

Ten Sustainable Planning Principles for Second Home Areas

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ABSTRACT

Enhancing sustainable tourism destinations is a crucial endeavor. Sustainability improvement measures are needed not only in newly built environments but also in physical capacities that are already established and that have been in operation for an extended period. This contribution addresses second home areas in Denmark which are generally characterized by a persistent and notable planning deficit. The challenge lies in redirecting the trajectory of these areas through meticulous planning and instilling a recognition of their sustainability potential with policy makers, DMOs, second-home owners, and tourists. Drawing upon in-depth case studies in selected second home areas and general inquiries into planning practices, this contribution presents ten distinctive approaches to planning: 1): Optimizing land resource utilization. 2): Planning for second homes beyond the immediate coastal zone. 3): Enhancing accessibility. 4): Decreasing energy consumption. 5): Ensuring flooding protection. 6): Mitigating insufficient wastewater treatment. 7): Facilitating solid waste treatment. 8): Reducing the carbon footprint from the construction. 9): Enhancing biodiversity. 10): Involving the owners and tourists. The article contributes with substance to the tourism planning discussion and points to some of the challenges encountered in the pursuit of the objectives.

KEYWORDS

Planning Policy, Climate Change, Involvement, Tourism Built Capacity, Biodiversity.

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1. Introduction

The purpose of this article is to identify and systematize the main environmental challenges and the associated planning principles for second home areas. Second homes play a crucial role in Denmark's tourism and recreation industry, predominantly serving as the primary form of accommodation in coastal and natural regions. Second homes provide the context for a range of recreational activities. They possess substantial amenity qualities and hold social significance for individuals. Danish citizens highly value second homes as a flexible resource, both as owners and through access granted by their networks of relatives and friends. Additionally, the second home sector accommodates for a considerable number of tourists, who rent them on the commercial rental platforms. The second home sector encompasses around 220,000 housing units and accounts for 37% of the total number of commercial touristic bed-nights in 2022.

The COVID-19 pandemic brought turmoil to second homes and their owners, and through that period the value of second homes as an adaptable recreational resource was truly demonstrated. Danes altered their holiday habits, and second homes obtained a new meaning (Slätmo, Vestergård, & Lidmo, 2020). While the use of second-home areas has intensified during the COVID-19 period, this trend builds upon a longer trajectory characterized by extended seasons, increased rental numbers, and more diverse patterns of occupancy. The heightened usage, which varies across the country, places greater pressure on sustainability. Challenges include the degradation of recreational water resources, traffic congestion, overdevelopment of land sites, and waste handling problems.

Given the comprehensive impact of climate and environmental agendas, such as those represented by the UN Sustainable Development Goals, it is imperative to integrate second homes into the green transition alongside other property types. However, Denmark's focus on sustainability in relation to second homes has emerged relatively late. With the dominant presence of second homes already established and being actively used, it becomes crucial to strive for the integration of sustainability into the existing spaces and building structures. In doing so, owners and users can contribute to reducing the negative environmental footprint of their second homes.

Both national and local tourism stakeholders seek to maintain second homes as a fundamental resource for tourism development in Denmark. There is also a strong agenda for growth, expressed clearly by policy makers at national and local levels. This growth may be obtained by extended use of the second homes during the colder seasons in the autumn, spring, and winter, or by increasing the number of second homes that are offered for rent on the renting platforms. While some municipalities also plan for minor capacity increases, they must adhere to the limitations imposed by the governmental planning agency. In recent years, various aspects of the space and place development, as it has taken place previously, have been questioned critically, including the growth agenda. Controversies about the future directions for second homes have emerged, placing locals, tourists, and policy makers in complex and paradoxical discussions surrounding the most sustainable futures for second home areas.

This article addresses the situation in Denmark, utilizing research and data from the national context. Nonetheless, it is evident that similar discussions about planning and sustainability occur in other countries with significant second home sectors (Ericsson, Øian, Selvaag, Lurfald, & Breiby, 2022; Adie & Hall, 2023). Thus, there are overlapping concerns, issues, and potential measures among Denmark and these countries. The evidence from Denmark's national scene, in terms of planning for sustainable futures, contributes to the ongoing applied theory building in the field.

2. Literature Review

Second homes play a significant role as holiday resources in many countries. Extensive research has examined aspects about the prevalence of second homes, including attraction values, demographic patterns, gentrification, local impacts, and seasonality (Paris, 2009; Hall, 2015; Hall & Müller, 2018; Müller, 2021; Alonsoperez, Brida & Rojas, 2022). While second homes can be found in urban areas, they are, in Denmark and the Nordic countries, predominantly located in rural and coastal environments. These second homes are highly valued for their pleasant and serene surroundings, as well as the opportunity

to embrace simple lifestyles (Bærenholdt, Haldrup, & Urry, 2017; Gallent & Tewdwr-Jones, 2020; Björk, Prebensen, Rääkkönen, & Sundbo, 2021).

Second homes occupy significant land space, as they constitute an ingredient in building sprawl in rural areas. Swedish second homes are often converted derelict farm sites (Back, 2022), and the contribution to otherwise economically challenged regions by tourism is regarded as essential and an argument for the enhancements and improvement of the capacity. In Denmark, the majority of the 220,000 second homes are located in specific second home areas with dedicated planning regulations, and for that reason the second homes are concentrated and less dispersed. Still, however, the total and accumulated land use is of noteworthy size as a result of, on average, large land sites for each second home (Hjalager, Staunstrup, Sørensen, & Steffansen, 2022b).

The second home sector is affected by various societal trends. The Covid-19 pandemic, as previously mentioned, has notably impacted the perception and utilization of second homes as a holiday place and in terms of property ownership (Gallent, Stirling & Hamiduddin, 2023). The popularity of second homes relies on the availability of infrastructure and the owners' access to the lucrative renting market. Advancements in platforms and arrangements such as home-swaps have facilitated the commercialization of these accommodations, contributing to the observed growth trends and generating income for the second-home owners (Gyimóthy, Pérez, Meged, & Wilson, 2020; Wijburg, Aalbers, Conte, & Stoffelen, 2023).

The environmental impacts of second homes have for some time been a subject of extensive examination and discussion in tourism academia. The international research literature primarily focuses on aspects such as mobility, carbon footprint, water consumption, climate effects, and biodiversity. Of these aspects, mobility implications receive the most attention (Hiltunen, 2007; Hiltunen, Pitkänen, & Halseth, 2016; Steffansen, Xue, Stefansdottir, & Næss, 2022; Ismail, Hoogendoorn, & Müller, 2023). The combination of long distances and short and frequent stays in second homes contributes to negative CO₂ effects. Moreover, inadequate public transport connective urban hubs with rural second home districts intensify the disproportionate impact. Other implications related to second homes use, such as water consumption and wastewater disposal, have also gained attention (Gill, Williams, & Thompson, 2010; Staunstrup, Hjalager, Steffansen, & Sørensen, 2023). Scholars argue that insufficient planning of relevant infrastructure and inadequate capacity to handle polluted wastewater and solid waste exacerbate these issues.

The use of energy for the second homes and the carbon footprint resulting from construction processes and the recurring visits have become prominent research topics. This is driven by owners' inclination to modernize, renovate, and in other ways add quality and comfort to their second homes. However, these activities often contradict the imperative to reduce CO₂ emissions, although insulation can have a positive effect (Stefansdottir, Xue, Steffansen, Næss, & Richardson, 2023; Hjalager & Piihl, 2024). Planning efforts and owner guidance focus on energy-saving strategies through more efficient building technology and user behaviors.

Similar to other tourism facilities, second homes have an impact on the environment and climate. Conversely, climate change may have severe adverse effects on the second home areas. Factors such as flooding, storms, and rising sea levels are increasingly addressed in the academic literature and play a significant role in land use planning (Czarnecki, Dacko, & Dacko, 2024). Coastal second homes, lacking adequate protection, require planning and adaptive measures to mitigate the risks. However, such protective measures often necessitate substantial investments, potentially exceeding the accumulated economic value of the second homes (Hjalager, Sørensen, Steffansen, & Staunstrup, 2023).

The concept of sustainability encompasses other relevant aspects in the context of second homes. Biodiversity is one of them. Managing invasive species and preserving native flora and fauna have become planning priorities in tourism agendas. As noticed by Novoa, Canavan, & Canava, (2022) the awareness among owners regarding these issues is not always well-developed, and effective management remains complex (Barros, Shackleton, Rew, Pizarro, & Pauchard, 2022).

This article particularly focusses on land use planning and infrastructure planning as it pertains to second homes. Planning is an extensively studied discipline in tourism in general, encompassing the need for controlled land and building utilization, functional design, and the implementation of sustainability measures (Inskeep, 1991; Hall, 2008). Compared to other touristic places, second home areas often face planning needs and deficits (Hall, 2015; Slätmo et al., 2020). To conclude, the environmental implications

of second homes remain underexplored. Müller (2021) emphasizes the instrumental role of planning in achieving sustainability.

The emergence of planning issues pertaining to second homes in academic research has been a gradual process over the years, albeit at a relatively low level. The pressing climate crisis has prompted new studies and approaches in this field. Consequently, planning, as a method and discipline, is poised to assume a more prominent role after a long period characterized by distinct neoliberal regimes within this domain (Tjørve, Tjørve, & Owusu, 2022). This particular study focuses on identifying and delineating the challenges associated with planning for second homes. Additionally, it proffers potential solutions to address these challenges and difficulties. Notably, it examines novel approaches that have surfaced in Danish second home areas, while acknowledging the need for consolidation and supplementation of knowledge on planning for second-home tourism, both within Denmark and beyond its borders.

Table 1. Key Characteristics of the Danish Second-Home Sector

Total number of second homes, 2023	222,066
Proportion of second home covered by a local plan, 2021	47.4 %
Average size of all second homes, 2020	79.9 m ²
Average size of second homes built between 2011 and 2020	109.1 m ²
Proportion of second homes on the registered renting market, 2022	17.4 %
Proportion of second homes without connection to public sewage systems, 2021	54.1 %
Total CO ₂ emission from second homes' electricity consumption, 2022	96,938 tons

Sources: Statistikbanken.dk and Hjalager et al., 2022b.

3. Research Approach and Methods

The research approach employed in this study draws on empirical evidence and concepts obtained from two major research projects focusing on second homes and UN Sustainable Development Goals (Hjalager, Steffansen, Sørensen, & Staunstrup, 2022a). A mixed methods approach was utilized, combining quantitative data acquisition from comprehensive data banks with qualitative elements such as interviews, field visits, and desk research. The qualitative components served to test and develop the quantitative findings. This contribution has the nature of syntheses, where the data are amalgamated into the ten planning principles.

The project entailed comprehensive quantitative studies of the spatial, physical, and planning characteristics of the total of 220,000 second homes. The study relied on data obtained from public building data registers specifically Statistics Denmark and The Building and Housing Register. Second homes have a well-defined categorization within the building register, enabling the acquisition of precise data spanning several years. The study produced high-quality data pertaining to the environmental situation of the second home sector. This included information on land use, such as building coverage and house size, which is crucial for assessing densification opportunities. The age of buildings was also considered to understand the energy consumption, as older second homes may lack insulation for winter use. Detailed records were maintained regarding wastewater and sewage handling systems, allowing for the identification of potential deficiencies in this area. Each second home is classified according to whether it is connected to sewage handling plants or relies on individual septic tanks, which are generally less sustainable. The planning status and the intensity of planning in existing second home areas were documented with accurate details, offering valuable insights into the incentives available for selecting sustainable building solutions. Furthermore, by using utility registers, the study examined electricity consumption in all 220,000 second homes in Denmark, providing seasonal details, which aided in identifying critical issues of the CO₂ emissions from the second home sector. The quantitative data represented complete coverage and very high accuracy, thus eliminating any sampling concerns. These data serve as crucial indicators of the environmental challenges and issues facing the second home sector. Geo-coding of each second

home allowed for multiple spatial analysis. All of the aforementioned quantitative data formed the foundation of the study and further details are reported in other publications (Hjalager et al., 2022a).

The interpretation and the handling of sustainability problems exhibits variations across the Danish geography. These variations result from topographical issues, with some second homes located in or near vulnerable nature areas, such as dunes or wetlands. Furthermore, variations in the demand structure exist, with some areas experiencing year-round usage, while other areas are primarily used for summer recreation. Such differences might determine the level and nature of environmental stress attributable to second homes. Additionally, the composition and planning of second homes areas are subject to policy choices by municipalities, leading to differences in the attention given to sustainability concerns. To gain deeper understanding of the prospects for transitioning towards more sustainable futures for second homes, qualitative inquiries were conducted in collaboration with eight (out of a total of 98) municipalities. These inquiries involved extensive desk reviews of planning documents with a focus on identifying elements in the planning situation that could impede or enhance development. Joint field studies were conducted, involving researchers and municipal officers, to discuss the potential of planning measures and identify potential barriers within specific contexts. These field visits were meticulously prepared and proved highly productive, with photographs and notes serving as valuable material for subsequent report writing and analysis. Additionally, consultative planning progression sessions and meetings with policy-makers were conducted to consolidate interpretations and to assess the level of awareness and preparedness for action in relation to climate and environmental agendas. While the eight municipalities played a key role in the qualitative studies, planning officials from other municipalities contributed, thereby enriching the process with additional insights and perspectives.

In summary, the combined quantitative and qualitative approach employed in this research has yielded substantial and novel evidence within the Danish context. Due to the focus of this article on planning principles, it is not feasible to bring in the myriad of underlying data and evidence. This article brings a conceptual summation based on enquiries spanning over three years. The process involved approximately 40 planning professionals, who engaged in formal interviews, workshops, and provided responses and comments on written report drafts. As a result, the following ten principles were developed and consolidated through collaboration with municipalities and were supported by both data and qualitative evidence. Although the sustainability profiles of municipalities and their second homes vary to some extent due to geographical differences, these principles were found to be highly generalizable across Denmark. They represent the significant issues that municipalities as planning authorities agree upon as being important and challenging, although prioritization and the speed of action and implementation may differ.

The study has been contextualized within a broader framework of existing literature, particularly in the field of international and Nordic second home research which has, in recent years, increasingly included issues about sustainability (Müller & Hall, 2018; Næss et al., 2019; Ericsson et al., 2022).

4. Planning in Denmark – An Overview

Denmark possesses a multi-level and hierarchical land use planning system, characterized by the involvement of various planning entities, namely the national planning agency and the 98 municipalities (Galland & Enemark, 2015). The principal responsibility of the national planning agency is to establish comprehensive directions and guidelines for the spatial development. On the other hand, municipalities play a crucial role in land-use planning. They engage in extensive strategic planning for their respected territories. In doing so, they prepare detailed municipal plans that determine the utilization and development of areas, including second home areas. These plans also designate specific locations for urban and recreational development as well as building activities, unless being overridden by national planning directives. Local plans are the lowest levels of planning, and they are devised to provide detailed guidance on land use.

Central to the planning process are key considerations about the potential achievement of good urban and infrastructural functionality that align with the objectives of economic growth, societal wellbeing and welfare, and the preservation of the natural and built environment, including heritage values. Given Denmark's relatively small size and high population density, the appropriate allocation and utilization of limited land resources is a fundamental concern. To address this, second homes are, as a principle in the

Planning Act, located within dedicated zones. Since the 1960s, there has been a steadfast commitment to minimize the sprawl of single second-homes into nature and landscapes. Increasingly, the integration of sustainability as both a concept and a guiding principle in national and municipal planning has gained traction, primarily through coordination with sectoral plans. These plans include the Water Resources Plans, the Transport Plan, the Climate Plan, and the Natura 2000 plan.

The Planning Act empowers municipalities with an array of planning tools to facilitate detailed planning within well-defined territories. Any new development endeavor invariably necessitates the formulation of a local plan, but these plans can also be employed for the management of existing areas. It is worth noticing, however, that not all territories are covered by local plans. In such instances, building practices are regulated by general directives outlined in the municipal plans. Astonishingly, only approximately half of the existing Danish second homes are situated in areas that are covered by a local plan. Some of these local plans must even be considered as outdated. There is a call for improved planning from many second-home owners. As illustrated below in the sustainability principles, planning plays an indispensable role in the implementation of sustainable measures in second home areas.

To ensure transparency throughout the planning process, the Planning Act stipulates procedures for involving landowners and neighbors in the planning. This instrument serves as a means to foster openness and inclusivity in decision-making and land administration.

5. Sustainability Principle 1: Optimizing Land Resource Utilization

EU has introduced the “No net land-take” initiative to discourage unnecessary development of agricultural land and nature areas for human use, including tourism (Science for Environment Policy, 2016). In Danish second home areas the average building percentage is just under 5%, and existing planning regulations allow for a considerably greater housing capacity in existing second home areas (Hjalager et al., 2022b). Consequently, measures have been implemented to encourage owners to expand their houses and, in some cases, divide their land sites to create additional construction opportunities. Municipalities often support higher utilization by, in local plans, permitting taller buildings, closer proximity to neighboring properties and roads, thereby maximizing land use in available land sites.

These measures may align with the owners’ desire for more space. Since 2017, when planning regulations were liberalized, there has been a surge in the demolition of existing houses and the construction of very large second homes (300-400 m²). These larger second homes have gained popularity in the renting market due to their ability to accommodate for family events, enterprise team building activities, parties, and other social gatherings.

Despite the perceived benefit of conserving land resources and utilizing existing capacity, this densification may conflict with the perceived amenity values, particularly in the case of these large houses, often referred to as “party houses” or “mini-hotels”. This development has triggered significant resistance and protests against speculative elements, changes of the use, increased noise, traffic inconveniences, excessive waste generation, and mounting pressure on nature resources. To address these concerns, several municipalities have chosen to enforce the planning regulations through renewed local plans that determine the most optimal utilization of sites while balancing them against the existing spatial characteristics of a second home area. Recent planning approaches aim to separate the problematic large houses from the traditional capacity of smaller and family-owned second homes.

Furthermore, second-home areas may include pockets of land with limited or abandoned use, for example derelict school summer camps, commons, empty retail space, etc. Investors are screening for such underutilized capacity in existing second home zones. Careful planning can facilitate the transformation of this capacity into additional second homes, as well as the ensuring necessary infrastructures, such as waste management facilities and parking, as described in the following planning principles.

6. Sustainability Principle 2: Planning for Second Homes Beyond the Immediate Coastal Zone

According to Danish planning legislation, the coastal zone (3 kilometers wide) is regarded as an area that necessitates special attention with regards to new development. The objective is to safeguard the outstanding natural values against uncontrolled construction activities and tourism influx that exceeds the carrying capacity. The principle is also implemented to preserve amenity values and guarantee access to the coastal areas for all Danes and tourists. The Danish principle where nature is not privatized is highly valued by foreign tourists visiting from Germany in particular.

There is a (slowly) growing demand for new second homes, and municipalities and destination management organizations (DMOs) are keen to expand the capacity, referring to the changing demand dynamics, especially in the aftermath of the Covid-19 pandemic. A planning principle that could be adopted involves a collaborative effort between national and municipal to facilitate new or expanded development opportunities in inland locations, rather than in vulnerable coastal zones. Successful examples have emerged in the vicinity of tourist attractions, such as golf courses, outdoor facilities, and amusement parks, where the economic viability of rental properties is most evident.

However, it is also advisable, and some municipalities have made it part of their broader strategic aim, to integrate second homes in attractively located villages that are otherwise at risk of decline and depopulation. This represents an opportunity that has yet to be fully utilized in Denmark, as planning regulations do not currently provide straightforward support for such endeavors. The main concern is striking a balance between ensuring economic development and resilience for rural areas while avoiding uncontrolled building sprawl.

7. Sustainability Principle 3: Enhancing the Accessibility of the Second Home Areas through Sustainable Modes of Transportation

Second-home areas are predominantly planned for car transportation. The mobility to and from second homes results in the release of CO₂ emissions, although often perceived as less concerning compared to for example air transportation to tourist destinations that are typically situated at longer distances. In Denmark, second homes areas are seldom integrated well with public transport routes such as busses and trains. However, for newly developed sites, there may be greater inclination towards considering such factors.

The means of accessing beaches often entails utilizing narrow roads that lack adequate parking for cars and bicycles. This poses a significant inconvenience for day visitors and nuisances to the owners and users of second homes. Addressing the issue of parking, particularly in conjunction with public transport, is a challenging task for planning. While access to nature and beaches is a priority in Denmark's spatial planning, it becomes increasingly compromised with the rising levels of car ownership and usage.

Upon arrival in the second homes, individuals typically resort to using their cars for activities such as sightseeing, shopping, and exploring the surrounding areas. However, future planning endeavors may encourage municipalities to ensure more convenient access through the development of bicycle and pedestrian paths. Implementing new trails and tracks proves to be a complex endeavor, as it may involve land acquisition or the establishment of rights-of-way permission. Nonetheless, some municipalities have successfully worked with farmers and other landowners to expand access and establish safe passageways. This not only ensures the well-being of pedestrians and bicyclists but also enhances the appeal of routes known for their natural beauty.

8. Sustainability Principle 4: Decreasing Energy Consumption and Reducing the Carbon Footprint

Second homes, primarily those constructed between 1970 and 2000, are mainly intended for summer use and lack proper insulation. The deficiency in insulation leads to excessive electricity consumption, particularly for room heating, during prolonged seasons in the spring, autumn and winter. Despite the

implementation of more stringent requirements set by the EU for new houses, there exists a significant energy efficiency gap. Although some second homeowners take measures such as replacing windows and insulating of walls and roofs, there are no provisions within planning regulations to prescribe and enforce better energy standards, as such matters are in the building regulations. However, planning regulations can indirectly incentivize and facilitate the adoption of earth heating systems by owners. Additionally, planning can accommodate the incorporation of solar heating technologies.

The prevailing trend of constructing towards larger and more luxurious houses contradicts some objectives in CO₂ reductions. Second homes with abundant electrical appliances, pools, spas, saunas, and similar amenities exhibit annual electricity consumption that can exceed ten times that of an average second home. When planning new areas, municipalities have the opportunity to disallow the establishment of outdoor pools, hot tubs, and spas to demonstrate a clear commitment to sustainability.

9. Sustainability Principle 5: Ensuring Flooding Protection

Documentation from the studies behind this article demonstrates that a considerable proportion (25%) of Danish second homes are exposed to various flood risks, including storms, flooded waterways, ground water rise, and coastal erosion. Proximity to coastal zones elevates the vulnerability of these properties, as demonstrated by recent floods in 2023 which emphasized the impact of extreme weather events on second homes.

The planning principle encompasses guidelines on dike development and maintenance. The expenses associated with such investments are shared with coastal authorities, but key and multipurpose urban environments and infrastructures are prioritized over second homes when it comes to public funding. Soft protection measures, for example sand nourishment at beaches and the establishment of rainwater lakes, necessitate close cooperation with the second-home owners who bear the accompanying costs. The location of rainwater lakes and water channels is a planning issue.

At a basic level, planning regulations can ensure that newly constructed or renovated second homes are situated at higher elevation levels on the land site, thereby offering some degree of flood protection.

10. Sustainability Principle 6: Mitigating Insufficient Wastewater Treatment to Prevent Pollution

Approximately half of the second homes in the designated areas are not connected to public wastewater treatment facilities. Instead, they rely on individual septic tanks. Although there have been advancements in technology in recent years, these septic tanks are generally found to be inadequate, especially in areas with high groundwater levels. The increased usage of the second homes throughout the year, coupled with higher water consumption, poses a significant threat to the quality of the seawater in the surrounding seas and fjords. The deterioration of seawater quality in Denmark has been alarmingly rapid, leading to criticism from the fishing and angling communities, as well as from visitors who frequent the second homes for water sports and underwater sea experiences.

To address this issue, planning can include the specification of strategies to connect the designated second home areas to water treatment plants through proper piping systems. The planning process should also include regulation to effectively separate and dispose of surface water and, if possible, the grey wastewater within the land sites and the surrounding area. In particularly vulnerable zones, there may be restrictions on pools and other water-intensive installations through planning regulations. However, behavioral measures related to water pricing are the responsibility of the facilities management and fall outside the purview of planning.

11. Sustainability Principle 7: Facilitating Efficient and Convenient Solid Waste Treatment

While the separation of solid waste for reuse, regeneration, and other waste management methods is already integrated into the environmental programs of cities, second-home areas have lagged behind in

their efforts to sort and recycle solid waste. The delays can be attributed with the seasonal usage, which makes achieving economies of scale in waste handling a challenge. Nonetheless, EU-regulations mandate that municipalities improve waste management conditions, necessitating the provision of adequate space and concepts for waste sorting, regardless of the difficulties involved.

Planning measures include designating appropriate space for waste bins each the single land site and providing guidance on concealing the bins in a manner that does not compromise the aesthetic qualities of a second-home area. Alternatively, municipalities can explore the establishment of centralized solid waste stations, which can be more sustainable in terms of transportation, separation quality, and landscape aesthetics. Holidaymakers sometimes possess a relaxed attitude towards waste disposal, making it crucial to change their mindset and behavior, ensuring that they understand the importance of disposing their solid waste at centralized waste disposal stations at a feasible (walking) distance from their house.

12. Sustainability Principle 8: Reducing the Carbon Footprint in Second-Home Construction and Disposal of Materials

Commencing in 2023, the gradual implementation of climate footprint requirements within building regulations was set to take effect. This mandates that all future constructions must undergo a life cycle assessment (LCA), though smaller buildings such as second homes will be subject to this requirement at a later stage compared to larger structures. Additionally, the second-home sector should anticipate forthcoming carbon labeling obligations. While it may be referenced with in planning documents, carbon reduction requirements primarily fall under the jurisdiction of building regulations rather than planning statutes.

Notwithstanding, several indirect planning measures incentivize second-home owners to select superior construction materials, thereby conforming to carbon reduction criteria. Local plans have the authority to designate suitable materials, such as wooden facades, which possess lower carbon footprint compared to alternatives like concrete. Certified materials may be recommended and referenced in planning documents, particularly if municipalities and owners hold a strategic vision for area development based on climate protection principles. However, current Danish planning legislation does not integrate construction materials with explicit sustainability references, instead, offering only loose and guiding measures.

Existing building already contain a substantial amount of CO₂, known a "sunk CO₂". Consequently, safeguarding building heritage aligns with sustainability principles. Rather than constructing new structures that contribute significantly to CO₂ emissions, it is advisable to utilize existing ones. Planning documents can delineate principles and identify specific buildings meriting preservation for their heritage values. Moreover, the renovation of existing buildings instead of demolishing and erecting new ones aligns well with the objective of reducing carbon footprint.

Beyond the immediate measures provided by planning regulations, municipalities and groups of owners can establish initiatives promoting the exchange and reuse of construction materials, fostering their continued usage and extending their lifespan.

13. Sustainability Principle 9: Enhancing Biodiversity

Second-home land possesses the potential to play a more significant role in addressing the biodiversity crises. Municipal investigations have revealed that many second-home areas suffer from a lack of biodiversity. The principle of enhancing biodiversity involves better integrating of the second-home land resources into the surrounding landscapes, and vice versa. Restricting the establishment of solid fencing enables smoother passage for wildlife and fosters the growth of a more diverse flora that harmonizes with the specific region's natural environments. These measures can be included in planning documents, specifying desired plant species and relevant planting principles. The regulation should also highlight the importance of green fencing methods, not only for the fauna but also for maintaining the visual (green) appeal of the second-home areas. Recommended fencing types can be stipulated within planning regulations.

Invasive species, such as rose hips and mountain beacons, are commonly found in Danish second-home areas. Planning regulations can prohibit the planting of invasive species and provide general warnings

against their proliferation. However, if invasive species have already spread, it becomes the responsibility of the owners to suppress the invasion.

14. Sustainability Principle 10: Involving the Owners and Tourists

In order to achieve sustainability in the environment and climate, it is crucial to have commitment, social support, and unity. The journey towards sustainability may be lengthy and arduous without these essential elements. It is imperative to take action, and the responsibility of promoting and expediting development does not solely rest with the municipality and its planning authorities. Second-home owners who are private individuals and families, play a pivotal role in preserving the qualities of their space. As primary owners, they often serve as the primary and sometimes the sole investors in sustainability. It must be mentioned that commercial entities are prohibited from owning second homes in Denmark.

The Danish planning law encompassed a range of participatory measures. All municipal environmental strategies must be made public and undergo a hearing phase. Local plans hold significant tools for the promotion of sustainability in second-home areas and are subjects of public debate. In the event of changes in local plans, property owners and neighbors are specifically invited to contribute towards their development and subsequent political approval.

By instituting participatory and co-innovative principles, it is possible to transcend the confines of planning, provided there is commitment and a collaborative mindset among the second-home owners. Mobilizing owners within and beyond property owner associations can be advantageous, particularly when second-home areas face sustainability challenges like potential flooding. These associations play a critical role in combating invasive species, where the problem-solving requires collaboration and manpower. In the local plans, the municipality can delegate responsibility for tasks such as infrastructure maintenance, greenery and biodiversity, and fencing control to the owners' association.

A significant portion of foreign tourism bednights in Denmark is attributed to the renting of second homes. However, tourists are generally detached from the active participation in promoting sustainability in the second-home areas. It may be necessary to explore new formats of involvement in order to engage not only owners but also visitors.

15. Discussion and Conclusion

This article presents a systematic approach to the planning of sustainability in second home areas through ten principles. The contribution of this study lies in its comprehensive understanding of the sustainability challenges faced by second homes and their owners, particularly in the light of the growing impact of climate change. These principles serve as a foundation for a practice-oriented theory building.

It has been identified that Danish second-home areas, which play a vital role in accommodating tourists in rural and coastal regions, face a significant planning gap. Planning is seen as a means to support and enhance sustainability, and municipalities involved are making increasing efforts to address this gap. The emergence of critical environmental and climate challenges necessitates a range of measures and new approaches. Consequently, planning policies and tools are continually evolving and developing.

The ten principles emphasize the key role of municipalities as the principal planning authorities in these specific locations. Many municipalities, include those actively involved in this research, are prepared to take proactive measures. However, their progress is hindered by the high demand for new local plans, surpassing their capacity to produce them to the required professional standard. Groups of citizens and second-home owners are advocating for accelerated planning processes to address sustainability challenges and prevent potential land use conflicts. The second-home areas are contested territories and are expected to face heightened opposition and value-based discussions. Some areas are organizing groups to undertake semi-professionally tasks in relation to planning, if they tend to find the municipalities slow or inattentive. This may be indicators of a future with stronger oppositions and higher value laden discussions, even "dramas" in contested zones (Hjalager, 2020; Fienitz & Siebert, 2022).

The spatial aspects of tourist development always spark debates about planning. Should there be more planning to facilitate coordinated action and achieve consistent objectives? Or should the govern-

ment relinquish control, allowing second-home owners to individually or collaboratively solve their own problems? The Danish picture is ambiguous. Planning measures can provide direction, but in most cases the second-home owners are not obliged to take action until they initiate a specific construction or rebuilding project. Consequently, rapid progress towards improved environmental performance of second homes may be delayed longer than desired by policy makers and (some) second-home owners. This illustrates the need for relevant incentives, including coordination with instruments from other policy fields, such as more accurate and logical taxation related to energy consumption.

Future research, employing research-based approaches, can examine the progress of planning in second-home areas. It can also explore dynamic interaction, relationship, and identities among actors (Back, 2022). The extensive quantitative and qualitative research underpinning this article reveals that planning is not merely a technical discipline but a complex undertaking in the juxtaposition between space, identity, emotion, and habits. The challenges lie in effectively and swiftly changing these elements to ensure tangible and timely sustainable achievements. The involvement of second-home owners and the processes related to co-creative adaptations should be anticipated in second home areas, although it remains uncertain when, why, and how actors will participate. Future academic inquiries can benefit from action research approaches. Additionally, if second home are developed as new greenfield projects, there may be motivation to construct these areas with higher sustainability ambitions, such as being “carbon neutral”, “biodiverse”, which would warrant further research.

Danish second homes share many similarities with second homes in other regions, particularly in the Nordic area. They also face sustainability challenges related to water and energy consumption, and landscape adaptation (Hiltunen et al., 2016; Alonsoperez et al., 2022; Ericsson et al., 2022). The planning principles outlined in this article could potentially be applied, in whole or in part, to other national and regional contexts. However, it is important to acknowledge that each country faces unique issues. For instance, if second homes are scattered across large rural areas as sprawl, the sustainability measures and planning will need to be tailored differently compared to Denmark, where most second homes are concentrated in dedicated second-home zones. Some countries, particularly those in the Mediterranean area, have a prevalence of second homes embedded within dense urban zones, which would require planning to address overtourism, pressure on infrastructures, and livability for the local residents.

The contribution of the article serves as a starting point for advancing knowledge about planning for second homes. It is hope that future studies will complement this endeavor with cases from other environments and countries.

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DATA SOURCES:

Statistics Denmark: www.statistikbanken.dk

The Building and Housing Register: www.bbr.dk

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