



The densification of second home areas — sustainable practice or speculative land use?

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ABSTRACT

UN Sustainable Development Goal #11 prescribes a much more careful territorial planning and land use control. This study documents second homes' land use from this perspective, considering higher built-up density as a measure to limit land-take. The quantitative study includes public property data on all second homes in Denmark. A concise account of the 180,000 properties demonstrates a tendency towards densification, measured as an increase in the amount of built space on the existing land sites. Over time, the average house size increases, an expression of improved living quality. Incentive for owners are the rising second home market prices and the opportunities for creating profitable ownership by offering the property on the touristic renting market when they do not use it themselves. The sustainability-motivated appeal for densification coincides with the speculative land use intensification. The dual agenda is backed by the tourism lobby and policymakers. The downside of densification is the simultaneous underprioritizing of other important sustainability goals, such as biodiversity, the preservation of landscape values, human wellbeing, etc. Following a public debate about unintended side effects of densification, there seems to be an emerging discussion about the needs to move from a very liberal multilevel planning model for second home areas towards a more firm and transparent planning practice. This corresponds with the recommendations in the SDGs.

1. Introduction

This article addresses land use, expansion, and building densification issues in the dedicated zones for second homes in Denmark. It raises a principal question: *To what extent are the already existing second home areas undergoing a densification and how may this be understood as a sustainable practice?* The argumentation is that more “virgin” land take could challenge nature reserves and agricultural production areas (European Commission, 2021; Marquard et al., 2020). Generally, recreational landscape expansion is under discussion due to the potential impacts on the environment as well as predicted negative social implications. However, attractive amenity space may also account for the beneficial effects on health and life quality. This contribution will focus on the land use and property aspects, while also juxtaposing the sustainability against the economic driving forces in the second home sector. In that sense, the article uncovers and discusses underlying dilemmas in the UN's Sustainable Development Goals (SDGs). In other

words, the purpose of the article is to scrutinize how far densification efforts can be brought with the aim of the securing and promoting local economic growth and full employment — without compromising other SDGs. This is a hitherto poorly covered aspect of studies of recreation and tourism (Hall and Müller, 2018; Scheyvens, 2018), and of planning and governance (Andersen et al., 2018; Boluk et al., 2019).

Goals #11 and #15 in the SDGs address the unsustainable use of terrestrial resources. Goal #11 is concerned with “Sustainable Cities and Communities”, and Goal #15 with “Life on Land”. Carefully used and maintained land resources are of critical importance for climate change and biodiversity. The mismanagement of land resources can lead to loss of nature and amenity values and consequently human well-being. Goal #12 regarding “Responsible Consumption and Production” is also applicable here in terms of dealing with the management of natural resources, which are prevalent in or in the proximity of second home areas and vital for the touristic and recreational value.

Predominantly, the need to obtain a better resilience in land use and

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territorial management accounts for the situation in urban zones and open landscapes (such as forests, agricultural areas, and protected nature districts). So far, recreational landscapes, i.e., areas with second homes and camping, marine outdoor facilities, parks and hiking landscapes, etc., seem to have gone somewhat under the radar (Johansen et al., 2020).

The empirical foundation for the study is the Danish second home sector, which consists of approximately 183,000 privately owned cottages and summer houses in designated second home areas. The second homes are mainly located in coastal regions, including or close to major (in some cases protected) nature areas. In terms of designation and planning, second home areas differ from urban and rural zones; the latter include mostly nature areas and agricultural spaces. In this article, the term *second homes* is used as synonymous with summer houses and cottages. This property resource is a major factor in the development of domestic tourism in Denmark. However, approximately 20% (Statistics Denmark, 2020), of the owners also offer their houses on the commercial rental market for Danes and foreigners. As a matter of legal regulation, the second homes are not for all-year habitation (with some exceptions), referring to the under-average standards in infrastructures, building construction methods and facilities. Nevertheless, in recent years, the market demand has expanded, and the owners have in many cases improved the standard of their houses, for example with insulation. This has coincided with a more intensive utilization. Second homes used to be of economically marginal importance, but are now more than ever objects of investments and noticeable components on the property market. This development towards a more pronounced commercial ingredient has, over the past decade, been accepted and supported by governmental as well as local strategies, referring to the economic potentials in tourism (Det Nationale Turisme Forum, 2019). Some de-regulation measures have, to this end, stimulated the increased utilization of the second homes and financial benefits for the owners for putting their property on the renting market (Regeringen, 2016).

The Danish second home sector is in a state of flux, as the properties are changing in terms of the formats of use, and when it comes to the regulatory regimes. There is an increased interest in investing, ensuring modernization, and capturing value accumulation, and this also applies to the many families with average incomes who own a second home. This rush can be framed as a speculative intensification of the land use. A critical public debate is emerging. Questions are raised about the present and future sustainability of the land use for recreation and not the least the recreational accommodation capacity, including the means of further expansion efforts and the related planning practices (Andersen et al., 2018; Slåtmo et al., 2019; Xue et al., 2020). For these reasons, the second home sector is an interesting object of inquiry. The study examines the general density and the development over time, and it scrutinizes regional and spatial differences in the density and the development hereof, including the potential for extensions and expansion in the dedicated second home areas. To support the inquiry about the density dilemmas, the study also assesses the covariance with property market values and renting opportunities, and it contributes with new evidence of importance both in a Danish context, but also to the study spatial features of touristic property more generally (Back, 2020; Gallent et al., 2017).

2. Literature review

Over the past decades, the second homes have been explored to some depth in Danish and in international tourism research (Hall and Müller, 2018; Gallent et al., 2004; Gallent et al., 2017; Müller, 2013; Skak and Bloze, 2017). Some emphasis has been on the owners' and users' perceptions and attitudes and on their specific utilization patterns (Farstad and Rye, 2013; Gram, 2005; Larsen, 2013; Roca, 2016; Tjørve et al., 2013). Regional analyses include second homes as a touristic capacity and investigate the properties in terms of their potentials to contribute to growth, job creation, and community development (Back and

Marjavaara, 2017; Hall, 2015; Hjalager et al., 2011; Larsson and Müller, 2019; Lundmark and Marjavaara, 2013).

Only recently have the sustainability issues become the focal point of academic studies of second home tourism. Social compliance, i.e., coexistence with the local communities, is a primary concern (Back, 2020), and the research tends to underline the dilemmas of maintaining the social and cultural fabric when inviting many visitors. Over-tourism is mainly an urban phenomenon, but, as pointed out by Gössling and Michael Hall (2019), the relative overuse of less densely populated recreational space can eventually also cause negative impacts related to an increased touristic demand. As with other spatial tourism concentrations, second home areas are accountable for adverse environmental effects. Hiltunen, Hiltunen et al. (2016) show that the users of second home areas are somewhat, although possibly insufficiently, aware of the impacts, and the authors foresee the need for increased governance measures. Second homes are particularly vulnerable to climate change incidences, e.g., storms, flooding, sea level rise, draughts, etc. (Hooendoorn and Fitchett, 2018). Xue et al. (2020) discuss the sustainability of a multi-dwelling lifestyle, including owning and regularly visiting one or more second homes. Persson (2015) stresses that legislation and planning are essential in case of changed second home growth in new land developments, and she discusses the possibilities of infill of additional building volumes and thus more efficient — and denser — land use.

Numerous sustainability issues are discussed with regard to second homes, e.g., as treated by Gallent and Tewdwr-Jones (2018), but a good overall analytical alignment of the second home sector with the Sustainable Development Goals in the academic literature has yet to be made. As mentioned by Liburd et al. (2020), a significant perplexity is witnessed in the literature in terms of understanding what the SDGs really imply for tourism in general. It is unclear how the embedded contradictions should be addressed. The World Tourism Organization, UNWTO, does not offer any rigid indications but confirms that more or less all 17 goals may be of relevance when dealt with in different contexts. The organization advocates a learning and knowledge compilation from practice. Land use, infrastructure, and climate questions of second homes are covered by, but are not confined to, SDGs #6, #9, #11, #12, and #15 (Boluk et al., 2019). An emerging “No-net-land-take-agenda” (European Commission, 2021) nails down the ambitions about raising awareness to the fact that urbanization and infrastructure development lead to the loss of ecosystem services of key importance to human life. A greater focus is needed toward which measures can avoid, reduce, or compensate for land-take and how to make land use more sustainable (Colsaet et al., 2018). It might be mentioned in this connection that land-take a priori can be a broader concept than land consumption, cf. SDG#11 (Marquard et al., 2020). While the policy measure does not directly take tourism into account, it does mention a handful of mitigation strategies, such as intensification, recycling in brownfield developments, compensation by nature development augmentation, etc. All of these (and more) are reflected in the Danish planning legislation, which thus has already comprehensive restrictions on land-take (Sørensen and Christensen, 2020). Avoiding sprawl is also often envisaged in the tourism research (Adamiak, 2016). Gössling and Michael Hall (2019) appraise the platform economy for ensuring an increase in the double and flexible use of already existing recreational accommodation capacity; second homes are a significant part of this trend through the widespread renting practice. However, Gössling and Michael Hall (2019) warn about unforeseen effects of over-tourism and the stress on natural resources. The same reservation emerges in Slåtmo et al. (2020), although with the reverse perspective, where more compact cities are claimed to trigger higher use of the second home areas, as they are not planned for an extensive use across seasons. The increased mobility has also adverse sustainability effects, and Næss et al. (2019) remind us that second home mobility patterns dominated by the private car, impact on climate change.

Second homes are not only a leisure resource, but also an investment

and accumulation object. As such, the properties are components and drivers on the housing market, as investigated by Back et al. (2020). They find that in the Swedish case, the second home housing market depends not only on amenity values, but also on housing types and standards, and the distance from urban agglomerations. Some tourism locations are at risk of an overheating on the housing market, with negative impacts for the overall sustainability balance, while other places remain peripheral. The inclination to invest — also in environmental improvements such as building isolation — depends on the spatial and locational factors mentioned.

A scarcity of land resources, particularly in attractive locations, coincides with the tendency to intensify the land use. More and denser building styles will pay the rent for rising land values. In many countries there is a rush to establish new second homes on seafronts, etc. (Gallent et al., 2017; Paris, 2019). The peripheral locations, which strive for an economic development from tourism, may allow a far more extensive “symbolic dispossession” (Fitchett et al., 2020), where communities are persuaded to let go, at a favorable price, attractively located, publicly owned areas and community commons to national and international investors and developers in return for claimed economic development and jobs. The communities accept in this process to lose control over the land use and the accumulation in the tourism territory, for example by letting public space become (semi)private terraces or areas for pop-up commercial activities. Land grabbing, displacement, commodification, exclusion, and extinction are topics not only found in developing countries, but the formats in the case of recreational development are not yet well understood (Gibson, 2019; Soto and Clavé, 2017). Local disputes and conflicts over land use exhibit that second home areas are also increasingly becoming territories of accumulations and land use intensity (Almeida et al., 2017; Hjalager, 2020).

The specific densification depends critically on national, regional, and local land use policies. The densification seems to be particularly widespread in the urban proximity (Ellingsen and Nilsen, 2021; Stiman, 2020), possibly as an effect and extension of heated urban housing markets, and an effect of distance. However, this is not the only factor. The planning for amenity values can change the status and attractiveness of particular locations (Breiby et al., 2021). The appeal of a second home area lies in the accessibility to areas of natural beauty, and improvement hereof is critical in many rural and coastal tourism strategies, for example in concordance with climate protection measures (Jarratt and Davies, 2020; Slåtmo et al., 2019). Additionally, the careful planning inside newly developed second home areas is also raised as an ingredient in comprehensive tourism policies, such as ensuring landscaped plantation, lakes, and other water features, etc., in areas without intrinsically embedded characteristics such as these (Kaltenborn et al., 2009; Kondo et al., 2012).

Land use speculation used to define the situation where the utilization of the available land and housing resources is expanded and disproportionately leveraged by financial opportunities such as property value development following legal and planning options. If speculative housing expansion takes place, land use is not solely governed by the immediate needs and qualities connected to the specific vacation use by owners, but also to spiraling property values and to the expected lucrative return of investments (Back et al., 2020). Speculative investments may be considered risky for the property owners, but also in a community context, where, when using the parallel of financial bubbles, the trust in a continuation of the upward trend collapses. Rising prices might also exclude aspiring and perhaps less affluent second home owners from partaking in the recreational and socio-cultural traditions offered by second homes (Steffansen, 2016).

The literature review suggests that the second home research is moving into new fields, gradually appearing to deal with questions about sustainability, as advanced in the SDGs, albeit the research mainly regards the aims to secure and promote local economic growth and full employment, cf. SDG#8. The limits to second home densification have yet to be brought up for discussion, and supporting evidence is still

scarce for that purpose. The critical question is whether and at what point densification becomes counterproductive for the preservation of nature, environment, biodiversity, landscape, etc., formulated under other SDGs. The second homes are part of a property market, and while the economic drivers are modestly understood, the rural context and the potential dilemma of the installed multilevel planning models are underexplored (Homsy and Warner, 2019). Up till now, the research on these topics has been negligible, and there are major knowledge gaps both in Denmark and internationally. This study will provide an inquiry into the densification trends and illustrate with the data about the regional variety from Denmark the nature of the economic incentives.

3. Methodology

3.1. Research approach and data

The study is a register-based quantitative study, supplemented with supporting and explanatory interview results from local planning bodies and inquiries in planning documents. The quantitative part is particularly essential for the topics examined in this article. The study benefits from having access to property data for all 220,000s homes in Denmark, of which 183,451 are included in this study. Second homes have a specific category in the building register, and there is little difficulty in defining what a second home is, as second home properties are under a special legislation in the Danish planning law. The data set is unique by covering the entire country.

The data were retrieved from the Danish Building Register BBR bbr.dk (Danish Building Register (BBR) (bbr.dk), 2021), which is continuously updated by the authorities. Most of the data are open to the public, but permission is provided for research purposes, and the data can be supplied and enriched with information from the tax registrations and cadastre. It gives the possibility to undertake encompassing quantitative analyses. The data are fully up to date and were retrieved at the end of 2020. The quality and accuracy of the data are generally considered to be good, based on governance sources, and therefore reliable and adequate for a very robust analysis (Udviklings- og Forenklingstyrelsen, 2019). The data provides a full coverage of the selected category of second homes, and there is no selection bias.

The variables chosen for this article contain data about the specific locality (municipality) of the single property by address coordinates, the size of the land site and the size of the house. Public valuation data is available for all second homes. The calculation of the density development can be undertaken in two different ways, as data regarding both the size of the land site and the building can be acquired. Some land sites do not have buildings, for example if the site is in the planning stage, on the market, or if the owners hold the land for amenity and landscape values, or they are withholding it for later use or speculative reasons. The data is used to supplement the above mentioned densities on the already built-on sites, and accordingly, there are two expressions of densification:

- Marginal building opportunity measured in square meters, signaling the possibility within the framework of existing building and planning regulations to increase standards and living space
- Unused land sites dedicated in planning to second homes; here, measured in number of new and additional houses that may, in the future, be added to the existing second home capacity.

Increased use of the second homes — more bed nights during the season in the existing houses — could be considered an additional and equally relevant dimension of densification. However, intensification in this way is not included in this article, which concentrates on the built capacity, the size, and coverage.

Through the validation of the data, a small number of properties have been excluded. The majority of second homes excluded are located in urban areas and rural spaces, where other regulations are in

operation. The study concentrates on second homes in areas that are dedicated to the purpose, i.e., within the “second home zones” planning category, which is the dominant type of location in Denmark for second homes. A number of 183,451s homes are available in the data set after the exclusion of second homes outside the dedicated second home zones and second homes situated on extraordinary large land sites. Even when allowing for a variance on many parameters, these properties in the data set are what can be considered the “normal” type of second homes. By

definition, the second home zones in Denmark do not contain permanently inhabited homes, and for that reason there is no issues connected to gentrification, where local inhabitants are crowded out in connection with the transformation of homes to vacation accommodation.

This contribution focuses on the size of land plots and the size of the houses. The data are treated in GIS and SPSS in several iterative steps in order to find the best analytical approach for the scrutinizing of the density patterns in general and by geographical sub-regions Fig. 1.

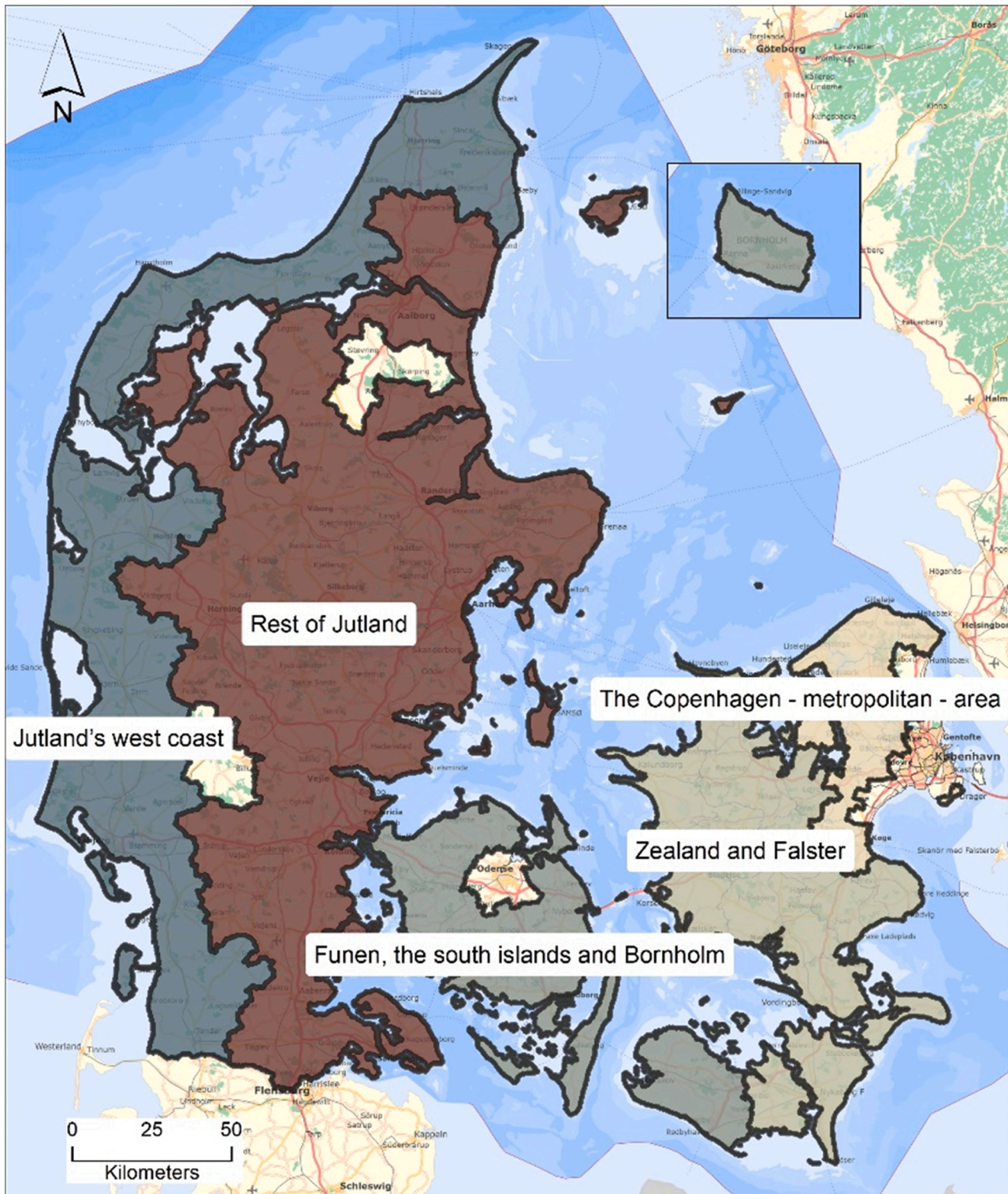


Fig. 1. The geographical categorization.

3.2. Foundations for a spatial analysis

A spatial categorization has also been established through an iterative process, based on the 78 municipalities that have dedicated second home zones. A first test was undertaken on the 78 municipalities alone. To supplement prior knowledge about the Danish tourism landscape, a

regional division into five groups was undertaken. These are:

- The Copenhagen (metropolitan) area: Second homes in a short driving distance from the population agglomeration in Copenhagen, and with a tradition for tourism where the owners tend to commute from the second home during a long summer period.

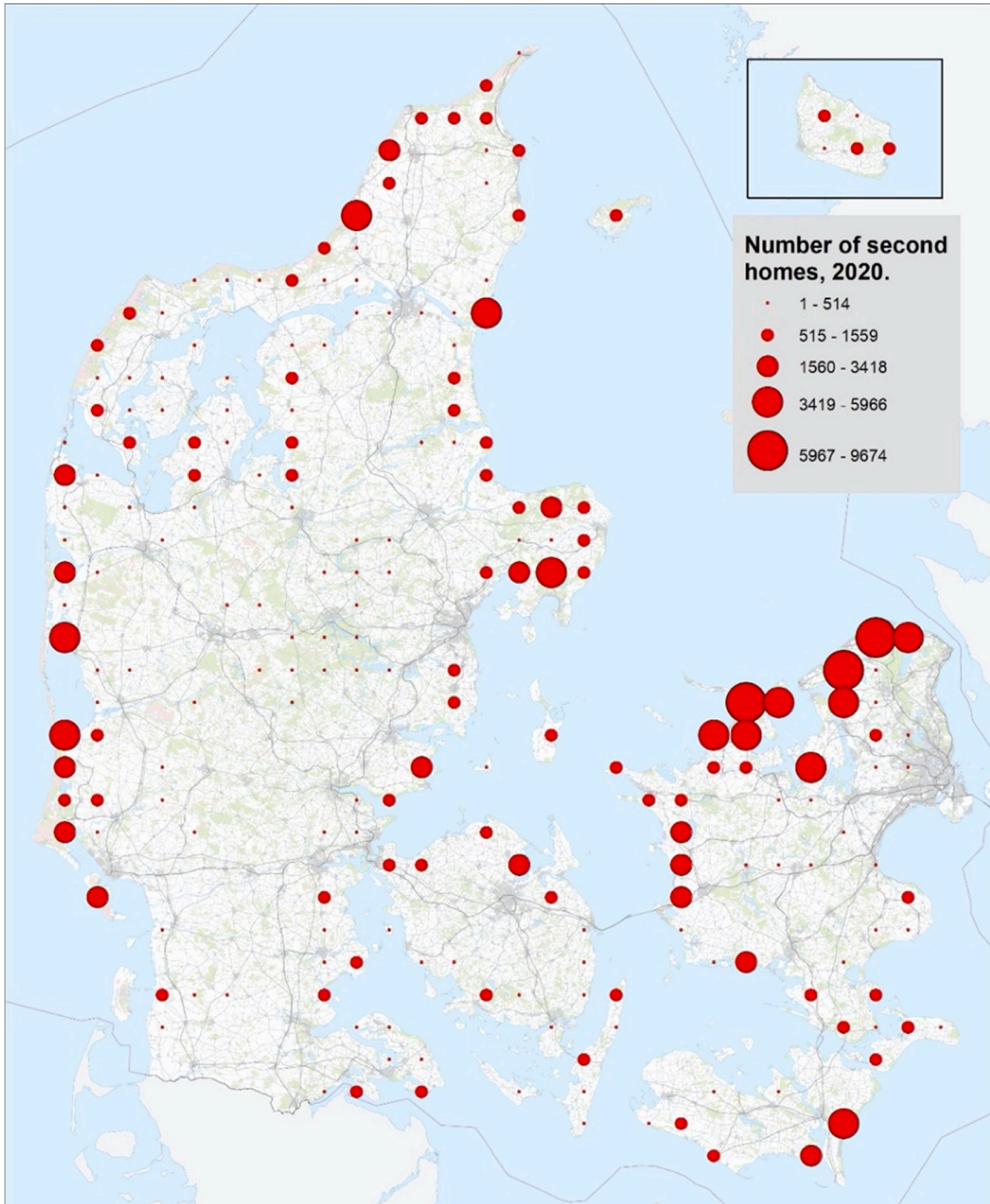


Fig. 2. The concentration of second homes, displayed as the number of second homes in 10 × 10 km cells. Source: BBR data.

- Zealand and Falster: Longer distances from Copenhagen, typically lower social-tier second homes.
- Funen, the South Sea islands and Bornholm. An area where second homes are more rarely found and a less recognized vacation resource.
- Jutland's west coast: Regarded as a major vacation area for Danes and on the renting market. The west coast contains large natural resorts and wide outdoor opportunities.
- Rest of Jutland. Areas of high variety, some located in the vicinity of larger cities, with weekend and vacation use combined. The east coast is characterized by pockets of natural amenities and outdoor recreational opportunities.

3.3. Qualitative inquiries

Additionally, and in order to support the land use data, 152 local land use plans for secondhome areas in 6 different municipalities were examined in detail for the handling of density issues. In this examination, the regulation of maximum density was the focal point. This information was essential for the estimates of remaining building capacity in second homes, and it was supplemented with rationales from the planning information available in the quantitative data resources.

The research project, of which this article is part, benefits from a close collaboration with planning departments in municipalities and with experts from planning NGOs. They have been interviewed formally about planning challenges and prospects, including density. The results serve as background information, in particular as there are no prior or consistent studies. The collaboration with the practitioners has provided a possibility to test the feasibility of the recommendations given in the last part of this article.

4. Results

4.1. Areas of research

This section presents the results of the study. First, an examination is provided of the total density of the second home areas and the development over time. As there are some spatial differences in the nature and purpose of second homes, a regional analysis is provided. A significant contribution is the estimate of additional densification opportunities and the discussion of the potentials in an SDG context. In order to understand the speculative elements of densification, prices of second homes are scrutinized in further detail — generally and regionally.

4.2. Density development — the national picture

In Denmark, second homes are predominately located along the coasts, as illustrated in Fig. 2. The perception of leisure is closely connected with outdoor activities, such as beach life and swimming, and the sea offers fresh air and a feeling of freedom and relaxation (Andersen and Vacher, 2009). The location in the coastal areas is regarded as a major benefit for the users and a primary attraction factor for Danish tourism. However, the preference for the sea is also a challenge, as the coastal areas and the immediate hinterlands are restricted resources, often of high natural value and matters of protective measures. Even taking into consideration that Denmark, compared to other countries, has an extremely long coastline (7314 kilometers), there is not enough coastline to ensure a sea view for everyone.

Table 1 illustrates the key figures for status and the overall development in the number of second homes 2011–2020 and the built square meters. The built space is 14.7 million square meters in 2020, distributed on 183,451 houses. The number of houses has increased by 5.9%, which may not be considered a very rapid development, but still significant, taking into account that this is regarded as a predominantly hedonic consumption. In the same period the number of permanent homes increased by 6.5% (Statistics Denmark, 2020).

Table 1

Characteristics of the second homes, numbers and square meters, 2011 and 2020.

	2011	2020	Percentage change 2011–2020
Number of second homes	173,290	183,451	+ 5.9
Total built square meters	13,555,147	14,663,287	+ 8.2
Average size of total number of houses	78.2	79.9	+ 2.2
Average size of houses built in 2001–2010	98.2		+ 11.2
Average size of houses built in 2011–2020		109.1	

Over time, the standard of second homes, measured in square meters, has undergone an upgrading. The Danish second home market consists of a number of, on average, small houses and cottages, but in recent years there is a clear propensity to build larger houses. Second homes built during the first decade of the millennium were 98.2 square meters on average, which went up to 109.1 in the subsequent decade. The total development indicates an increased density on the individual land sites but also totally in the second home zones, even if many of the old and smaller houses still remain in use. Demolished second homes are not included in Table 1.

4.3. Density developments in a regional context

A prior analysis of the Danish second homes (Hjalager et al., 2011) demonstrates that there are differences in the perception and use of the second home properties in the different regions of the country. A main distinction is regarding distance. Areas in the vicinity of the Copenhagen metropolitan area and the large cities hold houses that primarily serve as weekend accommodation for the population from the city locations. Sometimes, these second homes are in use throughout the long summer, and the owners commute to work in the cities. In contrast, the houses along the West Coast of Denmark in particular are mainly used for vacation purposes, and they are also predominantly found on the renting market (Statistics Denmark, 2019; Skak and Bloze, 2017). The combined effects of distance and landscape types and the possibilities for the owners to put the houses on the tourism renting platforms are critical for the way that the aggregation is undertaken in the regional analysis in this study.

There are noticeable regional differences. Table 2 illustrates that second home development takes place more rapidly in Jutland than in the rest of the country, and the increase in the number of houses and added square meters correlates. The houses in Jutland are, on average, larger. All regions are seeing an upgoing trend, particularly for the western part of the country. Funen and the South Sea islands constitute an area where the houses (including new ones) are consistently smaller. The metropolitan area is also increasing the second home density measured by the number of houses and house sizes. In those areas that are regarded as most popular, the building activity is more pronounced, possibly reflecting the expectation of return of investment.

The increased building standard related to the sizes of second homes in Jutland is likely an effect of the possibility to offer the houses on the renting market. From 2014–2019, the number of weeks that second homes were rented on the commercial market, rose from 549,000 to 691,000, a rise of 26% (Statistics Denmark, 2020). The rise is higher in the western part of Denmark, possibly reflecting the existence of bigger houses. Houses with 2–3 bedrooms or more are known to be more attractive and profitable in this respect than smaller cottages. Legal de-regulation of the second homes has taken place in terms of allowing longer seasons and higher tax benefits from renting out through an agency. Owners of the houses might have exploited the opportunities by ensuring incomes through renting, possibly to help the financing of extensions and/or renewals of the property. The relatively low land use

Table 2
Characteristics of the second homes, numbers, and square meters, by region, 2011 and 2020.

	2011	2020	Percentage change 2010–2020
Number of second homes			
Copenhagen metropolitan area	29,576	31,220	+ 5.6
Zealand, Falster	50,238	52,861	+ 5.0
Funen and the South Sea Islands	12,658	13,306	+ 5.1
West Coast	43,174	45,870	+ 6.2
Rest of Jutland	37,734	40,284	+ 6.8
Total built square meters			
Copenhagen metropolitan area	2,365,299	2,546,177	+ 7.6
Zealand, Falster	3,625,843	3,883,976	+ 7.1
Funen and the South Sea Islands	938,959	1,004,679	+ 7.0
West Coast	3,706,877	4,034,059	+ 8.8
Rest of Jutland	2,918,279	3,194,496	+ 9.5
Average size of total number of houses			
Copenhagen metropolitan area	80.0	81.2	+ 1.5
Zealand, Falster	72.2	73.5	+ 1.8
Funen and the South Sea Islands	74.2	75.5	+ 1.8
West Coast	85.9	87.9	+ 2.3
Rest of Jutland	77.3	79.3	+ 2.6
Average size of houses built between 2001 and 2010 and 2011–2020			
Copenhagen metropolitan area	101.3	110.0	+ 8.6
Zealand, Falster	93.0	98.4	+ 5.8
Funen and the South Sea Islands	91.7	101.4	+ 10.6
West Coast	105.0	121.4	+ 15.6
Rest of Jutland	96.8	108.3	+ 11.9

facilitates speculative renovations including simultaneous larger houses and better standards.

This section shows a trend towards an intensified use of the second homes, leveraged by the added number and sizes of the houses, as shown in Table 2, combined with national and regional tourism strategies that favor the utilization of the resource as part of a tourism growth ambition (Det Nationale Turisme Forum, 2019). Even in the pandemic year 2020, which saw a radical drop in the inflow of renters from Germany and Scandinavia (Statistics Denmark), the utilization was almost unchanged, although now the Danes themselves became more frequent customers on the commercial second home renting market. This shows the functional flexibility and in economic terms, resilience of the second homes.

4.4. Unused second home building sites

In 2005 the government passed a planning declaration allowing an additional development of second homes in selected coastal zones — zones chosen not to compromise the protection of coastal natural values and yet with attractive amenity values. The motivation for this step was to ensure a regional boost in declining peripheral areas of the country (Miljøministeriet, 2005). In the years 2006–2007, this step alerted the, for the purpose, selected municipalities to undertake a planning of new second home areas, and an optimism was raised in terms of the potentials in terms of created jobs in connection with the consumption by tourists in the retail sector and for the construction sector. However, the financial crises in 2008 and the subsequent years radically slowed down the development of second homes nationwide. Investments in property and building dropped, and many allocated areas remained unused for more than a decade. Some of the allocated new second home zones never moved into a planning stage with a local land use plan.

According to the national planning legislation, the municipalities are in charge of planning for the second home areas, but they will have to act

within the national planning agendas, instructions, and guidelines. They have the legal possibility and, if they want to, the decision power to work for increasing densities, provided a detailed local land use plan is produced. In 2017, the government took action to reassess the planning declarations of 2006–2007. The step followed a more favorable market for second homes, but also the liberalization of the patterns of use, as described above. In this process, municipalities were allowed to apply for permission to shift the location of second homes, mainly to allow for developments closer to the coast, but still with a fair respect for the in Danish legislation established natural protection lines. Specifically, it became possible for the municipalities nationwide to lay out 6000 new second home plots in exchange for returning 5000 undeveloped plots to rural zones. With the changes in the zoning, it was possible to increase the density and to allow more second homes altogether, an opportunity widely employed by the municipalities, but also criticized by nature NGOs for the underlying opportunity to enhance the density in vulnerable areas (Danmarks Naturfredningsforening, 2019).

The governmentally initiated gradual expansion of the capacity along these lines can be considered as a clear approval of a densification agenda, simultaneously with an attempt to increase the property attractiveness and thereby market value.

In 2020 there is a remaining unused capacity, where second home sites are still unbuilt. These sites account for 7.5% of the total number of second home properties.

As shown in Table 3, the remaining capacity is lowest in the Copenhagen Metropolitan area. Here the spatial possibilities are limited in terms of developing new areas for second homes, and the region is not considered economically disadvantaged. It was not part of the 2006–2007 expansion policy. The West Coast is also lower than average remaining capacity. Part of the explanation is sought in the economic attractiveness as well as the amenity values. The rest of Jutland plus Funen and the South Sea islands have the highest resource slack. The comprehensive picture suggests economy-driven underlying factors, which will be further examined in the next sections together with other coinciding indicators.

4.5. Land plot utilization

In principle, owners and the renters can attain an intensified use of the second home capacity by exploiting the houses for longer periods during the year and with more people and bed nights in the available houses. However, the land space may be utilized even better by building more square meters on each site. The strategy and the inclination for municipal building authorities to allow this densification depends on the specific local planning regulations.

Only 47% of second homes are covered by local planning regulations of some detail — “local land use plans”, while the rest of the capacity depends on municipal “planning frames” with only rudimentary and sometimes more ambiguous indications of building opportunities on each building site. However, almost all second home sites are comprised with either a maximum building percentage and/or a maximum of the total allowed building size. Local land use plans often prescribe a

Table 3
Number of unused sites and percentage of existing total second home capacity, 2020.

	Number of unused sites	Percentage of sites with as-yet unbuilt houses
Copenhagen Metropolitan area	13,46	4.1
Zealand, Falster	42,31	7.4
Funen and the South Sea Islands	15,88	10.7
West Coast	32,54	6.6
Rest of Jutland	43,92	9.8
All of Denmark	15,111	7.6

maximum of 120 square meters. With the existing trends and tourism strategies, it is of key interest to investigate the gross proportions of the building opportunities in second home areas that have already been established and built on. In other words, how much can the owners (theoretically, if not in practice) expand their buildings within the existing sites and within the normal legal frameworks?

A general indication of the allowed building site utilization for second homes of maximum 15% is found in the Building Regulation. Land sites should be at a minimum of 1200 square meters. The local plans can govern differently. A close examination of 152 local land use plans from 6 municipalities shows that most plans prescribe a lower density, very often a maximum of 10%. In some cases, mainly in areas with large land sites and significant amenity values, the maximum utilization is indicated as low as a maximum of 5%. In areas where the second home areas are very similar to allotment areas, the allowed building percentage is usually higher, typically up to 25%. Such areas are mainly found in the proximity of the larger urban areas, and in special developments, such as in or close to yacht or leisure harbors.

A first and indicative calculation of the extra capacity is found in Table 4. It demonstrates the (theoretical) opportunities for a densification within areas that are already in use for second home purposes.

The table demonstrates that the density compared to the standard maximums is low, and that in principle, there are very considerable remaining building opportunities in all regions investigated. Under the assumption that no other legal frameworks were in operation, an increase to approximately double the number of square meters could in fact be undertaken in all regions. However, there are other regulations that will be of importance for the possibilities to increase the densities, such as building lines towards neighbors, distance requirements to natural areas and infrastructure, etc. The local land use plans can handle and amend some of the limitations, but it is unlikely that the theoretical expansion opportunity as calculated here can be fully exploited. However, a further utilization depends heavily on the municipal planning on the specific location. Also, if the municipalities plan to limit the densification and thus discourage owners from expanding their buildings, planning measures have to be undertaken.

There is a significant positive correlation (0.158 **) between the land site size and the actual house size in square meters, which means that larger sites also invite to establish bigger houses. However, there is also a significant negative correlation (-0.266 **) between the land size and the land use percentage of the individual land site. This is partly the result of planning decisions, where municipalities determined that some areas should appear and remain with a very low density. In addition, owners have a decision, and houses on relatively large land sites do count as particularly attractive, as they can provide privacy and landscaped amenity values. These tendencies are identical in all five regions.

Neighbor conflicts in second home areas are seen with some frequency in Danish second home areas (Hjalager, 2020). Some of them caught municipal authorities by surprise. In particular, the establishment of very large houses (more than 250 m²) have accelerated protests among neighbors, because such houses invite to large gatherings of families and friends, stag nights, business team building events, etc., sometimes with noisy partying and playing taking place. While only a

minority of the total houses (0.2%) are this big, the densification that they represent in terms of space and user patterns deviate from the “normal” perception of the second home areas and what types of vacation making the houses are meant for. The very large houses are established and sold with clear renting business cases in mind, and in the public debate some see them as violating the implicit “moral” underpinning of the second home concept. This illustrates the complexity of land use speculation against cultural and social anticipations generated over decades.

4.6. Hotspots for building extensions and renovations

According to Danish building law, major rebuilding and expansion projects require a building permit. For this article, there is information on the ongoing building permits as of the end of 2020. Table 5 shows that 6.7% of the Danish second homes are under some form of reconstruction, but information about whether the buildings are to be expanded is not available. Nor is there any information on the duration of construction projects, but seen over a year, it is likely that more than 6.7% have undergone building changes.

The construction activity takes place in all five regions, but with a small overweight in Jutland. Areas with longstanding traditions for renting second homes on the renting platforms show a relatively higher propensity to initiate reconstructions works. It is supported by the fact that the number of houses undergoing rebuilding already exceeds the average for the regions, and that they are also located at sites larger than average. In 2021 municipalities report about unproportionally high numbers of building applications in the coastal zones where renting is frequent.

Single places are for example Varde Municipality, which over time has increased its importance on the commercial segments of the tourism development, and simultaneously increased the sizes of newly built houses from 114 m² in the period between 2001 and 2010–148 m² in the period between 2011 and 2020. Ringkøbing-Skjern is another West Coast municipality with the same characteristics as Varde, and here the trend is identical, although with a significantly more modest increase: from 101 m² to 116 m² in newly built second homes. In terms of speculative land-use intensification, the West Coast is experiencing the most intense development.

Table 5
Number of properties with an ongoing construction case, 2020.

	Total number of houses	Number of properties with a building case	% with an ongoing building case
Copenhagen Metropolitan area	31,220	19,20	6.1
Zealand, Falster	52,861	33,77	6.4
Funen and the South Sea Islands	13,306	786	5.9
West Coast	45,870	31,58	6.9
Rest of Jutland	40,284	29,87	7.4
All of Denmark	183,541	12,228	6.7

Table 4
Space allocation by region and theoretical remaining building capacity, 2020.

	Number of houses	Total size of land site capacity	Total built space	Aggregate existing building site utilization, percentage	Additional building opportunity (m ²) with a max building percentage of 10
Copenhagen Metropolitan area	31,220	47,949,797	2,565,227	5.35	2,229,590
Zealand, Falster	52,861	77,185,987	3,978,380	5.15	3,746,630
Funen, the South Sea Islands and Bornholm	13,306	17,434,832	1,004,216	5.76	739,215
West Coast	45,870	99,277,029	4,043,959	4.07	5,892,058
Rest of Jutland	40,284	62,434,028	3,237,883	5.19	3,000,813
All of Denmark	183,451	304,281,673	14,829,885	4.87	15,621,624

4.7. Hotspots for property values

Second homes are a leisure product for the owners, but also, and increasingly an object of investment (Back et al., 2020). The Danish public property valuation system is constructed for the purpose of taxation, and the data are openly available. In Table 6, the building propensity is held up against the property values. For Denmark as such, there is an inclination to rebuild houses that are slightly higher in valuation than the general average, such as houses with a good location. However, the data for the West Coast are interesting, as building projects take place on houses with an, on average, lower valuation. These may include second homes that only need some refurbishments to reach a standard that can obtain a good value on the renting market. The similar tendency in the Copenhagen metropolitan areas may have another background, e.g., the pandemic flux, where the owners of substandard properties chose to increase the qualities or size of their second homes. Both areas have fewer unbuilt sites compared with the average for the rest of the country, a factor that can co-explain that rebuilding and renovation is a preferred activity.

5. Discussion

The number of second homes is increasing in Denmark. Between 2011 and 2020, the development has been recognizable, although it can hardly be said to be anywhere near a regular boom in the number of second homes and the habitable space that they represent. However, a second home is a commodity that swells up in popularity, and in that sense a challenge for the UN's Sustainable Development Goals, as they are addressed in the study. The building density is increasing in the existing second home areas, but the net land-take for new second home areas is in fact limited. Economizing with existing spatial resources allocated for second homes counterbalances the pressure to plan for the use of agricultural or natural areas for recreational accommodation. When it comes to density increases, there are differences in the regional pattern that underlines the importance of renting opportunities for the sizes of houses. The regional prosperity patterns are of importance for the upgraded standards, and the regional variance allows a deeper understanding of the possibilities to work for the SDGs. Thus, the second home areas in (or in the proximity of) the Copenhagen Metropolitan area and other big city regions experience a property value push for density developments, while the development in the coastal region along the West Coast is increasing the building density mainly as a consequence of the renting possibilities on the commercial market. Economic gains for the second home owners drive the development towards higher density, and such incentives are important for regulators to understand. Hence, the other areas of Denmark, where these economic advantages are less prevalent, are characterized by a more modified rush for density. There is an extra capacity, as 7% of the already allocated land sites are not built upon, but these are mainly in less-attractive areas, both economically and in terms of amenity value. A utilization of the "slack" land resources will depend not only on economic stimulators, but also the employment of planning measures that enhance the landscape values. When the SDGs are allowed for in this

Table 6
Mean property values with or without building projects, 2019.

	Average property value of all houses in 2019, DKK	Houses with a building project, DKK
Copenhagen Metropolitan area	1,325,832	1,199,987
Zealand, Falster	1,006,404	1,194,007
Funen and the South Sea Islands	1,078,374	1,243,804
West Coast	1,296,562	1,183,556
Rest of Jutland	1,086,713	1,224,359
All of Denmark	1,156,098	1,202,862

calculation, planning authorities have to integrate goals about climate adaption that might add value, e.g., the handling of rain water and biodiversity. This study shows that in the Danish context, such steps have not yet been taken. There are clear dilemmas in the second home sector which may explain the delayed planning action (Johansen et al., 2020; Liburd et al., 2020).

When building new and rebuilding existing second houses, the owners are likely to seek to exploit the full potential of density. The average size of the newly established houses is increasing, and judging from this, houses are sometimes built to the maximum size allowed, especially in areas with pronounced investment interests. To conclude from the findings, there are indications of speculative land use intensification, which also lead to a (over)consumption of materials and other resources, mentioned as potential focus points in the SDGs. Speculative land use intensification is enhanced by the owners of the houses themselves, who see more in their houses than just the leisure qualities, and the renting and the trade with the second homes are also directly and indirectly promoted in tourism and planning policies. The newer municipal practice, as expressed in the local land use plans for second homes, tends to support the trend and the owners' endeavors. Local plans from recent years often allow higher densities, e.g., maximums of 15%; in some areas even higher. Planning measures attempt to counteract adverse negative impacts by prescribing, for example, rigid zoning of each land site, which determines where the house can stand, its height, orientation, etc. Such measures are meant to ensure, e.g., the possibility for the owners to protect a view to the sea or to areas of natural beauty, and to ensure peace and privacy. Controversies and land use conflicts illustrate, however, that municipality practice is contested, and the plea for economic effects is to be balanced against the seeking for the, in terms of the visions of the SDGs, sustainable development. The understanding in the municipalities and supported by the many owners a planning deficit in the second home areas, and thereby a lack of clarity about the prioritization of the many elements included in the SDGs.

The Danish second home areas represent — with some exceptions — a building and tourism accommodation resource with a relatively low density. This is the effect of decades of leisure and recreational philosophies favoring fresh air, tranquility, green environments, possibly as a contrast to cramped and polluted living conditions in the major cities (Andersen & Vacher, 2009). However, the second home areas are densifying and changing their appearance, increasingly resembling the suburban housing areas where the owners have their permanent residence (Hjalager et al., 2011). The declining variety is regretted by many owners (Gram, 2005; Tress, 2007), who tend to refer to the amenity values distinctly connected to the low density. The recent development demonstrates the challenge to the ideas of the involvement and activation of people who live their lives in a specific spatial context, also mentioned in the SDGs under the notions of partnership building. This is a paradox for the governing bodies, mainly the municipalities, but also the national government agency that oversees comprehensive planning policies. The intended multilevel structure (Homsy & Warner, 201) is slow in its capacity to address new issues and conflicting prospects.

This study raises the question whether the Danish second home sector can be considered a sustainable practice and whether the observed development is an expression of a land use intensification that coincides with the ideas of careful utilization of land resources. On the one hand, owners adding floor space to their second home and offering it for commercial renting can be claimed to support sustainable investment behaviors. They will contribute to less land-take than otherwise the case, and it can be claimed to support several SDG targets. This shows the trend toward speculative land use intensification, and subsequent investments increase the materials used per second home owner, which contradict SDG ideas about limiting and decoupling material consumption from economic growth. It suggests that balancing the inherent paradoxes, the SDGs can only be solved through a stronger strategic planning orientation and capacity. This conclusion corresponds with the international SDG-related studies of touristic space, which seem

quite uniformly to support more and better planning and more intelligent regulation (Johansen et al., 2020; Back, 2020; Hall and Müller, 2018; Paris, 2019; Xue et al., 2020).

Predominantly, this study relies on quantifiable property data. Although these are of a high quality and exquisite coverage, it does not include any direct information about the perceptions, attitudes, and intentions of the second home owners and users. Such studies might have added to the knowledge about the speed and direction of changes, but also about the reception of to specific planning measures and economic regulation. In the near future there is a distinct need to supplement the findings and supplement the ongoing and upcoming research on tourism's response to the SDGs (Scheyvens, 2018).

6. Conclusion

Densification can be claimed to be sustainable as the habitable space, and recreational qualities can be increased on land already developed, thus avoiding the likely alternative: the comprehensive and potentially uncontrolled development of new land for recreational purposes. The SDG goals #11 and #15 coincide with what in the EU context has been translated into an ambition of reducing the net land take (European Commission, 2021) The Danish second home sector has quite some similarities with similar housing formats in other, particularly Nordic, countries. The questions raised here about the patterns of economic accumulation connected to the ownership and development of property, in particular densification, are of relevance in other countries as well. Planning alertness is a requirement often mentioned in the literature about SDGs and tourism, and this study supports this.

Another matter is noteworthy in a more general sense. The apparent investment rush in the Danish second home sector raises also protests from neighbors and nature enthusiasts, who find the acceleration too fast and without a solid planning approach. They refer to the fact that densification along the present liberal lines may compromise amenity values intrinsically embedded in the traditional second home zones, the essence of second home life. Even when they in clear accordance with planning, the ultimate accumulation — the very large houses — are matters of local resistance which go viral far beyond the actual substance in the second home landscapes. The congestions of tourism destinations — the worst-case scenario being devastating overtourism — is already much debated, and the second home areas are the last to be included.

In Danish planning and tourism policies, the present SDG impetus is very exclusively for the building density agenda in the existing second home areas. Economic incentives align well with the particular sub-goals of the SDG agenda. Other SDGs, for example about the potential contribution of the second home areas to a planned extension of biodiversity and natural qualities, are topics not yet addressed to any significant extent. If the municipalities as main planning authorities would want to take into true consideration the comprehensiveness of the SDGs, they may start by paying a stronger attention to the nature ingredients and potentials both in the second home areas themselves, but also in the close vicinity. The inspection of local land use plans show that the municipalities are suspended between the opportunistic policies of approving any development versus the perhaps more long-term visions of creating overall higher quality of the touristic areas. Until now, the national government level has attempted to solve the dilemmas implied by multilevel governance regulation and practice, but hardly to a degree that matches the economic and speculative pressures.

In a wider sense, it has happened before that the property boom has slowed for a shorter or longer period of time, and it might happen again. The COVID-19 pandemic has raised a more general attention toward the Danish second home property, partly as a place for Danish vacation makers to reside in a time with closed borders. This is an example of sudden shifts in the perception of second homes, and others may follow. The risks connected to the globalization of vacation property ownership has become clearer to the population. It is a question whether this and

the risk of future pandemics will shift the European-wide property-based vacation migration patterns, and whether a property myopia can be supportive to the obtaining of a more sustainable development of the second homes. The utilization of the property and thereby the spatial composition and environmental impact can be important matters for an increased attention to planning, but this has yet to be seen in a Danish context. The modes of involvement of owners and users of second homes are suggested to be reconsidered and made more transparent. In addition, the comprehensive and in terms of space overarching climate and environmental challenges suggest that the governmental level takes a sturdier and more explicit coordinating role in the planning system.

This article has benefited from the access to very comprehensive property data. It contributes to the critical studies in spatial and environment planning, and it complements the tourism studies in the field of second homes. From a property-based viewpoint, it delivers data about the densification and the dilemmas that the UN's SDGs bring about when applied to a practical reality. It is of great importance for the future enhancement of knowledge about economy versus environmentally-driven building density development, to obtain a greater insight into the behaviors and prospects of the property owners, the community representatives, and the tourists. The multilevel and consensus requiring planning systems, are, as shown in this contribution, put under pressure by stronger emphasis on climate challenges. The SDGs are momentums, but as clearly demonstrated here, not unambiguous prescriptions for any governing bodies in the field of recreational space. More studies on second homes in case-based research in smaller geographical set-ups, both in Denmark and, for comparison, destinations in other countries, may deliver wider insights into the specific planning practices, and on the variety of behavioral dimensions.

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