108995	22	1573
80-89	67259	44304	73362	10	795
90+	8274	9702	18259	2	262

The data presents some problems for comparison therefore it has to be altered. In Table 8.1 the dwelling types 'single-family house after 1990', 'Single-family house 1960-1990', 'older villa' and 'farm house' are merged, the category 'do not know' and the lifecycle group 'mixed' are left out of the table. This makes a new distribution, which is seen in Table 8.3

Table 8.3 Correlation between lifecycle group and dwelling type, when the dwelling types 'Single-family house after 1990', 'Single-family house 1960-1990', 'Older villa and 'farm house' are merged, the 'do not know' and the life cycle group 'blandede/mixed' are left out of the original table, Table 8.1.

Lifecycle group	Single-family house	Terraced house	Apartment building	Other
Live at home	58,8	7,3	33,4	0,7
Singles < 30	31,1	3,4	65,6	0,0
Couples < 30	80,3	3,6	16,1	0,0
Couples with children	88,4	5,1	5,5	1,1
Lone providers	62,2	17,8	17,8	2,2
Singles 30-59	54,5	19,0	25,4	1,2
Childless couples 30-59	74,4	17,8	6,8	1,0
Couples ≥ 60	72,1	13,3	12,6	1,8
Singles ≥ 60	36,0	26,2	38,8	1,0

Now that DK_p is found DK_a can be found from Table 8.2.

Table 8.2 presents other problems, mainly because the division into age groups does not easily relate to the division into lifecycle groups from Table 8.3. But first it has to be noticed that data is from 2011 and not 2009 where the other data are from thereby I have to assume that no significant redistribution has occurred in the two-year span.

The two age groups 12-17 and 18-24 do not correspond with how the lifecycle groups are found, which is in a five-year interval starting from age 15. Therefore I have to subtract the number of people of age 12-14 from the age group 12-17 in order to get a more usable group age, 15-17. Since one age group is divided into five different dwelling types I calculate the share of people the age group 12-17 have in each dwelling type and multiply that share to the total number of people from age 12-14 and subtract that from the age group 12-17 for the corresponding dwelling type. Then the two age groups 15-17 and 18-24 are merged so it becomes age group 15-24.

I then merged the two groups 'dormitory' and 'other', because this distinction is not made in the preferences from the survey.

The share the different age groups have in the different lifecycle groups are extracted from Statistics Denmark. Each age group is now divided in terms of lifecycle group and dwelling type – what I want to know is how each lifecycle group is divided onto the different dwelling types. Explaining the calculations is best done through an example; I now want to find out how many in the lifecycle group 'live at home' who live in a single-family house, using the case of the entire country. We know that in the age group 15-24 313,391 people live in single-family houses, and that the share of age group 15-24 who belongs to the lifecycle group 'live at home' is 57.7%. I then assume that 57.7% of those people who live in single-family houses in the age group 15-24 belong to the lifecycle group 'live at home' – because 57.7% of the age group 15-24 belong to the lifecycle group 'live at home'. Also 57.7% of those living in the other dwelling types are assumed to belong to the lifecycle group 'live at home' Since this lifecycle group does not span over more years than from 15-24 (not over 24 because of limits in data), the calculation is now finished and we now know that 180,862 (which is 46% of the total for this lifecycle group) people in the lifecycle group 'live at home' live in a single-family house. If the lifecycle group spans over more than one age group these are just added up and the result can be found. Now all lifecycle groups are distributed on dwelling types, thereby we have DK_a.

The procedure for finding M_a is the same as for DK_a thereby we also have M_a. Now it is possible to find k and thereby M_p.

To extrapolate people's preferences it is necessary to calculate how many people each lifecycle group has in the future i.e. 2021. This is done by assuming that for the different age groups e.g. age group 55-59 the composition of lifecycle groups will not change. So if there were 50% 'families with children' in 2009 in this particular age group then there will also be 50% in 2021 and likewise for the other lifecycle groups. The demographic development is therefore dependent on which age groups will increase and which will decrease.

Appendix 2

The analysis of the three case municipalities which were not presented in the main report. These chapter can be read in continuation of the analysis of the municipality of Aarhus.

The municipality of Sorø

The municipality of Sorø is, as a consequence of the municipal reform in 2007, a municipality brought together by three different municipalities (Sorø, Stenlille and Dianalund). Based on the classification shown in Figure 5.1 the municipality of Sorø is a medium-municipality. By 2012 the municipality consisted of 29,393 inhabitants. In the municipal plan it is expected that there will be an increase in inhabitants of 923 people from 2008-2020 (Sorø Kommune, 2009). Two thirds of the population in 2008 lived in one of the urban settlements and the rest lived in the countryside.

The municipality has one main urban settlement, which is Sorø placed in the southern part of the municipality, one medium settlement, three small and 26 villages (Sorø Kommune, 2009).

Sorø in 2009

In Table 8.4 the number of the different dwelling types in the municipality of Sorø in 2009 is shown. Compared to the entire country (see Table 5.1) the municipality has a larger share of single-family houses and terraced dwellings, but a smaller share of apartment dwellings as well as dormitories. This also makes the single-family house the most frequently occupied dwelling type in the municipality, with 64.2%.

Table 8.4 number of dwellings 2009 in the municipality of Sorø (Statistikbanken, 2011a, 2011d).

Dwelling type	Total	Occupied	Unoccupied	Per cent of total	Per cent of occupied
Single-family houses	8,771	8,251	520	62.5	64.2
Terraced dwellings	2,579	2,407	172	18.4	18.7
Apartment dwellings	2,267	1,977	290	16.2	15.4
Dormitory	233	110	123	1.7	0.9
Other	173	111	62	1.2	0.9
Total	14,023	12,856	1,167	100	100

The share of unoccupied dwellings makes out 8.3% of the total building stock, which is higher than the national share on 6.8%. The share of unoccupied dwellings for the individual dwelling types is respectively 5.9%, 6.7% and 12.8% for single-family houses, terraced and apartment dwellings. Dormitories and 'other' have a share of unoccupied dwellings of 52.8% and 35.8%, respectively. The single-family house thereby seems to be the most popular dwelling in the municipality of Sorø.

The single-family house is also the most occupied dwelling when divided on the share of people in each dwelling type. 72.3% of the population in the municipality of Sorø live in a single-family house (see Table 8.5), 14.8% live in a terraced dwelling and 11.1% live in an apartment dwelling.

Table 8.5 Share of people (over 15 years) occupying the different dwelling types in the municipality of Sorø 2009 (Statistikbanken, 2011e).

Dwelling type	Persons	Per cent
Single-family houses	16,845	72.3
Terraced dwellings	3,446	14.8
Apartment dwellings	2,595	11.1
Dormitory	116	0.5
Other	291	1.2
Total	23,293	100

Calculating the preferences from the point of departure in lifecycle group 80% prefer to live in a single-family house, 12.4% in a terraced dwelling and 5.9% prefer to live in an apartment dwelling, as seen in Table 8.6.

Table 8.6 Calculated preferences towards dwelling types in the municipality of Aarhus – with point of departure in lifecycle group and adjusted with how people actually live (see 4.4.3 and Appendix 2) (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) and residential preferences among different lifecycle groups (H. Kristensen and Andersen, 2009) retrieved by mail correspondence with Hans Skifter Andersen).

Dwelling type	Total	Per cent
Single-family houses	18,827	80.0
Terraced dwellings	2,919	12.4
Apartment dwellings	1,395	5.9
Other	398	1.7

In accordance with the preferences expressed by the population the municipality of Sorø should provide for the opportunity to build more single-family houses just as the case was with the municipality of Aarhus.

Now that the situation of the municipality of Sorø in 2009 is clear we move on to extrapolating the future preferences of the municipality.

Extrapolating dwelling preferences in Sorø

As mentioned the municipality of Sorø expects a population increase from 2008 to 2020 of 923 people. The calculation is based on a dwelling development plan and the general economic development. The dwelling development plan made it clear that within the current area reserved for dwelling development it would be possible to erect 1883 dwellings within the planning period (Sorø Kommune, 2009). It is then argued that this already existing development potential makes it unnecessary to add more area to respond to the future dwelling preferences. In the municipal plan a comparison with Statistics Denmark's population predictions is made. According to the municipal plan Statistics Denmark expect a higher future population in the municipality than the municipality does itself. The municipality expects 30,103 people in 2020 while Statistics Denmark expects 31,085 (Sorø Kommune, 2009). According to Statistics Denmark today the population in the municipality of Sorø will only increase by around 0.1% annually and by 2020 only have increased by nearly 300 people (Statistikbanken, 2011f). A reason for this inconsistency between what the municipality found Statistics Denmark expected and what Statistics Denmark expects now could be change in presumptions or prerequisites from 2009 when the municipality plan was conducted and 2012 where this extrapolation is made. Whatever reason the municipal predictions now seem exaggerated. On the other hand the municipality grew by 106 people annually from 2008 to 2011 and by the predictions the population should only grow by 23

people annually from 2011 to 2020, which seems rather low compared to the preceding years.

There is no mentioning of the demographic development in relation to dwelling preferences in the municipal plan, but in Figure 8.1 the expected development from 2009 to 2020 is shown.

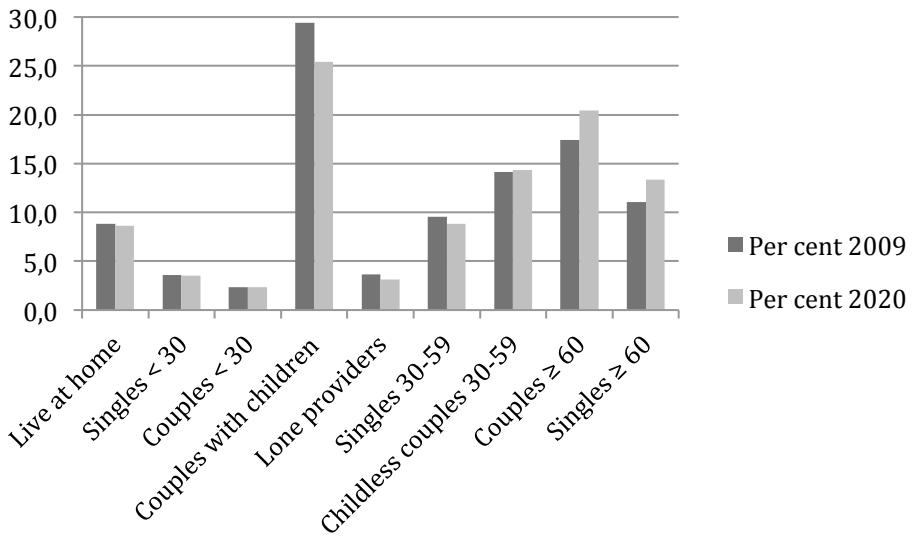

Figure 8.1 Graphic display of lifecycle groups in the municipality of Sorø 2009 and 2021 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

The figure indicates that the lifecycle group 'couples with children' is expected to decrease while the two groups 'couples ≥ 60' and 'singles ≥ 60' seems to increase. The other groups seems to only vary vaguely or not at all. In Table 8.7 the change becomes easier to read.

Table 8.7 Lifecycle groups in the municipality of Sorø 2009 and 2020 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

Lifecycle group	Amount 2009	Per cent 2009	Amount 2020	Per cent 2020	Change points	Change per cent
Live at home	2,091	8.8	2,106	8.6	-0.2	0.7
Singles < 30	842	3.6	867	3.6	0.0	3.0
Couples < 30	549	2.3	566	2.3	0.0	3.1
Couples with children	6,960	29.4	6,204	25.4	-4.0	-10.9
Lone providers	862	3.6	770	3.2	-0.5	-10.7
Singles 30-59	2,264	9.6	2,157	8.8	-0.7	-4.7
Childless couples 30-59	3,352	14.2	3,496	14.3	0.1	4.3
Couples ≥ 60	4,117	17.4	4,998	20.5	3.1	21.4
Singles ≥ 60	2,613	11.0	3,256	13.3	2.3	24.6
Total	23,650	100	24,419	100		

The table shows that the lifecycle groups that is expected to decrease the most is 'couples with children' and 'lone providers', 10.9% and 10.7%, respectively, while their share of the entire municipal population will decrease respectively with 4.0 and 0.5 percentage points. The groups that could be expected to increase the most is 'couples ≥ 60' and 'singles ≥ 60', 21.4% and 24.6%, respectively which account for a positive change in their share by 3.1 and 2.3 percentage points, respectively.

The calculated preferences in 2020 for the municipality of Sorø are shown in Table 8.8.

Table 8.8 Lifecycle groups in 2020 and the share of the groups who prefer the different dwelling types in 2020 (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) *and residential preferences among different lifecycle groups* (H. Kristensen and Andersen, 2009) *retrieved by mail correspondence with Hans Skifter Andersen).*

Lifecycle group	Single-family house	Terraced dwelling	Apartment dwelling	Other	Total
Live at home	80.7	8.6	10.0	0.7	100
Singles < 30	67.7	6.7	25.6	0.0	100
Couples < 30	93.1	3.7	3.1	0.0	100
Couples with children	93.4	4.0	1.3	1.2	100
Lone providers	76.1	16.2	5.0	2.7	100
Singles 30-59	72.4	17.9	7.7	2.0	100
Childless couples 30-59	82.9	13.8	1.8	1.5	100
Couples ≥ 60	77.2	14.6	4.8	3.4	100
Singles ≥ 60	42.4	35.6	20.3	1.7	100
Total	77.4	13.9	7.0	1.8	100

The table shows that in 2020 77.4% is expected to prefer a single-family house, 13.9% a terraced dwelling, 7.0% an apartment dwelling and 1.8% seems to prefer another kind of dwelling. For all lifecycle groups the single-family house is the most preferred.

Comparing the preferences from 2009 (shown in Table 8.6) with the preferences in 2020 a small change is visible. From Table 8.6 and Table 8.8, a small decrease in the preference towards single-family houses can be seen from 80.0% to 77.4% and a increase in the preference towards a terraced dwelling and an apartment dwelling from respectively, 12.4% to 13.9% and from 5.9% to 7.0%. The dwelling category 'other' stays almost unchanged; it increases from 1.7% to 1.8%.

Main conclusions from the municipality of Sorø

Most people in the municipality of Sorø live in a single-family house and this type of dwelling seems to also be the most preferred in the future, though it seems a small decrease in popularity can occur, when comparing with preferences for 2009. On the other hand the two dwelling types terraced dwelling and apartment dwelling are expected to increase in popularity. These changes are all caused by changes in the demographic development.

Thereby by judging from the results from the results of this extrapolation it seems the municipality in their future planning should provide more opportunities for building single-family houses. Thereby the main conclusions from this analysis are similar to the conclusions from the analysis of the municipality of Aarhus, though it seem the gap between actual and preferred dwelling type is expected to decrease over the years.

The municipality of Viborg

As a consequence of the municipal reform enacted in 2007 the municipality of Viborg is a geographically large and a rather populous municipality, but also a diverse one (brought together by six municipalities, plus a small part of a 7th). The municipality is inhabited by 93.819 people, by 2012 (Statistikbanken 2011b). According to Viborg's own municipal plan from 2009 the tendency of movement from the countryside to the city is expected to continue even within Viborg municipality itself. In 2009 just above 21,000 of the inhabitants lived in the countryside whereas the expected number in 2023 is just less than 19,400, but the municipality's total number of inhabitants is still expected to increase to 98,500 in the same period (Viborg Kommune, 2009c).

The municipality consists of one main town, which is Viborg centred in the middle, one medium size urban settlement, Bjerringbro, twelve small and a number of villages (Viborg Kommune 2009). In the 2006 'Landsplanredegørelse', which is the government's account on the nation's planning direction through the next term, Viborg was not a part of the 'east Jutland city band', which was pointed out to be the basis for a dynamic regional development (Miljøministeriet 2006).

Viborg in 2009

The starting point for this extrapolation will be 2009, which makes it possible to make comparisons with the latest municipal plan published that year. In Table 8.9 the number of dwellings in 2009 in Viborg municipality is shown and it shows that 63.1% of the occupied dwellings are single-family houses.

Table 8.9 number of dwellings 2009 in the municipality of Viborg (Statistikbanken 2011b; Statistikbanken 2011a).

Dwelling type	Total	Occupied	Unoccupied	Per cent of total	Per cent of occupied
Single-family houses	27,298	25,997	1,301	61.7	63.1
Terraced dwelling	5,405	5,092	313	12.2	12.4
Apartment dwellings	10,402	9,469	933	23.5	23.0
Dormitories	545	270	275	1.2	0.7
Other	579	380	199	1.3	0.9
Total	44,229	41,208	3,021	100	100

Compared to the country in general the municipality of Viborg has a higher percentage of single-family houses, a lower percentage of terraced and apartment dwellings. With a share of 6.8% unoccupied dwellings in the municipality of Viborg the share is equal to that of the entire country. For the individual dwelling types the share of unoccupied dwellings is respectively 4.8%, 5.8% and 9.0% for single-family houses, terraced and apartment dwellings. Dormitories and 'other' have a share of unoccupied dwellings of respectively 50.5% and 34.4%. This thereby indicates that the single-family house is the most popular in the municipality followed by terraced dwellings.

Now that the dwelling composition is known it is time to examine how many occupants the different dwelling types had in 2009. In Table 8.10 the share of people living in the different dwelling types are shown and it shows that a larger share of people live in single-family houses than the share of single-family houses and a lower share of people in terraced and apartment dwellings than the share of these dwellings.

Table 8.10 Share of people (over 15 years) occupying the different dwelling types in the municipality of Viborg 2009 (Statistikbanken 2011c).

Dwelling type	Persons	Per cent
Single-family houses	52,747	71.6
Terraced dwellings	7,297	9.9
Apartment dwellings	12,645	17.2
Dormitory	291	0.4
Other	731	1.0
Total	73,711	100

Examining the preferred dwelling preference among residents in the municipality of Viborg the share of people likely to prefer a single-family house is 81.2% (see Table 8.11.). 8.2% is expected to prefer terraced dwellings and 9.3% is expected to prefer apartment dwellings.

Table 8.11 Calculated preferences towards dwelling types in the municipality of Aarhus – with point of departure in lifecycle group and adjusted with how people actually live (see 4.4.3 and Appendix 2) (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) and residential preferences among different lifecycle groups (H. Kristensen and Andersen, 2009) retrieved by mail correspondence with Hans Skifter Andersen).

Calculated preferred dwelling type	Total	Per cent
Single-family house	60,448	81.2
Terraced dwelling	6,098	8.2
Apartment dwelling	6,895	9.3
Other	1,002	1.3

These results thereby indicate that the municipality should provide for more single-family houses and less apartment dwellings in order to accommodate the preferences of the population.

This leads to the next point of this analysis, which is how the demographic development will form the future preferences for dwellings in Viborg municipality.

Extrapolating dwelling preferences in Viborg

As it was briefly presented the municipality itself expects the population to increase to 98,500 in 2023 from 92,898 in 2009, this is how the municipality formulates the development:

"In February 2009 a total of 92,898 people lived in Viborg municipality. The municipality has the latest five years experienced an annual average growth of almost 700 persons.

The population prognosis predicts an increase of about 6,500 persons and there is expected to be a population of almost 98,500 in Viborg municipality in the year 2023. This accounts for a growth in total of 7.0 %.

Statistics Denmark expects that the entire country will have a population growth of about 3.4 %. The growth of Viborg municipality is thus estimated to be twice as large." (Viborg Kommune, 2009:28, own translation).

Looking closely at this formulation there seems to be a great deal of inconsistency in what they expect from the future development in inhabitants. The first sentence is difficult to check because of the municipal reform, but from 2007 to 2009 there has been an increase of just under 700 people per year (Statistikbanken 2011b). It is the next sentence that becomes inconsistent. 92,898 + 6,500 = 99,398, but the municipality gets just below 98,500. According to the interviewed planner from the municipality this inconsistency is because emigration is not taken into account in these figures. When looking at the numbers from Statistics Denmark it, however, seems the municipality has made an overoptimistic estimation of the development of the future dwelling preference. According to Statistics Denmark there will only be an increase in inhabitants of about 4.8% from 2009 to 2023 – from 92,823 to 97,304 –4,481 more inhabitants, which is around 2000 less than what the municipality expects. This difference is related to the different methods used, but one would expect the municipalities to regard the nation's official authority on statistics as a valid source and a source that should be included in the calculations. The difference might also on a more practical level be explained by the municipality's high regard of their own success of drawing new inhabitants to the municipality, by promising attractive dwelling supply (new sites for building) and other service offers.

In the municipal plan demographic development is mentioned as a great challenge in the next 15 years as the population of people age 65 and over is estimated to increase by 35% (Viborg Kommune, 2009c). Though there is no explanation on which form this challenge will take. Again here there is inconsistency between what the municipality projects and that of Statistics Denmark. According to Statistics Denmark there were 14,426 people ≥ 65 in 2009 and it is estimated that the population ≥ 65 will be 21,081 in 2024, which is an increase by 46% (Statistikbanken, 2011a). Again here it could be said the municipality has an optimistic view on the development. Optimistic in the sense that people ≥ 65 is no

longer an income to the municipality to the same extent they used to be when they were available to the workforce (people ≥ 65 are usually retired). By downplaying the development their own planning does not have to be so extensive, in relation to taking care of this group, than otherwise. While it might or might not be a deliberate planning judgement it could in the end affect the number of people from this age group settling in the municipality, because if poor conditions are provided it might make some choose other municipalities where the conditions for this group are more adequately provided.

Looking at the demographic development as a whole it shows that it is expected that there will be more elderly people in the future (see Figure 8.2).

In Figure 8.2 a graphic display of the development is shown and here it becomes visible that the lifecycle group 'couples with children' seems to decrease, that the groups 'couples ≥ 60' and 'singles ≥ 60' is expected to increase. Also singles and couples between 30 and 59 seems to experience a decrease in population size.

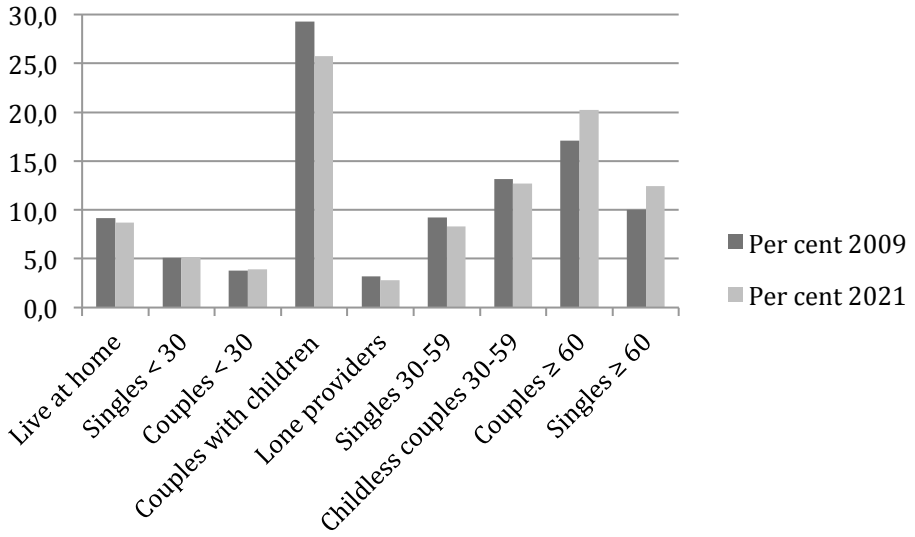

Figure 8.2 Graphic display of lifecycle groups in the municipality of Viborg 2009 and 2021 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

Looking more closely at the numbers in Table 8.12 it shows that even though the 'singles < 30' and 'couples < 30' experiences an increase by 8.2% and 7.1%, respectively, their share of the total population seems not to change. It also shows that 'couples with children' is expected to experience a decrease by 7.1%, which means their share of the total population in 2021 will decrease by 3.5 percentage points. The most significant changes are within the groups of people ≥ 60 years. Their population is expected to increase 25% and 30.8%, respectively, but their

share will only increase 2.4 and 3.1 percentage points, respectively, of the total population.

Table 8.12 Lifecycle groups in the municipality of Viborg 2009 and 2021 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

Lifecycle group	Amount 2009	Per cent 2009	Amount 2021	Per cent 2021	Change points	Change per cent
Live at home	6,833	9.2	6,869	8.7	-0.4	0.5
Singles < 30	3,811	5.1	4,082	5.2	0.1	7.1
Couples < 30	2,840	3.8	3,072	3.9	0.1	8.2
Couples with children	21,856	29.3	20,314	25.8	-3.5	-7.1
Lone providers	2,369	3.2	2,213	2.8	-0.4	-6.6
Singles 30-59	6,867	9.2	6,541	8.3	-0.9	-4.7
Childless couples 30-59	9,805	13.1	9,988	12.7	-0.5	1.9
Couples ≥ 60	12,759	17.1	15,948	20.2	3.1	25.0
Singles ≥ 60	7,481	10.0	9,787	12.4	2.4	30.8
Total	74,621	100	78,813	100		

In Table 8.13 the lifecycle groups in 2021 and the share of these groups, which prefers the different dwelling types are shown.

Table 8.13 Lifecycle groups in 2021 and the share of the groups who prefer the different dwelling types in 2021. (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) *and residential preferences among different lifecycle groups* (H. Kristensen and Andersen, 2009) *retrieved by mail correspondence with Hans Skifter Andersen).*

Lifecycle group	Single-family house	Terraced house	Apartment	Other	Total
Live at home	75.2	4.6	19.6	0.5	100
Singles < 30	52.6	3.2	44.2	0.0	100
Couples < 30	90.8	2.3	7.0	0.0	100
Couples with children	94.1	2.8	2.1	1.0	100
Lone providers	78.3	11.6	8.0	2.1	100
Singles 30-59	73.3	13.2	11.9	1.5	100
Childless couples 30-59	85.2	10.9	2.8	1.0	100
Couples ≥ 60	82.1	9.4	6.0	2.5	100
Singles ≥ 60	47.6	24.9	24.8	2.7	100
Total	78.7	9.2	10.7	1.4	100

The table suggests that 78.7% will prefer a single-family house in 2021 in the municipality and that 10.7% and 9.2% will seem to prefer an apartment dwelling

and a terraced dwelling, respectively. Comparing these figures with the figures from Table 8.10 and Table 8.11 where the current shares of occupants in the different dwelling types and the number of people preferring the different dwelling types in 2009 are shown, the development of dwelling preferences becomes visible. Comparing Table 8.11 and Table 8.13 it becomes visible that the preference for single-family houses is expected to decrease over the years from 81.2% to 78.7% and that the preference for terraced dwelling and apartment dwellings are likely to increase from 8.2% to 9.2% and from 9.3% to 10.7%, respectively.

Still more people than actually lived in single-family houses in 2009 seem to be preferring to live in such a dwelling in 2021, when comparing Table 8.10 and Table 8.13. For terraced and apartment dwellings, the trend is the opposite.

Main conclusions from the municipality of Viborg

The share of people in Viborg municipality that occupy a single-family house is lower that the share of people expressing preference for such. While the share of people preferring a single-family house seems to be decreasing in the period from 2009 to 2021, the share of people preferring the other two main dwelling types – terraced dwelling and apartment dwelling – seems to increase.

All in all this analysis though indicates that the municipality should provide more single-family houses in the future despite the changes in demography, which seems to have the effect that the preference towards this dwelling type will decrease slightly. Terraced and apartment dwellings should therefore be provided to a smaller extent than presently if the municipality is to accommodate the preferences of the population.

The municipality of Langeland

As a consequence of the municipal reform, the municipality of Langeland was merged by three municipalities (Tranekær, Rudkøbing and Sydlangeland) and it consists of 13,094 inhabitants by 2012. According to the municipal plan Statistics Denmark expects a decrease in population of about 90 annually in the planning period, but as it is pointed out there is an immigration of about 25 annually (Langeland Kommune, 2009). Though nothing is concluded from this it is later noticed in relation to the population prognosis that the population will be fairly constant, but that there will be a shift in the demographic composition – there will be a larger group of people who have retired (Langeland Kommune, 2009). The municipality of Langeland is an outer-municipality according to the division shown in Figure 5.1.

There is not indicated any urban-hierarchy in the municipal plan, but the main urban settlement is Rudkøbing, which is situated in the middle of the municipality and in addition there are a number of small settlements spread around the island.

Langeland in 2009

The total dwelling amount in the municipality of Langeland is shown in Table 8.14 and it shows that the most common dwelling type is the single-family house, with a share of 71% of the total dwelling stock. Terraced dwellings account for 16.8% of the total dwelling stock.

Table 8.14 number of dwellings 2009 in the municipality of Langeland (Statistikbanken, 2011a, 2011d).

Dwelling type	Total	Occupied	Unoccupied	Per cent of total	Per cent of occupied
Single-family houses	6,282	4,726	1,556	71.0	69.1
Terraced dwellings	1,490	1,325	165	16.8	19.4
Apartment dwellings	809	639	170	9.1	9.3
Dormitory	1	0	1	0.0	0.0
Other	269	145	124	3.0	2.1
Total	8,851	6,835	2,016	100	100

Unoccupied dwellings account for 22.8% of the total dwelling stock, which is a high share compared to the national average of 6.8%. The dwelling type with the largest share of unoccupied dwellings (besides the dwelling types 'dormitory' and 'other') is the single-family house, where 24.8% of the dwellings are unoccupied. 20.4% of the apartment dwellings are unoccupied and 11.0% of the terraced dwellings are unoccupied. The one dormitory in the municipality is not occupied and as a result 46.1% of the dwelling type 'other' is not occupied. Considering the relatively large population of people ≥ 60 'popularity' of terraced dwellings makes sense, because the ground-level small dwellings could be viewed as fitting dwellings for this lifecycle group. The relatively high number of unoccupied dwellings makes it clear that the municipality of Langeland is not very popular amongst the general population. It also poses the question if it at all makes it relevant of talking about unsatisfied dwelling preferences in the municipality, when there are so many unoccupied dwellings. The unpopularity of the municipality will though make it difficult for people to leave the municipality if their financial situation requires they would have to sell their dwelling before moving.

The dwelling type 'single-family house' also accounts for the largest share of residents, which makes out 75.4% of the population (see Table 8.15). The terraced

dwellings and apartment dwellings account for 15.6% and 7.1% of the population, respectively.

Table 8.15 Share of people (over 15 years) occupying the different dwelling types in the municipality of Langeland 2009 (Statistikbanken, 2011e).

Dwelling type	Persons	Per cent
Single-family houses	8,737	75.4
Terraced dwellings	1,805	15.6
Apartment dwellings	825	7.1
Dormitory	0	0.0
Other	225	1.9
Total	11,592	100

Calculating the preferred dwelling type the results can be seen in Table 8.16. It shows that a larger number of people prefer to live in a single-family house than those who do and a lower number for terraced houses. Also apartment dwellings are preferred by fewer people than the number of occupants of this dwelling type.

Table 8.16 Calculated preferences towards dwelling types in the municipality of Aarhus – with point of departure in lifecycle group and adjusted with how people actually live (see 4.4.3 and Appendix 2) (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) and residential preferences among different lifecycle groups (H. Kristensen and Andersen, 2009) retrieved by mail correspondence with Hans Skifter Andersen).

Dwelling type	Total	Per cent
Single-family house	9,046	79.3
Terraced dwelling	1,549	13.6
Apartment dwelling	474	4.2
Other	343	3.0

By judging from this the municipality should provide more single-family houses to accommodate the preferences of the population. One analysis indicate that more apartment dwellings should be provided while the other indicate that less should be provided, which makes it difficult to conclude anything regarding this dwelling type.

In the following the future preferences of the municipality of Langeland will be examined.

Extrapolating dwelling preferences in Langeland

As mentioned the municipality expects a somewhat constant population level through the planning period 2009-2021 even though it is specified in the municipal

plan that Statistics Denmark expects a decrease of about 90 people annually (Langeland Kommune, 2009). This negative development is a continuation of the preceding years. From 1986 to 2006 the municipality decreased by 1,764 people, which is stated in the municipal plan. According to Statistics Denmark the population of the municipality of Langeland will decrease by around 1% annually the first years from now to a decrease by around 0.5% annually towards 2021, meaning a decrease changing from around 100 people annually to around 50 people annually (Statistikbanken, 2011f). Thereby it seems the municipality has an optimistic view on the population development if they expect it to be somewhat constant over the years (the interviewed planner argued that the conducted planning would hopefully turn the negative development, thus the optimistic view). The municipal plan mentions a change in the demographic composition, with no further comment, but a graph shows the total population decrease while the population of retired people increases towards 2017 (Langeland Kommune, 2009).

In Figure 8.3 the demographic development from 2009 to 2021 in the municipality of Langeland is shown. The development shows an increase in the share of the population ≥ 60 years old and a decrease in all other lifecycle groups shares besides 'singles < 30' and 'couples < 30'.

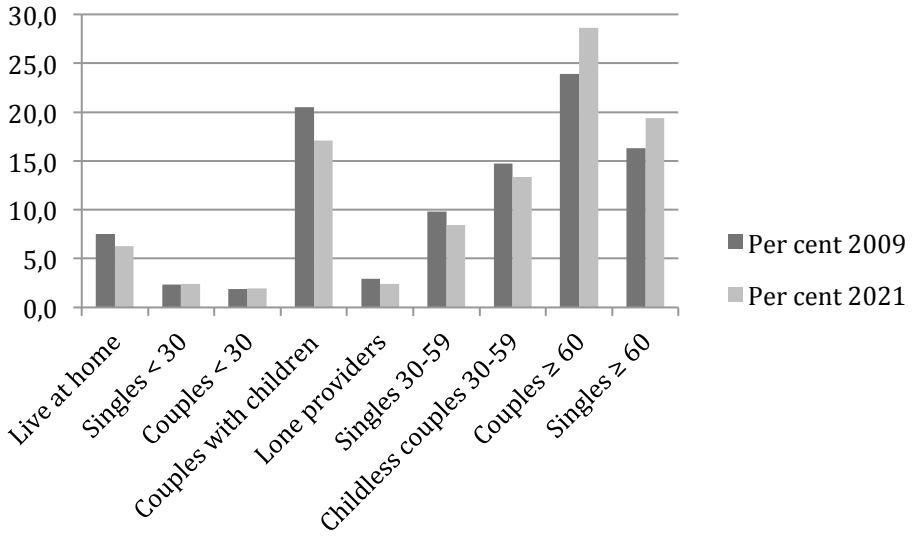

Figure 8.3 Graphic display of lifecycle groups in the municipality of Langeland 2009 and 2021 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

In Table 8.17 a more detailed presentation of the demographic development is shown. The table shows that all lifecycle groups is expected to decrease their population, besides the groups 'couples ≥ 60' and 'singles ≥ 60'.

Table 8.17 Lifecycle groups in the municipality of Langeland 2009 and 2021 (Statistikbanken 2011d; Statistikbanken 2011e; Statistikbanken 2011f, own calculations).

Lifecycle group	Amount 2009	Per cent 2009	Amount 2021	Per cent 2021	Change points	Change per cent
Live at home	882	7.5	690	6.3	-1.2	-21.8
Singles < 30	274	2.3	266	2.4	0.1	-2.9
Couples < 30	218	1.9	214	2.0	0.1	-1.6
Couples with children	2,400	20.5	1879	17.1	-3.4	-21.7
Lone providers	343	2.9	267	2.4	-0.5	-22.2
Singles 30-59	1,153	9.8	927	8.4	-1.4	-19.6
Childless couples 30-59	1,726	14.7	1463	13.3	-1.4	-15.3
Couples ≥ 60	2,800	23.9	3142	28.6	4.7	12.2
Singles ≥ 60	1,912	16.3	2126	19.4	3.0	11.2
Total	11,708	100	10974	100		

The population of the lifecycle group 'live at home' seems to decrease by 21.8% while the share of the group is expected to decrease by 1.2 percentage points. The group, which seems to decrease the most is 'lone providers', which is likely to decrease by 22.2 %, but the share will only decrease by 0.5 percentage points. The group which share seems to decrease the most is 'couples with children'. The share is expected to decrease by 3.4 percentage points. The lifecycle groups 'couples ≥ 60' and 'singles ≥ 60' is likely to increase by 12.2% and 11.2%, respectively while the shares seems to increase by 4.7 and 3.0 percentage points, respectively. 'Single 30-59' and 'childless couples 30-59' is expected to decrease their share by 1.4 percentage points each equal to a decrease of 19.6% and 15.3%, respectively. In Table 8.18 the preferences of the population in 2021 are shown.

Table 8.18 Lifecycle groups in 2021 and the share of the groups who prefer the different dwelling types in 2021) (own calculations based on (Statistikbanken, 2011b, 2011c, 2012) *and residential preferences among different lifecycle groups* (H. Kristensen and Andersen, 2009) *retrieved by mail correspondence with Hans Skifter Andersen).*

Lifecycle group	Single-family house	Terraced dwelling	Apartment dwelling	Other	Total
Live at home	83.9	7.6	8.1	0.5	100
Singles < 30	73.0	5.5	21.6	0.0	100
Couples < 30	94.7	2.8	2.5	0.0	100
Couples with children	93.6	4.0	0.9	1.4	100
Lone providers	76.7	16.6	3.5	3.2	100
Singles 30-59	72.7	19.1	5.3	3.0	100
Childless couples 30-59	81.7	14.7	1.2	2.4	100
Couples ≥ 60	80.5	11.7	2.6	5.2	100
Singles ≥ 60	50.2	34.0	11.4	4.5	100
Total	76.6	15.3	4.9	3.3	100

The table shows that the most preferred dwelling type in all the lifecycle groups is the single-family house. In total the single-family house is also the most preferred dwelling type with 76.6%, terraced dwelling is preferred by 15.3% and apartment dwellings are preferred by 4.9%, while the dwelling type 'other' is preferred by 3.3%. Comparing the calculated preferences in 2009 and 2021 no great changes in preferences over the years are visible, but some are present. Comparing the results from Table 8.16 and Table 8.18 a decrease in preferences towards the single-family house from 79.3% to 76.6% is visible, while the terraced house seems to increase its popularity from 13.6% to 15.3% and apartment dwellings experience a change from 3.0% to 3.3%.

When comparing the development in preferences with the residents' actual dwellings occupied still more people seems to prefer to live in a single-family house than actually do and for both terraced and apartment dwellings less people than those who occupy these dwelling types will prefer to live in these.

Main conclusions from the municipality of Langeland

Most people in the municipality of Langeland live in a single-family house, but even more prefer to live in one, while the dwelling types terraced and apartment dwellings are less popular than the share of people living in these dwelling types. The demographic development is expected to increase the population of people ≥ 60 years and decrease the rest of the lifecycle groups, which will have an effect on

preferences towards the different dwelling types, but still more people than live in single-family houses will prefer to do so.

This analysis thereby at first indicates the municipality should provide more single-family houses and less of the other two dwelling types in order to meet the preferences of the population of the municipality. When combining the high number of unoccupied single-family houses and the decreasing population it seems the municipality have the necessary number of dwellings available within the municipality. This leaves the municipality in a difficult situation because it in reality could lean back and disregard planning of any new dwellings in the future because there are a sufficient number of dwellings available, but this will not be politically acceptable because it will be the same as to accept the downturn and believe that nothing can be done to change the situation. Later it is shown that the municipality does take action towards reversing the negative development.

Appendix 3

Interview guide

Formålet med interviewet er at få klarlagt hvilken planlægning kommunen udfører i forbindelse med boliger og hvilken politik der er på området i forhold til imødekommelse af befolkningens præferencer og bæredygtig byudvikling og –omdannelse.

Mål med interview/spørgsmål	Spørgsmål	Hvad skal komme ud af spørgsmålet?	Hvordan skal den opnåede viden anvendes?
Få en god start på interviewet	Hvad er dit fulde navn (hvis ikke allerede opnået) Fortæl lidt om dit arbejde på kommunen/uddannelse	Viden om interview personen og dennes uddannelse og arbejde.	Anvendes til at udøve kildekritik
Viden om hvilken overordnet politik der driver planlægningen i kommunen	Beskriv den/de overordnede politikker som kommunen planlægger efter – specielt i forhold til planlægningen af boliger(planstrategi, Agenda 21)	Viden om hvor fokus er i planlægningen	Generel beskrivelse af kommunen og analyse af kommunens fokus
	Hvad betyder disse politikker for den kommunale planlægning?	konkrete eksempler på opfyldelse af politikker gennem planlægningen.	Analyse af hvilke politikker der har indflydelse på

	(strategi/agenda 21)		planlægningen, hvordan og i hvilken grad de har indflydelse
	Er boligpolitikken noget som der er stort fokus på blandt politikerne?	Hvilken prioritet boligområdet har politisk	Analyse af kommunens politiske tilgang til området
	Har den kommunale planlægnings strategi ændret sig radikalt inden for de seneste år i forhold til planlægningen af boliger? (finanskrise) hvis ja hvilke?	Nej Ja – hvilke ændringer er der blevet lavet	Kildekritik i forhold til den mellemliggende periode fra kommuneplanens vedtagelse og interviewet. Denne info kan måske også bruges til at vurdere hvorvidt kommunen 'kører på autopilot' og laver overdimensionerede arealudlæg baseret på urealistiske forventninger om hvor stor efterspørgslen vil blive
Opnå viden om den specifikke case kommunes generelle planlægning og udfordringer	Beskriv den kommunale planlægning på boligområdet	Generel viden om kommunens planlægning i forhold til boligområdet – viden om hvor fokus er i planlægningen	Generel beskrivelse af kommunen
	Den konkrete udvikling af bolig områder, hvordan foregår den ?	Udlægger kommunen jord og så derefter venter på det udvikler sig 'af sig selv'? eller er der en mere fast plan for udbygningen?	Analyse af kommunens tilgang til planlægningen
	Hvilke udfordringer der er i forhold til det?	Hvilke problemstillinger arbejder kommunen med – viden om hvor fokus er	Generel beskrivelse af kommunen og analyse af hvilke problemstillinger kommunen ser som vigtige
	Hvilke boliger planlægges der for	Helst et specifikt tal, ellers nogenlunde	Analyse af den kommunale planlægning

	(parcel/række/etage) hvor planlægges der (ny områder/fortætning), hvilke forhold?	forhold mellem boligtyperne – hvilke områder planlægges der i.	i forhold til strategi/agenda 21 og demografisk udvikling
Viden om den kommunale planlægning i forhold til den demografiske udvikling	Præsenter evt. tal for den demografiske udvikling. (egne/kommuneplanen) Hvordan er den demografiske udvikling i befolkningen i kommunen?	Viden om hvilke befolkningsgrupper der bliver flere af og hvilke der bliver færre af Hvilke befolkningsgrupper kommunen opererer med	Sammenlign kommunens opfattelse af den demografiske udvikling med egne beregninger
	Hvordan laves fremskrivningen af befolkningen / ses der på dst's tal?	Fakta om hvilken metode der anvendes	Analyse af metoden kommunen anvender til at fremskrive de behov kommunen har i forhold til boliger.
	I forhold til den demografiske udvikling (af bestemte befolkningsgrupper), hvilke overvejelser gøres der i forhold til planlægningen af boliger? og Er det noget der bliver overvejet når der planlægges og i hvilken grad tages hensyn til det?	Viden om de hensyn der tages i forhold til forskellige befolknings grupper og hvordan den demografiske udvikling præger planlægningen i kommunen.	Analyse af den kommunale planlægning i forhold til den demografiske udvikling.
Viden om hvilke behov kommunen planlægger for	Hvilke boligbehov søges opfyldt genne planlægningen?	Viden om hvordan kommunen opfatter behov og hvilke behov der søges efterkommet	Analyse af kommunens tilgang til behov
	Hvilke boligbehov ser du som vigtige at få opfyldt?	Viden om hvordan planlæggeren opfatter behov og hvilke behov der er vigtige at få opfyldt	Analyse af kommuneplanlæggerens behovsopfattelse
Viden om den kommunale	Hvad er kommunens holdning/politik omkring om der skal planlægges i	Viden om hvordan kommunen forholder sig til folks	Analyse af kommunens tilgang til planlægningen

planlægning i forhold til folks præferencer	vid udstrækning for at opfylde befolkningens præferencer i forhold til bolig og omgivelser?	boligpræferencer og skiftende præferencer.	
	Hvordan er din holdning til om der skal planlægges i vid udstrækning for at opfylde befolkningens præferencer i forhold til bolig og omgivelser?	Viden om hvordan den enkelte planlægger forholder sig til emnet	Analyse af om de kommunale planlæggere ser et problem i den måde kommunen håndtere planlægningen på.
	I forbindelse med behov og præferencer, hvordan ser du på forholdet mellem behov og efterspørgsel i boligudbuddet i kommunen?	Viden om hvilken holdning den enkelte planlægger har til dette forhold og planlæggerstaben i kommunen	Analyse af det fokus kommuneplanlæggerne har i relation til forholdet mellem behov og efterspørgsel