CHALLENGES OF COASTAL RESORT TOWNS REGARDING SECOND-HOME DEVELOPMENTS: THE CASE OF AYVALIK

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submitted by **MELTEM GÜLCAN** in partial fulfillment of the requirements for the degree of **Master of Science in Urban Design, Middle East Technical University** by,

Prof. Dr. Canan Özgen _____
Dean, Graduate School of **Natural and Applied Sciences**

Prof. Dr. Melih Ersoy _____
Head of Department, **City and Regional Planning**

Assoc. Prof. Dr. Müge Akkar Ercan _____
Supervisor, **City and Regional Planning Dept., METU**

Examining Committee Members:

Prof. Dr. Baykan Günay _____
City and Regional Planning Dept., METU

Assoc. Prof. Dr. Müge Akkar Ercan _____
City and Regional Planning Dept., METU

Assoc. Prof. Dr. Adnan Barlas _____
City and Regional Planning Dept., METU

Dr. Banu Aksel Gürün _____
Director, BC Tasarım LTD

Assoc. Prof. Dr. Emine Yetişkul _____
City and Regional Planning Dept., METU

Date: 30.01.2013

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name: MELTEM GÜLCAN

Signature :

ABSTRACT

CHALLENGES OF COASTAL RESORT TOWNS REGARDING SECOND-HOME DEVELOPMENTS: THE CASE OF AYVALIK

GÜLCAN, Meltem
M. S., Department of City and Regional Planning in Urban Design
Supervisor: Assoc. Prof. Dr. Müge AKKAR ERCAN

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Second homes have been rapidly increasing throughout the world, especially in high amenity landscapes due to increasing mobility, greater leisure time after retirements and development of transportation means. Second home development in Turkey has been accelerated in the Mediterranean and Aegean coastal resorts especially after the 1980s. Fascination of rural environments, low cost of living and accommodation for holiday, considering second homes as investments and future permanent homes after retirements, and less stressful way of living in such coastal towns attract domestic and foreign tourists to buy second homes in amenity rich coastal areas of Turkey. This has been led to second home invasion and construction pressure on amenity rich landscapes, protected lands, countryside and natural environments. This thesis aims to investigate the challenges of coastal resort towns regarding second-home developments.

Keywords: second homes, sustainable urban form, Ayvalık, Turkey

ÖZ

KIYI KENTLERİNİN İKİNCİ KONUT GELİŞİMİ AÇISINDAN SORUNLARI VE ZORLUKLARI: AYVALIK ÖRNEĞİ

GÜLCAN, Meltem
Yüksek Lisans, Şehir ve Bölge Planlama Bölümü, Kentsel Tasarım
Tez Yöneticisi: Doç. Dr. Müge AKKAR ERCAN

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Tüm dünyada, ikinci konut gelişimi artan hareketlilik, emeklilik sonrası artan boş zaman ve ulaşım araçlarının gelişmesine bağlı olarak özellikle peyzaj kalitesi yüksek alanlarda hızla artmaktadır. Türkiye'de özellikle 1980'lerden sonra, başta Ege ve Akdeniz kıyı yerleşimlerinde olmak üzere ikinci konut gelişimi giderek hızlanmıştır. Kırsal alanların çekiciliği, tatil için düşük maliyetli yaşam ve konaklama, emeklilik sonrası ikinci konutların bir yatırım aracı ve gelecekteki daimi konut olarak görülmesi ve az stresli yaşam şekli, yerli ve yabancı turistleri Türkiye'nin peyzaj kalitesi yüksek kıyı beldelerinden ikinci konut almaya cezbetmektedir. Bu durum, zengin peyzaj kalitesine sahip alanlarda, doğal ve tarihi koruma alanlarında, kırsal alanlarda ve doğal çevrede ikinci konut istilasına ve inşaat baskısına sebep olmaktadır. Bu tez. kıyı kentlerinin ikinci konut gelişimi açısından sorunları ve zorluklarını araştırmayı amaçlamaktadır.

Anahtar Kelimeler: ikinci konutlar, sürdürülebilir kentsel form, Ayvalık, Türkiye

To My Family

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INTRODUCTION

1.1 Definition of the research problem

At the beginning of the 20th century, spreading second-home developments in high amenity landscapes have started to arouse researchers' interests on this issue. Especially in the Nordic countries, second-home ownership was considered as an inevitable part of the modern welfare state during the 1960s and the 1970s. After the 1970s and 1980s, academic researches on second-home developments have increased especially in Nordic countries, the UK and Canada. During the late-1990s, second-home studies re-entered the academic agenda due to increasing leisure time after retirements, transformation of industrial economies into service-based economies, more flexible working hours, development of transportation and communication modes throughout the world. Second homes are increasingly seen as a part of mobility, derived from the intersection of tourism and migration (Müller, 2007). Increasing national and international retirement and migration has been seen as a driving factor of second home development. Increasing second home invasion in high amenity landscapes has aroused academics' interest on sustainability of this phenomenon.

Coppock defines (1977) the main reasons of rising interest on second homes as: increasing outdoor facilities, loss of visual quality of natural environment, raising awareness of environmental pollution and disagreement between locals and second-home households. Second-home developments affect communities not only physically, but also socially and economically.

Second homes are often settled in coastlines, lakeshores, mountains and forests. Climate is a significant factor for the selection of second-home areas. Local authorities favor second-home tourism to revive the local economy and generate incomes from second-home tourism. The social and economic differences between locals and second-home households are important negative effects of second-home developments. The most striking negative impacts of second-home developments are observed in the natural environment. Second home invasion along high amenity landscapes has raised concerns about conservation of nature, environmental pollution, wildlife disruption and loss of visual amenity aesthetics.

Over the last two decades, parallel to the rapidly increasing international tourism with record number of international visitors and tourism earnings in Turkey, domestic tourism has also grown fast; and the number of second homes has increased on coastal areas of Turkey (Kozak and Duman, 2011). There are currently more than three million second homes used as vacation homes especially during summer seasons today (Kozak and Duman, 2011, p. 226). Behind the increasing demands of second home developments along coastal resorts in Turkey, there are several factors, such as the increasing car ownership, personal mobility and accessibility to rural areas, decreasing working hours, facilitation of early retirement and escaping from urban life. Climate, tourism infrastructure, fascination of rural environments, less stressful way of life and low costs of living and accommodation in coastal regions of Turkey also attract domestic and foreign tourists to buy second homes.

Like many other fields, the 1980s represents significant changes in Turkey regarding the tourism sector development and second home developments. Tourism Incentive Law No. 2634 which was enacted in 1982 has become impetus for the development of second home development and large tourism investments by opening up the ways of designating the coastal areas as 'tourism areas' and 'tourism centers'. Consequently, the valuable coastal areas became development sites for tourism purposes. This situation has increased second home pressure on natural and environmental assets in rural coastal settlements along the coasts of the Mediterranean and Aegean Sea.

Urban Development Law No. 3194 which was enacted in 1985 was another very important legislation for the development of second homes in the coastal resorts. By giving a large planning authority to municipalities within the municipal boundary and the adjacent area, it has opened up the ways of making urban plans locally. Up to the mid-1980s, the development plans used to be prepared and approved by the central government in Turkey. Although this Law has improved the local autonomy, it was abused by many municipalities of the coastal towns which made amendments on their local plans and opened the coastal lands to tourism investments and second home development. The coordination between planning authorities at the central and local governments could not be managed successfully, as well. Consequently, tourism and second home have developed uncontrolled manner in these coastal resort towns, and irreversible environmental impacts of second home development have occurred due to failure in taking precautions timely.

Since the 1980s to today, the coasts in Turkey have been seen as the sources for land speculation. The promotion and support of property developers and cooperatives by the state have led to increase in second homes developments along the coasts (Bakırcı, 2007). Also, second homes have always been seen as investment tools and future permanent homes after retirement (Bakırcı, 2007). In coastal lands where tourism, recreation and natural conservation plays a crucial role, lack of accurate policies related to control of second home development have caused the rise in concretion and infrastructural problems (Bakırcı, 2007). Frequent law amendment on the use of coastal areas also brought about irreversible damages by opening untouched lands to use for housing. Treasury lands which are under local governments' authority have been designated for second home development areas without a comprehensive and integrated planning approach. With the increasing demands of foreigners to buy second homes in Turkey, The Law No. 4916 dated 3rd July 2003 has facilitated the process of property acquisition for them. This has led to a considerable increase in second home development along the Mediterranean and Aegean coasts.

Beside the tourism-oriented investments (hotels, pensions, holiday villages, international golf courses, SPA and wellness clubs, etc.), there is a significant second home development in the coastal resort towns of Turkey which have been growing as an urban sprawl in an unsustainable manner. Second home developments in these towns are significantly under social, environmental and economic impacts. They create a high construction pressure on amenity rich areas (forest, agricultural land, natural protected areas, waterfronts) in these towns. Moreover, coastal areas and fertile agricultural lands are badly affected by the urban sprawl caused by second homes. The increasing demands of second homes especially with the Law No. 4916 dated 3rd July 2003 which has facilitated the process of property acquisition for foreigners, have put an extra pressure and increased the risks of developing amenity rich coastal areas of Turkey, peripheral areas especially in fertile agricultural lands. In addition, the increasing demand in second home development has also increased property prices. Unemployed housing stock and dead built environments have been created out of summer seasons. One of the continuing debates about these second homes is their seasonality and the excess capacity that can be used during low seasons (Kozak and Duman, 2011, p.226). Due to second home developments, urban sprawl and overall density in the built-up areas have increased. Unjust competition emerges between foreigners and local inhabitants because of increasing housing prices in the real estate market. Speculative activities in real estate market and increasing housing prices lead to de-territorialization of the local inhabitants. Summer season population of second home regions triples the actual population. Local authorities and municipalities cannot provide enough public services at high season period. Also, second home development consumes more land than other touristic activities.

On the other hand, second home developments are mostly seen in amenity rich landscapes having attractive environment (with natural, historical and cultural values). When these developments in attractive environment exceed carrying capacity of nature, a destructive threat occurs for soil, vegetation, water, air and so on. In Turkey, moving to the coastal areas as a result of people's desire to be close to nature bring along some problems, such as destruction of natural environment, unplanned growth of coastal settlements, concretion of valuable agricultural lands (Kılıçaslan, 2006). In addition, second home sprawl along natural habitat badly affects coastal flora and fauna.

All these negative effects of second home developments indicate that the coastal resort towns cannot develop in a sustainable manner. It is crucial to provide an integrated and comprehensive planning for the sustainable development of these coastal resort towns. Otherwise, these amenity rich cities will

lose their key values and characteristics and will become unattractive places where nobody would like to live in the future. Therefore, smart urban growth and sustainable urban form strategies are essential for such settlements. How planners and designers should plan and design such coastal resort towns to manage effectively and efficiently the second home development demands? Is there any set of design and planning strategy and principle to manage this development pressure? This research aims to find some answers to these questions.

1.2 Aims and objectives of the study, research questions and hypothesis

This thesis aims to focus on whether it is possible to achieve a sustainable urban form for coastal resort towns in Turkey, which are especially suffering from the unsustainable growth effect of second home developments. As mentioned above, it seeks to find smart urban growth and sustainable urban form strategies for the coastal towns which have suffered from a high development pressure of second home developments. The key research questions are:

- How planners and designers should plan and design the coastal resort towns to manage effectively and efficiently the second home development demands?
- Is there any set of design and planning strategy and principle to manage this development pressure?

This thesis seeks to answer these questions by conducting a literature review on the second home developments in the world in general, and in Turkey specifically, to understand the major problem issues and areas. Because, there might be general problem issues common to all countries where second home holiday making is popular, beside the problem areas specific to the countries or localities. For this reason, this research also examines the spatial problems caused by second home developments in the coastal resorts in Turkey. There is an extensive literature on sustainable urban development and urban form. This research also aims to review this literature to see what kind of concepts, measures, indicators or principles are suggested in the past research to achieve sustainable urban form. A considerable literature review is conducted to answer this question. This review has revealed that two levels of indicators are prominent to attain a sustainable urban form:

1) indicators related to macro structure
2) indicators related to micro structure

Therefore, this thesis claims that the urban form is shaped by both 'macro' land-use strategies and principles, and 'micro' design policies and principles. The literature on the sustainability underlines that, although it is very hard to define a single sustainable urban form as a perfect model, it is possible to identify the pros and cons of some urban growth models (which are related to '*macroform*' or '*macro structure*' of the city) and some common urban design principles and strategies (which are about the '*micro structure*' of the city), such as compactness, density, mixed land use, diversity, settlement size and walkability. Compact cities contain high density and mixed land uses. In principle, these features encourage people to live close their work, find the places for their daily activities close to their homes. There is a strong relationship between density and the urban character. High density and integrated land use functions also reduce travel time and energy, foster social interaction and ultimately produce more livable environments. Sustainable transport strategies, improving accessibility, conservation of historical, natural and local characteristics, heritage and values and availability of open spaces are crucial for achieving sustainable urban form in cities. This research has focused on seven urban design measures which become prominent for the micro structure of cities. These are *density, mixed use, variety, sustainable transportation, accessibility, conservation of historical, natural and local assets and values* and *availability of open spaces*. Based on the *macro* and *micro* sustainable urban form measures, it examines the second-home developments effects on macro and micro structure of coastal resort towns in the case of Ayvalık region.

After the 1950s, second-home development has increased especially in the Mediterranean and Aegean coastal resorts in Turkey. Increasing car ownership, personal mobility and accessibility to amenity rich rural areas, decreasing working hours, facilitation of early retirement and escaping from urban life

have led to high demand on second homes along coastal resorts in Turkey. In the 1980s, a rapid increase in second-home development has been observed in the coastal resorts, as in Ayvalık region. Over the last 30 years, Ayvalık, Cunda and Sarımsaklı coasts have been filled with purpose-built second homes and there are also historic buildings used as second homes in designated historical urban conservation sites of Ayvalık and Cunda. Ayvalık region includes a variety of land uses, such as natural and historical conservation sites, new residential areas, second home areas and industrial areas. Therefore, Ayvalık differs from other coastal resorts in terms of being an old industrial Greek and Ottoman town. Due to its unique natural environment and historical pattern, Ayvalık region is also worth examining the second home development effects on the macro and micro structure of its urban form.

1.3 Methodology of the Study

This thesis employs a case study method. It examines the second-home developments effects on macro and micro structure of Ayvalık region in terms of sustainable urban form measures. It examines the notion of sustainable urban form and describes two levels of analysis of urban form: macro structure and micro structure. For macro structure, it has revealed six different macroform models (*core city model, star city model, satellite city model, galaxy of settlement model, linear city model and polycentric net or regional city model*) and discusses which city form provides a much sustainable urban form. It examines Ayvalık's macroform by conceptualizing its growth pattern with the same visual representation of the city models mentioned above. It seeks to understand what city form model is close to Ayvalık's macroform and discusses the related issues within the context of macro structure indicators of sustainable urban form. Regarding micro structure, this research has opted to examine five sustainable urban form measures on the case of Ayvalık. These are: *density, mixed use, diversity, accessibility and sustainable transportation*.

The research uses written documents, direct observation, informal interviews with professionals in the local authority and locals and spatial analyses represented as visual maps as the sources of evidences. It carries out the examination of these indicators based on the morphological analyses. A number of maps were prepared and analyzed, such as land-use maps, street network maps, figure-ground maps. Typologies were also presented in the visual analyses. Direct observations and photographs of the sites are other research tools of this study. The entire second home development areas in Ayvalık region were mapped with the existing land uses (residential areas, industrial areas, rural settlements, agricultural lands, public transportation routes, recreational areas, beaches, commercial areas, historical urban sites etc.) through field study of the all-region. Second home development areas were determined through field study, asking Ayvalık Municipality and locals for temporary or permanent use of the houses in Ayvalık, Cunda and Sarımsaklı. Data of land use map of the region were obtained from Ayvalık Municipality. For micro-structure analysis of the region, morphological photographs of different second homes other land uses were taken to categorize the region.

1.4 Outline of the study

This study consists of 4 main chapters, apart from this chapter. Chapter 2 defines second homes, historical geography of second home tourism, the relationship between second homes and sustainable development, second-home development in Turkey and problems, challenges and difficulties related to second home developments in terms of physical form of coastal resorts. Chapter 3 explains sustainable urban form and describes sustainable urban form measures to achieve a sustainable city. Chapter 4 examines Ayvalık regarding these measures. Before this examination, it explains the history of Ayvalık, its planning history and the emergence of the second home developments in Ayvalık. Then, it analyzes second home developments effects on macro and micro-structure of Ayvalık region in terms of the sustainable urban form measures. Finally, chapter 5 summarizes the findings of the research and makes a discussion on the second home developments effects on Ayvalık's urban form.

CHAPTER 2

SECOND HOME DEVELOPMENT AND SUSTAINABLE DEVELOPMENT

2.1 Definitions of Second-Home

For many years, second homes have been an important seasonal dwelling type for people's tourism activities in modern life. Second homes ensure the development of regional economies especially in peripheral areas and the protection of vernacular architecture of the rural areas with ongoing use of buildings. Therefore, second homes are seen as heritage resources. Second homes have a significant role on sense of place such as connection between family and/or childhood and place. However, second homes also have some drawbacks. For example in some areas, they make a pressure on existing housing stock, and they increase prices of houses. Therefore, rural inhabitants encounter difficulties of buying a house. Besides, seasonal differentiations in second home usage may be seen as worsening seasonal conditions in employment and economic demand instead of ensuring regional development. In some cases, second home owners may be perceived as strangers, foreigners and even as invaders that make rural residents annoy to them. Second home phenomenon has many different, complex and important situations within the scope of it (Hall and Müller, 2004).

According to Hall and Müller (2004), second homes can be referred as *recreational homes, vacation homes, summer homes, cottages, and weekend homes*. They used "second home" term as in place of these terms and defined second home characteristics based on type, structure and buildings/vehicles (**Table 2.1**).

Table 2.1: Second Home Characteristics Table (Hall and Müller, 2004)

TYPE	STRUCTURE	BUILDINGS/VEHICLES
Non-mobile	Houses and Apartments	Solitary Cottages and Houses Second Home Villages Apartment Buildings
Semi-mobile	Camping	Trailers/Mobile Homes Recreational Vehicles Tents Caravans
Mobile	Boats	Sailing Boats

Second homes can be generally defined as housing units that are not the primary residences of their owners and are used at certain times of the year by their owners. These houses are not occupied all year long, since they are not occupied by owners in off-season times. Therefore, they are vacant for most of the year, or might be rented to others at specific times determined by the owners. Second homes are used for recreational activities, and also getting family members together, being near to (or away from) relatives or friends (Di, McArdle and Masnick, 2001).

Another definition about second home phenomenon is provided by Perkins and Thorns (2006) as follows:

> "… we define the primary home as the house or apartment in which household members reside for much of the time in the course of their daily lives, largely dictated by employment and family commitments. Second homes are those houses, cottages, cabins and condominiums (having myriad forms and being known by various names across cultures and between within countries) that are sited in the countryside (often besides rivers, lakes and beaches) and urban locations, and used more or less sporadically for recreation and other activities, sometimes including work and employment." (Perkins and Thorns, 2006, p. 67)

According to Coppock (1977), there are three main reasons of rising interest on second homes throughout the western world. These are increasing outdoor facilities, raising awareness of environmental pollution and loss of visual amenity landscapes and disagreement between second home households and others such as different ethnic groups or nationalities.

McIntyre (2006) states that second homes are often settled in high amenity landscapes like coastlines, lakeshores, mountains and forests. Climate is also a determinant factor for these regions' attractiveness. Most second homes are generally sited in less than a day's drive from primary residence for weekend leisure activities. However, long distance second home acquisition are increased day by day with cheap air travel, available housing stock in depopulated rural areas and increased mobility and transportation modes. In Europe, trans-border purchase of second homes has increased in the warmer areas of France, Italy and Spain, and in the less populous, more natural, periphery in Scotland, Ireland, Norway and Sweden.

2.2 The historical geography of second home tourism

Beginning from the ancient times, seasonal migration from urban to rural residence has long been a feature of high society, with ritualized movements from primary residence to other residence, accompanied by servants with portable belongings, making the beginning and end of the season. In the post-medieval period, the large country houses of wealthy people were used for this kind of purpose especially in areas within acceptable travelling distance of London and Paris. Second home usage was definitely a characteristic of ancient Egypt, classical Rome and wealthy Romans. Like the second homes of modern life, magnificent country house or chateau was considered as a rural estate that was built on the waterfronts. For instance, Lake Como was ringed with villas (**Figure 2.1**). From the Gulf of Spezia to beyond the Gulf of Salermo the eastern shore of Italy was lined with villas. However, the greatest concentration was on the Gulf of Naples (Coppock, 1977).

According to Hall and Müller (2004), the history of the second homes date back to ancient times when countryside houses had been seen as a nobility property. By the 1700s, second homes had taken place in thermal areas and coastal towns and they used for being away from city life in seasonal periods. Geography of second homes has been changed by new transportation means. For example, in the Stockholm archipelago, second homes along the steamboat lines the Oslo Fjord.

In the early 20th century, second home ownership expanded from the highest social class to the other groups in society and second homes have been started to build in natural and wilderness areas. For example, second homes were built in wilderness areas of North America to relive the life of old settlements (Coppock, 1977c; Wolfe, 1977; Löfgren, 1999, cited in Hall and Müller, 2004). In New Zealand and Australia, first coastal second homes looked like fishing huts ensuring households inexpensive vacations by the beach and away from hot inlands. Between the 1950s and the 1980s, many second homes were built to support social tourism in metropolitan hinterlands of Nordic countries (Nordin, 1993b, cited in Hall and Müller, 2004).

Figure 2.1: Villa Melzi d'Eril in Bellagio on the Como Lake Shore was built in 1810 as the summer residence of Duke Francesco Melzi d'Eril who was vice president of the Napoleonic Italian Republic (Source: wikipedia)

Since 1960, second home ownership has significantly increased due to rising personal mobility as a result of developing transportation means, car ownership and access. The idea of second home ownership has aroused from the need of personal relaxation within the city surroundings (Wolfe, 1951; Lundgren 1974; Jansson & Müller, 2003 cited in Hall and Müller, 2004). Therefore, people mostly prefer to own second home from areas near their property. Ownership for second home far away from their property is not much more preferable, even in international context (Hoggart & Buller, 1995, cited in Hall and Müller, 2004).

Space and time accessibility is one of the most important economic factors for location selection of second homes. Second homes which are favored in terms of frequent short period visits can be called as "weekend homes" for most second home owners (**Table 2.2**). On the other hand, other type of second homes which are far away from the owners' primary residences and named as "vacation homes" are used occasionally but often for longer periods. Location of second home is not only dependent on visit times, but also dependent on the geography of amenity-rich landscapes making people pleasant and comfortable in coastal and mountain areas. Other economic issues taken into consideration in selection of second home locations are amenity values and cost of real estates. These factors, as well as space time accessibility, have a significant impact on the geography of second homes. Apart from these, second homes, converted former permanent rural housing, are important places for their owners because they have links with childhood memories and family origin (Hall and Müller, 2004).

Other additional factors for site selection of second homes are the role of real estate agencies and availability of land through government land use policies. Real-estate agencies have a significant role on second home ownership. Land availability is an important issue for site selection of second homes since land-use planning regulations may restrict the size of land to be sold. Such land-use planning regulations and housing policies have major effects on land and real estate values.

Table 2.2: Second Home Relative Space-Time Characteristics Table (Hall and Müller, 2004)

Second home function	Frequency of visits	Length of visit	Form of mobility	Location relative to primary residence
Weekend Home	High	Short	Circulation	Dependent
Vacation Home	Low	Long	Seasonal Migration	Independent
Future Permanent Home	Decreasing	Increasing	Migration	Independent

Second homes are a real estate sector which has grown very fast. In the 1970s, there were 1.5 million second homes in France, while today this figure is much bigger (Kozak and Duman, 2011). In Sweden, the number of second homes that was around 190.500 in the 1960s reached to 800.000 in the year of 1990. This figure is around 190.500 in Norway. The second homes which are used only in winter tourism are around 400.000, indicating the rising interest in this kind of accommodation. In Finland, there are 400.000 second homes (Komppula, Reijonen and Timonen, 2008; cited in Kozak and Duman, 2011). Although the rising growth of second home along Mediterranean coats is pretty obvious, there are a number of reasons for this increase in holiday houses in Scandinavian countries. Some of them are the high level of wealth coming with the industrialization and urbanization and the tendency to find alternative holiday destinations within their own countries. In Switzerland, there were around 700.000 second homes in 1988 and this reached to 1 million in 2006 (Stettler and Danielli, 2008; cited in Kozak and Duman, 2011). In Europe, there are some holiday resorts where the number of foreign second home owners is as large as the number of local owners. For example, in Kützbühel, Austrians keep as the largest groups among the owners of second homes. This is followed by Germans and Italians (Zehrer, Siler and Stickdorn, 2008). In terms of having second home, Mexico is attractive for the citizens of Canada and the US, Bornholm islands of Denmark for Germans, Balearic Islands of Spain for German British and Nordic countries' citizens. In the 1960s and 1980s, Alpines became important second home destinations among the Central Europeans. It is possible to see the number of second homes in some European countries between the years of 2006 and 2009 (**Table 2.3**).

Table 2.3: The number of second homes in some European countries (Resource: www.statistics.gov.uk, www.cso.ie/, www.dst.dk/HomeUK.aspx, www.tilastokeskus.fi/tup/ kvportaali/index_en.html, www.ssb.no/en/, www.scb.se, Hall, Muller and Saarinen (2008), Timothy ve Teye (2009); cited in Kozak and Duman, 2011, p. 228).

Country	2006	2008	2009
Denmark	202,500	212,867	214,818
Finland	450,600	--	485,118
UK	295,000	272,000	--
Ireland	49,661	-	-
Sweden	469,900	558,455	--
Iceland	10,450	-	-
Norway	379,200	418,000	-

There are many positive and negative outcomes of second home developments which are shown in detail in **Figure 2.2**. Second home developments provide inexpensive holiday opportunities for people. In Turkish culture, close relations with neighbors are very important. In this sense, second homes provide an opportunity to establish such relations between the dwellers of second homes

during holiday times (Kozak and Duman, 2011, p. 230). In economic terms, second homes contribute to the local economy by increasing capacity of property taxes of the local authorities and by increasing job and local employment opportunities. On the other hand, as second home developments are planned through a piecemeal planning approach, a number of issues are undermined, such as the protection of natural, historic and cultural heritage, the development of necessary physical and social infrastructure, a careful study on how the newly developed second homes should be integrated with the existent urban pattern. As a result, large pieces of lands turn into second home neighborhoods without any integration with the existent coastal settlements and insufficient physical infrastructure (Toskay, 1989). Generally, they are not dependent settlements to the main coastal resorts in terms of many services and they suffer from the lack of public transportation facilities. That is why second home dwellers have had to manage their lives in the very first years deprived from many important public services. Second homes ultimately create unsustainable urban development and way of life in the coastal resort towns. As the land demand for second home developments increase, coastal areas are negatively affected. The carrying capacity of these areas generally exceeds over the limits and this causes several negative side effects, such as the development of concrete buildings along the coastlines turning into unattractive places by losing their authenticity, the drastic increases in land prices, and the deprivation of these areas by losing their natural, cultural and local values which used to attract tourists and visitors (Bieger, Beritelli ve Weinert, 2007). Last but not least, the increases in the property values and rents negatively affect the affordability of local people and limit their ability to house themselves.

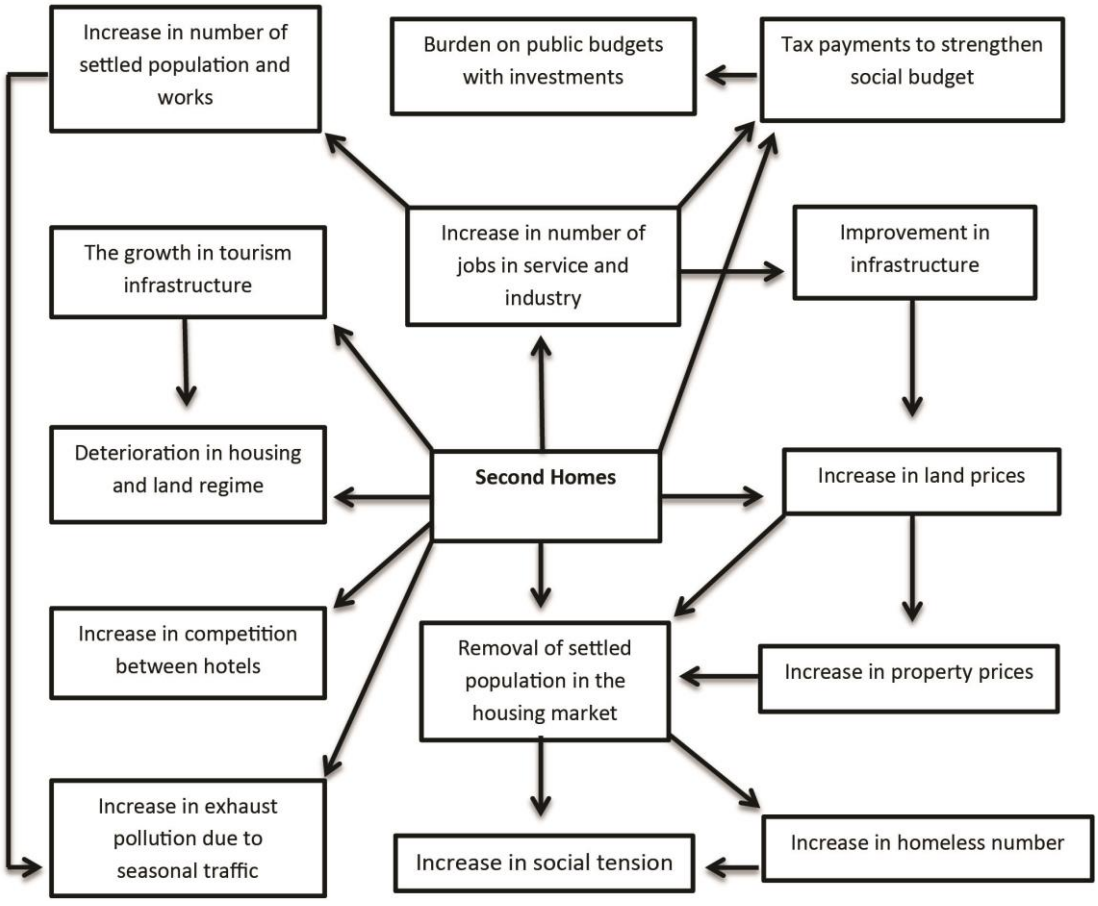


Figure 2.2: Positive and Negative Outcomes of Second Homes (Stettler & Danielli, 2008: 250; cited in Kozak and Duman, 2011, p.230)

2.3 The relationship between second-homes and sustainable development

Much of the literature on multiple dwelling has focused on second home development, their spatial distribution, environmental and social impacts. Academic studies on second home development go back at least to the 1930s. In the 1970s, there was a great interest in academic second home researches about spread of second home development especially in the UK, Scandinavia and Canada. This interest continued in the 1980s. After the 1990s, research on second home development has significantly increased due to rapid expansion of second home development throughout the world as a result of increased inter-regional, international, seasonal and retirement migration. These forms of migration types have been sparked researchers' interest on economic, environmental and social impacts of second home development (Coppock, 1977; McIntyre, 2006). **(Figure 2.3)**

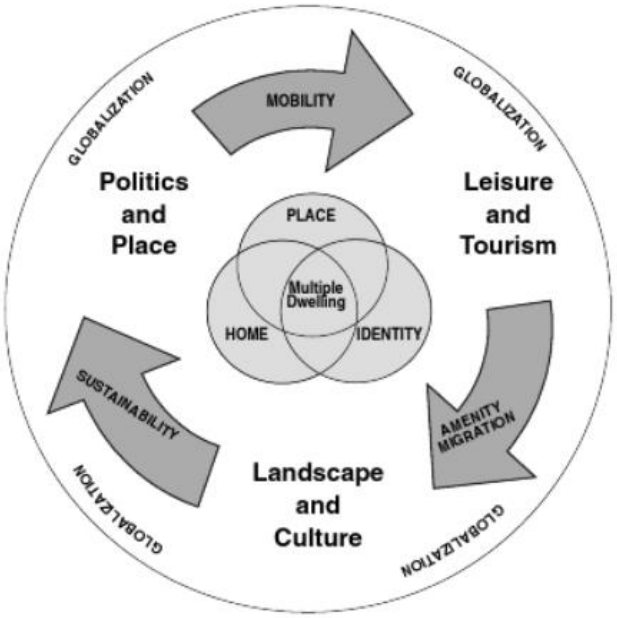


Figure 2.3: Multiple Dwelling and Globalization (McIntyre, 2006)

2.3.1 Economic Impacts

According to Hall and Müller (2004), after an economic recession in rural regions, second home development is usually seen as an opportunity to the traditional economic activities in rural environments, due to its substantial contributions to the regional economy.

Deller et al. (1997) claim that local authorities favor second home tourism due to increasing tax incomes and boosting the local economy. But this situation is valid for *hitherto-unoccupied housing* that use for second homes. There is another situation that permanent homes can be transformed into second homes which leads to decrease in population of the region. Then, economic activities of the region badly affects due to reduction in consumption amount and tax revenues (Hall and Müller, 2004).

Consumption pattern of second home households is directly related to the distance between their primary and second homes (Bohlin, 1982a; Nordin, 1993a; Müller, 2002c; cited in Hall and Müller, 2004). They emphasize that "the greater distance between second home and primary residence, the smaller the amount of goods that can be taken from the primary residence" . Therefore, second homes in the peripheral regions and vacation areas can generate higher incomes from second home tourism, even in short terms stays.

Second home tourism has also negative economic impacts on regional economy. The significant negative impacts are increased demand on municipal services such as infrastructure and increased real estate prices that can be thought as a threat to sustainable development of the rural areas with high amenity values (Shucksmith, 1983).

Fritz (1982) claims that rural inhabitants are exposed to increased tax rates with second home development, as opposed to Fritz, Gartner (1987) claims that with second home development, local expenses will be shared between both second home owners and rural inhabitants, therefore, permanent inhabitants have the advantage of paying less tax rates (Hall and Müller, 2004).

In conclusion, Hall and Müller (2004) assert that all economic impacts of second home development are not evaluated comprehensively and there is no systematic accounts related to economic effects of second home tourism. Negative and positive economic impacts of second home development are summarized in **Table 2.4**.

Table 2.4: Negative and positive economic impacts of second home development

ECONOMIC EFFECTS	
Positive Effects	**Negative Effects**
Restoration of land values	Land values beyond means of locals
Increase in employment opportunities	Increase in tax rates
Creation of new economic base	Increase in property prices
Revitalization of construction industry	Increase in cost of local goods and services
Creation of service industries	Increasing cost to local governments
Increase in rates	Rural unemployment
Help to maintain existing services	

2.3.2 Social Impacts

Throughout the 1960s and 1970s, a great concern occurred among rural populations and planners due to social effects of second home ownership (Coppock, 1977a, 1977b; Rogers, 1977; Jordan, 1980; cited in Hall and Müller, 2004). In the 1990s, there were still major concerns related to the invasion of the countryside even though the fears of an invasion of the rural areas expressed in the 1970s never occurred (Gallent & Tewdwr-Jones, 2000).

Concerns about the displacement of the permanent rural population by second homes owners are often expressed in terms of increased property prices. As a result, young families could not buy a property. Therefore, rural traditional homes are transformed into seasonal homes that can lead to increase in crime rates (Coppock, 1977d; Gallent & Tewdwr-Jones, 2000; Jordan, 1980, cited in Hall and Müller, 2004). However this is a little simple effect. Another source of problem is economic restructuring as a result of globalization, new trade opportunities and technological improvements which cause rural unemployment and out-migration. Therefore, the main factor is the growth of a service-based economy which supports urban living that causes the changes in rural areas by also pushing the limits of recreational/amenity rich areas. Correspondingly employment, education and urban lifestyle are the main reasons for people to leave the countryside. For this reason, it is assumed that second home owners only fill the gaps of rural out-migrants. But, these gaps are usually filled only on a seasonal basis (Hall and Müller, 2004).

Recent second home developments make people concern about the sustainability of rural areas and also it could be argued that second home tourism destroy its own amenities such as living countryside. “It is also argued that amenity landscapes are transformed into elite landscapes with access limited to only affluent members of society (Halseth, 2004), thereby transferring urban segregation to the

countryside and converting formerly common ground into elite playgrounds" (Hall and Müller, 2004: p.20)

According to Müller (1999), the mechanisms that cause the displacement of rural population are usually seen in the rural property market and especially in the way property values are assessed for taxation purposes. The values of all properties in the geographical neighborhood are affected by recent sales. Thus, the cost of living for primary residents is affected by competition for the attractive environment. In this context, primary residents and second homes are considered equally. This situation usually occurs in amenity-rich metropolitan hinterlands, where the combined demand exceeds the existing property supply.

The social and economic difference between second home owners and rural inhabitants is one of the reasons for dislike of second home development. Second home development can be seen as a rural gentrification, which shows the conflict between traditional rural lifestyles and urban images of rural life (Müller, 1999).

The social integration of second home owners into the local community is partly dependent on the social ambitions and strategies of the second home owners themselves. Second home owners mostly have no social contact with rural residents; they are mostly interested in local amenities of the region. On the other hand, second home owners who have relatives in their second home area, may already have social contacts with locals. Language and traditions are the main problems for international second home ownership. Second home owners look for social contacts among rural area inhabitants because of negative image of modern countryside. This means contacts with other second home owners (often with same nationality) as a substitute for the desired countryside life among the locals (Albarre, 1977; Buller & Hoggart, 1994b; Müller, 1999, cited in Hall and Müller, 2004). Negative and positive social impacts of second home development are summarized in **Table 2.5**.

Table 2.5: Negative and positive social impacts of second home development

SOCIAL EFFECTS	
Positive Effects	**Negative Effects**
Enhanced community lifestyle	Second home/local disagreement
Input of new ideas into community	Increase in crime rates
Creation of facilities	Loss of cultural identity
Increase in local pride in the area	Properties empty out of season
Preserves a traditional way of life	Insufficient housing stock
Use of redundant housing stock	Disruption of rural life
Memory of childhood	Change in social structure
	Limits access to recreational areas
	Over crowding
	Displacement of rural population
	Out-migration
	Rising awareness in rural issues

2.3.3 Environmental Impacts

According to Finnish Islands Committee, transportation between primary and second homes leads to the most striking environmental impact. Mathieson and Wall (1982) define three major issues related to second home tourism: wildlife disruption due to the clearance of vegetation, disposal of human waste, and aesthetics. However, these environmental impacts can be applied to any building development. Purpose-built second homes need new infrastructure but converted former rural homes do not need any infrastructure (Hall and Müller, 2004).

Unplanned and unregulated second home developments raise concerns about environmental pollution especially for high amenity landscapes. Langdalen (1980) and Clout (1971) recommends planning regulations to limit the impact of second home development on the landscape. Nevertheless, especially in European countries, second home planning regulations have generally improved since the 1970s (Gallent, 1997; Jansson & Müller, 2003; Flognfeldt, cited in Hall and Müller, 2004).

Second home owners differ from the local community as the local population in the view of future development of second home community, although they appreciate the same aspects of them. Second home owners are more conservative and do not like change involving industrial development (Aronsson, 1993; Boschken, 1975; Girard & Gartner, 1993; Green et. al., 1996; Fountain & Hall, 2002, cited in Hall and Müller, 2004). Instead physical qualities of the environment are important for them and because of this they support land use control and conservation of nature. Besides, they try to prevent further large-scale tourism development. Actually, Leppanen (2003) suggests that second home life helps to create an understanding of ecology and a respect for the environment (Hall and Müller, 2004). Competing demands on resources will have to be balanced by sustainable second home tourism in agricultural landscapes. Swarbrooke (1996) claimed that daily life of urban tourists will be affected by rural holidays, when they return home, they will start to interest in rural issues (Hall and Müller, 2004). Negative and positive environmental/physical impacts of second home development are summarized in **Table 2.6**.

Table 2.6: Negative and positive environmental/physical impacts of second home development

PHYSICAL/ENVIRONMENTAL EFFECTS	
Positive Effects	**Negative Effects**
Beautification of area	Loss of visual amenity/aesthetics
Protection of natural areas	Inadequate waste disposal
Protection of heritage buildings	Environmental degradation
Wildlife protection	Stress on road systems
Facilities/Services	Wildlife disruption
Curative effects of the sea	Exploitation of natural areas
Protection of vernacular architecture	Poor design construction of houses
	Land being taken from conservation areas
	Inadequate water supplies
	Increased demand on municipal services
	Invasion of countyside
	Traditional rural homes are converted into second home
	Construction pressure on amenity rich areas
	Unemployed housing stock
	Disruption of fertile agricultural lands
	Dead built environment
	Consuming more land than other tourism investments
	Exceeding carrying capacity of nature
	Destruction of natural environment

2.4 Second Home Development in Turkey

Over the last two decades, there has been a rapid increase in international tourism with record number of international visitors and tourism earnings in Turkey (Kozak and Duman, 2011). Along with developments in international tourism, domestic tourism has also grown fast; and the number of

second homes has increased on coastal areas of Turkey (Kozak and Duman, 2011). "More than three million second homes are used as vacation homes especially during summer seasons today" (Kozak and Duman, 2011, p. 226). Currently, increasing car ownership, personal mobility and accessibility to rural areas, decreasing working hours, facilitation of early retirement and escaping from urban life cause high demand on second home tourism along coastal resorts in Turkey. Climate, tourism infrastructure, fascination of rural environments, less stressful way of life and low costs of living and accommodation in coastal regions of Turkey also attract domestic and foreign tourists to buy second homes.

The development history of second homes in the coastal areas goes back to the 1950s. Before the 1950s, people used to have second homes in uplands because of the cool climates, clean and healthy air, the willing of being in the nature and the lack of knowledge about curative effects of the sea. After the 1950s, people became much more interested in living and having their holidays by the sea. Consequently, second home developments moved from hinterlands to the coastal areas of Turkey. The first examples of second homes in Turkey were the residences in Bosphorus. The first regular second home settlement was constructed in the coasts of Çeşme in the 1950s. After the 1950s, second home development in Turkey has accelerated especially in the small settlements along the Mediterranean and Aegean coasts. In the 1960s, the state's foreign tourism support and hotel and interrelated infrastructure investments on the coasts with high tourism potential also made them attractive for second home developments (Bakırcı, 2007).

In the 1980s, a rapid increase in second home development has been observed in Turkey. Tourism Incentive Law No. 2634 in 1982 was enacted. The Law provided tax exemptions for second home development and low-interest loans for tourism investments (Bakırcı, 2007). The Tourism Incentive Law No. 2634 has also opened up the ways of designating the coastal areas as 'tourism areas' and 'tourism centers', and has opened the valuable coastal areas to the tourism investments. This law has induced many private and public entrepreneurs to undertake large amounts of tourism investment by reducing bureaucratic formalities for tourism investors, appropriating state-owned land for tourism development and providing a wide range of fiscal and monetary incentives. This situation has increased second home pressure on natural and environmental assets in rural coastal settlements along the coasts of the Mediterranean and Aegean Sea.

Between the years of 1984-1989, thanks to Urban Development Law No. 3194, municipalities became the main planning authorities within the municipal boundary and the adjacent area. As a result of growing pressure on the coastal lands to open up tourism investments and second home development, many local authorities of coastal towns made amendments on the prevailing development plans. As the coordination between planning authorities at the central and local governments could not be managed successfully, tourism and second home have developed uncontrolled manner in these coastal resort towns. As a result, irreversible environmental impacts of second home development have occurred due to failure in taking precautions timely.

Since the 1980s to today, the coasts in Turkey have been seen as the sources for land speculation. The promotion and support of property developers and cooperatives by the state have led to increase in second homes developments along the coasts (Bakırcı, 2007). Also, second homes have always been seen as investment tools and future permanent homes after retirement (Bakırcı, 2007). In coastal lands where tourism, recreation and natural conservation plays a crucial role, lack of accurate policies related to control of second home development have led to increase in concretion and infrastructural problems (Bakırcı, 2007). Frequent law amendment on the use of coastal areas caused to irreversible damages by opening untouched lands to use for housing. Treasury lands which are under local governments' authority have been designated for second home development areas without a comprehensive and integrated planning approach. Besides, bank credit availabilities for second homes have also caused the increase in second homes (Bakırcı, 2007). Likewise, as mentioned earlier, the Mediterranean and Aegean coasts of Turkey have recently been attracted by the Northern and Central European tourists (Kozak and Dyman, 2011). With the increasing demands in buying second homes in Turkish resort towns, The Law No. 4916 dated 3rd July 2003 has facilitated the process of property acquisition for foreigners. This has led to a substantial increase in second home development along the Mediterranean and Aegean coasts.

Unfortunately there is no regularly collected database in terms of the numbers of second homes in Turkey. In 2008, there are 546.454 second homes in Turkey. The largest second home stock in Turkey is in the Black Sea Region. This is followed by Marmara, Aegean, Mediterranean, Central Anatolia, East Anatolia and South-East Anatolia Regions (**Table 2.7**).

Table 2.7: Number of second homes in the geographical regions of Turkey in 2008 (Source: Kozak and Duman, 2011, p. 230)

No	Geographic regions	Second home
1	**Black Sea**	169,282
2	**Marmara**	110,495
3	**Aegean**	87,106
4	**Mediterranean**	79,480
5	**Central Anatolia**	71,708
6	**East Anatolia**	22,643
7	**South East Anatolia**	5,740
	Total	546454

Second homes are the most common settlement type between investments made at coastal areas. There are many reasons for those second homes in coastal areas become an attraction center for people. Coasts are sensitive ecosystems that combine the land and sea. In addition, they have economic and micro-climatic features and enable people to use them for recreational purposes, having a holiday and sports activities (Kılıçaslan, 2006).

Due to these positive sides of waterfronts, they have become very attractive for most holiday makers, especially second-home holiday makers. Yet, as explained the factors affecting the second home development in Turkey with a historical perspective, it is possible to note that the coastal resort towns have been growing as an urban sprawl in an unsustainable manner. Second home developments in these towns are significantly under social, environmental and economic impacts. As can be seen in **Figure 2.4**, there is a high construction pressure on amenity rich areas (forest, agricultural land, natural protected areas, waterfronts) in coastal towns.

Coastal areas and fertile agricultural lands are badly affected by urban sprawl. The increasing demands of second homes especially with the Law No. 4916 dated 3rd July 2003 which has facilitated the process of property acquisition for foreigners, have put an extra pressure and increased the risks of developing amenity rich coastal areas of Turkey, peripheral areas especially in fertile agricultural lands **(Figure 2.5)**. This increasing demand in second home development has also increased property prices.

Unemployed housing stock and dead built environments have been created out of summer seasons. One of the continuing debates about these second homes is their seasonality and the excess capacity that can be used during low seasons (Kozak and Duman, 2011, p.226). Due to second home developments, urban sprawl and overall density in the built-up areas have increased. Unjust competition emerges between foreigners and local inhabitants because of increasing housing prices in the real estate market. Speculative activities in real estate market and increasing housing prices lead to de-territorialization of the local inhabitants. Summer season population of second home regions triples the actual population. Thus, local authorities and municipalities cannot provide enough public services at high season period. Second home development consumes more land than other touristic activities.

Figure 2.4: Uncontrolled second home development in Akbük that destroys natural habitat

Figure 2.5: Fertile agricultural lands are destroyed by second home development in Boğazkent

Seaside is an important place for urban dwellers to purchase a second home since they want to escape from city life and spend their leisure time in amenity rich areas. Therefore, purpose-built second homes have seen along the shore. Especially, it was observed that roads were parallel to the coastline at second home developments which are positioned along the seaside. In that case, existing beach and visual quality of landscape are destroyed by passing roads parallel to the coastline **(Figure 2.6)**.

Figure 2.6: Second home development strip along the coastal road in Mahmutlar

Second home developments are mostly seen in amenity rich landscapes having attractive environment (with natural, historical and cultural values). When these developments in attractive environment exceed carrying capacity of nature, a destructive threat occurs for soil, vegetation, water, air and so on. In Turkey, moving to the coastal areas as a result of people's desire to be close to nature bring along some problems, such as destruction of natural environment, unplanned growth of coastal settlements, concretion of valuable agricultural lands (Kılıçaslan, 2006). In addition, second home sprawl along natural habitat badly affects coastal flora and fauna.

It is crucial to provide an integrated and comprehensive planning for the sustainable development of coastal resort towns. Otherwise these amenity rich cities will lose their key values and characteristics and will become unattractive places nobody would like to live in the future. The next chapter seeks to find the answer of the question of it is possible to achieve a sustainable urban form for cities.

CHAPTER 3

SUSTAINABLE URBAN FORM

This chapter aims to explain the notion of 'sustainable development', how this notion has appeared and developed. It also seeks to describe what sustainable urban form is and what urban design interventions are necessary to achieve sustainable urban forms in cities. Reviewing the literature on these issues, it intends to explain the components of sustainable urban form at macro and micro structures of cities.

3.1 Definitions of Sustainable Urban Form

Before defining "Sustainable Urban Form" term, it is useful to explain "sustainable development" term. Sustainable development concept goes back a long way. In 1972, the United Nations Conference on the Human Environment conducted a meeting at Scotland for guiding people to conserve the human environment. This conference is accepted as the origin of sustainable development due to having principles related to social, economic and environmental development of human settlements. Then, "Sustainable Development" term was used by the World Commission on Environment and Development (WCED) in its 1987 report entitled *Our Common Future* (also known as Brundtland Report). Report of WCED describes sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs". It was soon followed by the Green Paper on the Urban Environment published by the European Commission in Brussels (CEC, 1990), that indicates social, economic, environmental and functional problems of today's cities and sets goals for sustainable urban development. And then, in 1992, at the Agenda 21, a product of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, it was agreed that "indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to self-regulating sustainability of integrated environmental and development systems". In 1996, United Nations Conference on Human Settlements (Habitat II) "City Summit" in Istanbul also took important steps for making a global consensus on how the sustainability agenda can be applied to urban planning and equal settlements can be provided for everybody. And then, The World Summit on Sustainable Development (Earth Summit 2002) which was held in Johannesburg in 2002 was assembled to discuss more effective sustainable development strategies. Besides, World Urban Forum III (WUF 3) was organized by United Nations Human Settlements Program (UN-HABITAT) in 2006 to discuss urban sustainability with the motto of "from ideas to action". Finally, United Nations Conference on Sustainable Development, also known as Rio 2012, Rio + 20 or "Earth Summit 2012" was held in Rio de Janeiro in 2012 and aimed to provide a reference sheet for promoting sustainable human settlement development.

The emergence of sustainable development term has revived discussions about urban forms. This issue has prompted scholars, planners, NGOs, governments to create new frameworks for urban lands to adopt for sustainability (Williams et al., 2000; Jabareen, 2006).

Williams et al. (2000) claim that there is a relationship between the shape, size, density and uses of a city and its sustainability. But, the accurate nature of this relationship cannot be defined entirely. For instance, high and low urban density or centralized and decentralized settlements sustainability measures are still subject to debate. Nevertheless, particular urban forms such as pedestrian- and public transport-oriented forms are claimed to be more sustainable, whereas particular urban forms which create environmental pollution and social injustice are unsustainable. Some forms may be sustainable at local scale; but, these forms may not be sustainable at urban or regional scale.

Although there is no a certain definition of urban sustainability, there is a consensus on the basic principles of urban sustainability. These are:

- Reducing the physical separation of activities which has arisen from decentralization and sprawl,
- Integrating transport and land use policies from the need to encourage public transport,
- Locating trip attractors close to public transport, creating cyclist and pedestrian based urban spaces,
- Enhancing higher urban densities to conduct lower energy consumption,
- Strengthen policies to provide environmental benefits against undefined/uncertain urban development –saving agricultural and valuable natural areas- (Breheny, 1992 cited in Çalışkan, 2004: p.83)

As Williams et al. (2000) assert, there is a consensus that the most sustainable urban forms are compact urban forms, although there is skepticism on this issue. Masnavi (2000: p.65) defines 'quality of life' indicators related to compactness under the following categories:

- ***Accessibility to facilities*** –in terms of equity in access to the range of city facilities and services;
- ***Reducing the need to travel*** –in terms of journey length, particularly by private car;
- ***Health*** – in terms of improving public health, through reducing pollution, particularly that caused by emissions from vehicles; and
- ***Social interaction*** – in terms of opportunities for social contract in the neighborhood's streets and public spaces through more frequent use of these places and walking trips.

Elkin et al. (1991, cited in Williams et al., 2000: p.3) explain that "…sustainable urban development must aim to produce a city that is "user-friendly" and resourceful, in terms not only of its form and energy-efficiency, but also its function as a place for living". It is therefore crucial to know what kind of urban planning and design can achieve sustainable urban forms for cities. The next section investigates this question.

3.2 Urban Design Interventions for Sustainable Urban Forms

According to Frey (1999), designing and planning of the city is very important today in order to prevent the destructive effects of unsustainable urban developments on the environment. In fact, urban planning and design should enable sustainable urban development by improving urban forms and structures. Hereby, cities can be more people friendly lands that do not generate the devastating environmental impacts.

Frey (1999) summarizes the generally agreed sustainability characteristics of urban forms. These are the degree of *containment of development*; *population density relative to the land needed*; *viability of public transport*; *dispersal of vehicular transport*; *viability of mixed uses*; *access to services and facilities*; *access to green open spaces*; *environmental conditions*; *the potential for social mix*; *the potential of local autonomy*; *the potential for self-sufficiency*; *the degree of adaptability of the city to changing needs and conditions*; *the imageability of the city models as a whole and of their districts*; and *sense of place and centrality they provide*.

The main function of good urban planning and design is to create new advantages and enhance existing advantages a good city has to offer. Frey (1999) describes these advantages by using Maslow's hierarchy of human needs (Maslow, 1954). These are as follows:

- Provision for all physical needs (access to services and facilities, transport, a place to live and work, communication, education)

- Safety, security and protection (a visually and functionally ordered)
- A conducive social environment (feeling of belonging to a place)
- A good image, reputation and prestige (sense of confidence)
- A chance to be creative (shaping personal space)
- A well designed, an aesthetically pleasing environment (place of culture)

Frey (1999) also explains the biggest problems of today's cities which make them unsustainable. First, as cities grow in functional zones (or compartments), they make people travel by car. Second, the city is stratified socially. The developments of zones at suburban and peripheral areas are far away from the city center and they do not have enough urban facilities to meet the residents' needs. Therefore, they become socially exclusive with higher income groups who can afford mobility. Thirdly, as being the largest user, today's cities increasingly consume natural resources and pollute natural and global environment. Frey (1999) suggests urban design interventions to solve these problems. These suggestions are not only on 'the design of the public realm' or individual urban spaces, but also on 'the design of the physical form and structure of the city region', 'city' and 'its districts' respectively. After achieving developments at these hierarchical order (city region-city-city districts), design can be dealt with individual urban spaces **(Table 3.1).**

3.2.1 Strategic Urban Design on City Regional Level

Today, the primary function of the design is not to make 'cosmetic treatment' for the individual spaces. Form and structure of the city are physical representation of the social and economic stratification of the city. Since city's form and structure partially or totally make some functional (or environmental) problems, the most important function of the design is to make contribution on a strategic level to the improvement of land use patterns, the city region's and the city's form and structure.(Frey, 1999)

According to Frey (1999: p.20) "Design frameworks at this level will develop a balanced and functional relationship of the city with its hinterland, will generate a spatial and formal structure for the city's districts in their interaction and interrelatedness, and will set the conditions for design on the next lower level of the city districts."

3.2.2 Strategic Urban Design on City District Level

Other significant function of the design is to make contributions to the development of the quality of city districts which are today mostly 'monotonous, single-use areas and dormitory places'. In general, their land-use pattern, form, structure, density and their role in the city need to be researched with the degree of equity and the quality of life they provide. Then, they need to be redesigned and developed to enhance livability.

Frey (1999: p.21) explains that "It is on this level that design deals with the spatial, formal and structural interrelationship between the public and the private realm and with the generation of design guidelines for both the important public elements of districts and the urban fabric that generates their neutral background or framework".

3.2.3 Strategic Urban Design on Level of Individual Spaces

Urban design on the individual spaces is the lowest level of intervention and design deals with 'the quality of public streets and squares and the public spaces network they form'. (Frey, 1999)

Table 3.1: The levels of strategic urban design interventions (Frey, 1999: p.21)

Level	Issues	Feedback	Interdependence and scope
Level 1: ***Strategic Urban Design at the city/conurbation level***	○ Form and structure ○ Land-use pattern ○ Relationship to hinterland ○ Access, linkages, transport and communication systems ○ Definition, role and interaction of districts ○ Image ○ Environmental impact and energy consumption		• Sets development framework for city/conurbation which co-ordinates the development of individual districts within the city • The general development structure (e.g. linear, network, cluster, etc.) is fixed • The scale and form of the development of individual districts remain open
Level 2: ***Strategic Urban Design at the city district level***	○ Role of the districts in the city ○ Form and structure ○ Land-use pattern, social mix ○ Relationship public to private realm ○ Access, linkages/permeability and transport system ○ Identity and legibility ○ Image ○ Environmental impact and energy consumption		• Sets development framework for individual urban districts which co-ordinates the development of individual spaces and projects in the districts • The general development structure and form of individual districts (e.g. hierarchal, spatial, etc.) is fixed • The scale and nature of the development of individual projects within districts remain open
Level 3: ***Urban Design of individual spaces or groups of spaces***	○ Role of individual or groups of spaces in the city/district (hierarchy) ○ Form and structure ○ Use pattern, social mix ○ Relationship between public and private realm ○ Detail design (use profile, surfaces, furniture, landscaping, etc.) ○ Identity, legibility and image ○ Environmental impact and energy consumption		• Sets design guidelines for individual urban spaces and buildings within framework for districts • The primary design features of the public spaces are fixed • Use pattern, detail design (unless co-ordination is essential) remain open

Sustainable urban design deals with physical design and urban form, and highlights the connections between spatial indicators. It aims to represent the nature of urban system, improve the quality of urban life and allow end-users to recognize urban patterns. Crilly and Mannis (2000) suggest a framework for spatial indicators of sustainable urban form, as shown in **Table 3.2.**

Table 3.2: A conceptual presentation of spatial indicators of sustainable urban design (Crilly and Mannis, 2000: p.205)

Commonality of concepts	**Attributes specific to urban design**	**Range of possible spatial indicators**
• Holism • Self-sufficiency • Carrying Capacity • Social Justice • Participation	• size/critical mass • economic and social diversity • energy and food production • important habitats • new forms and features • designing out crime • recycling and waste reduction • energy efficiency • hierarchy of protection • traffic congestion • urban carrying capacity • range and diversity of facilities and services • accessibility and levels of permeability • healthy and safe environments • social limits as "contextual absolutes" • aesthetics and beauty • urban quality • reducing inequalities • emphasis to the disadvantaged, decentralized decision making, individual choice, political acceptability	○ Impact upon surrounding communities and ecosystems, planning policy context, ○ size and limit, ○ sustainable energy strategy, building/block height and depth, open space provision, ○ sacred structures as critical assets, parking space standards, segregation of public/private open space, ○ subdivision of spaces, ○ control and personalization, ○ mixed uses, ○ densities and space efficiency, accommodation, ○ access, ○ robustness and resilience, availability of public transport, active frontages, ○ transport road use, barrier free environment, ○ urban image/townscape, ○ "sense of place", ○ local identity/urban quality, participation and feedback

New approaches are needed to make decisions for sustainable urban development in the built environment. These approaches must integrate all the urban system dimensions in a holistic manner. The built environment is a part of the physical system and naturally affiliated with 'environmental (physical) and human (social and economic) systems'. These spatial indicators provide decision makers a framework to classify relevant sustainable urban development measures in urban design (Brandon and Lombardi, 2010).Sustainable urban form is affected by complex urban systems and changing quality of life measures. There are qualitative and quantitative indicators of an urban system. Carrying capacity is a significant qualitative indicator of urban sustainability which refers to levels of pressure to maintain environmental quality. Economic and social diversity, urban quality, accessibility, energy efficiency etc. are other qualitative indicators of urban sustainability. Urban sustainability can be achieved by providing an adequate habitat and safe environments; protecting historical heritage, local identity, townscape and urban quality; promoting social integration with social justice; providing high quality of life by having diversity of facilities and services. Sustainable energy strategy, building/block height and depth, open space provision, parking space standards, segregation of public/private open space, subdivision of spaces are the quantitative indicators of sustainable urban forms that are important tools of urban design.

3.3 Macro Structure of a More Sustainable City

There is a strong relation between the physical form and the way people can have access to the services they need. Changes in the physical form do not happen suddenly. Although these changes may take a long time, they may make important contributions in people's quality of life. Thus, how urban forms are delivered by urban planning and design has of great contribution to sustainable urban environments (Williams, 2005).

Almost 10.000 years ago, the walking city was developed. The density in the walking city was high (around 100-200 people per hectare); the streets were well-connected and they were usually very narrow. It has an organic form with mixed land use characteristic. It was very easy for people to reach destinations on foot, as the city was not more than 5 km across (Newman and Kenworthy, 1996). With the advances in the transit technology, trains and trams caused the urban development out of the city's territories. In the center, around the train station, there was a walking city which was connected by trams and developed in a linear form across the corridors. The central city was the main focus of the city. The density of the city was lower compared to the walking city. It became medium density which was around 50-100 people per hectare with a diameter of 20-30 km (Newman and Kenworthy, 1996). After the World War II, automobile technology became dominant in the form of cities. On the other hand, buses provided people to travel to any direction as far as approximately 50 km. New housing areas emerged with low density (i.e., 10-20 people per hectare) as a reaction to the industrial city. Zoning has become the most useful tool in urban planning in this era. Travel distances increased and caused a rise in the automobile dependency (Newman and Kenworthy, 1996).

As depicted above from the historic development of cities, the changes in the technologies and the way of living have directly affected the urban form. Some research argue that a sustainable city has a population of 25.000 with a medium density (over 40 people per hectare), with mixed land use and accessible public transit corridors. This would also provide a better connection to the activities in the city. As in the case of walking city, the average lengths would be in walking and cycling distances. Public transport priority also decreases the usage of private cars. With this combination, quality of life and accessibility to the activities can be increased (Banister, 2007).

Frey (1999) concentrates on urban forms that are 'user-friendliness' in the way of mobility and access to services and facilities within walking/cycling distance or easy access by public transportation. He (1999: p.34) defines 'user-friendliness form' as:

> …a structure that enables a high degree of mobility and access to a large variety of different services and facilities without causing congestion, a structure that allows a symbiotic relationship between city and country, a structure that enables social mix, a degree of autonomy of communities and a degree of self-sufficiency, and a structure that generates highly legible and imageable settlement forms.

Arguing that urban forms show different sustainability performance, Frey (1999) compares six urban forms based on their prominent sustainability properties (**Figure 3.1**). First, the ***core city*** has all city functions in a regular high density body. It has concentrated activities in its center. It provides a good sense of community with well-designed public transport between facilities, residences and workplaces. Second, the ***star city*** has a dominant mixed-used and high-density center at the middle of radial transport corridors. But, the access to services is unequal between inner and outer parts of the city. Then, the ***satellite city model*** consists of a central city which has satellite communities around it. This model spreads the city's functions between satellites; hereby congestion problem can be solved by linking self-contained and self-sufficient centers. Differently, the ***galaxy of settlements model*** can be regarded as highly unsustainable between other models, since activities are dissolved in low density and private car-oriented suburbia without any focal points. Limited range of city functions is shared between low density small cores which promote private car usage. The ***linear city model*** grows along a transport route especially along public transport lines. Linear form enables equal access to services, working places, urban facilities at transport nodes. There is a good range of mixed uses, high and low density housing units around transport nodes and in the band of intense uses. The green band outside and along the linear city enhance country-city relationship. When some different linear developments overlap, the linear form turns into polycentric net/regional city form. ***Polycentric form*** has a wide range of different densities with intensive cores at the transport network junctions. There are high linear congestions along transport corridors between larger and smaller cores. This model offers a wide range of different housing forms, a large choice of access to services and open lands and a large range of transport means. This model improves equity, variety and choice by having different types of centers, activities, housing forms, open spaces and transportation choices.

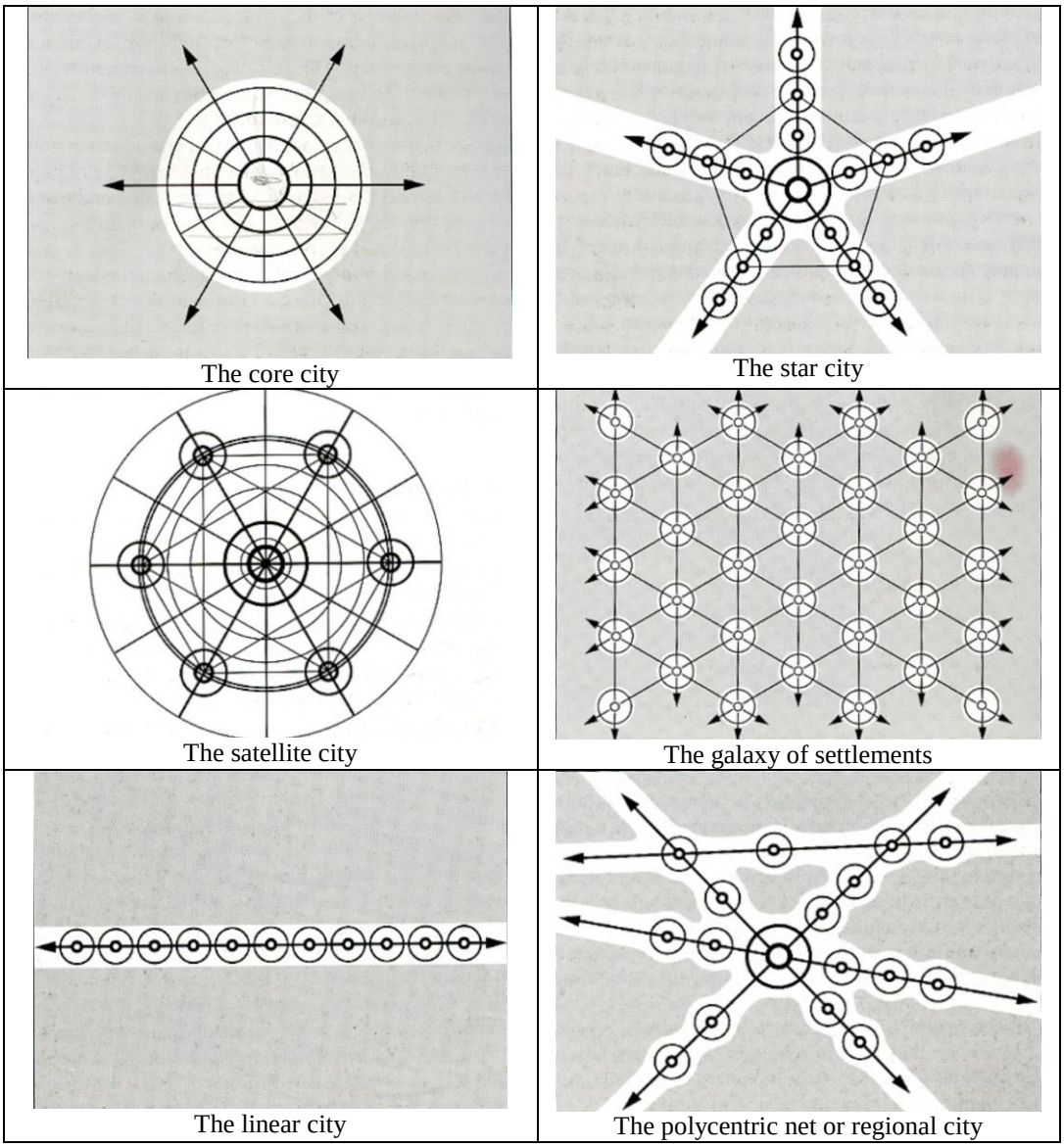


Figure 3.1: The macro-structure of city models (Frey, 1999)

Off these models, the most sustainable urban form seems to be the satellite model. Nevertheless, it is hard to define a single sustainable urban form as a perfect model. Planning and design principles should be considered and modified according to the characteristics of the city. In other words, localities and the characteristics of localities play crucial roles in making decision on what kind of urban form can be suitable to achieve a sustainable urban form and structure.

3.4 Micro structure of a More Sustainable City

The urban form is not only shaped by 'macro' land-use strategies and principles, but also 'micro' design policies and principles. Major activities need to be well-connected to each other; people should access to their works and other activities from their living spaces with public transit system or by walking or cycling in a convenient way. Thus, "The devil is in the details, and the details start with the design of streets and neighborhoods" (Kennedy et al., 2005).

Frey (1999) explains three major demands on the city and its districts that should be represented in the micro structure of the city: *accessibility, proximity and functional mix*. It is a general consensus that public transport is an important component to reduce pollution and congestion in order to access

service and facilities. It is also a low-cost transportation system to ease the mobility of the city. Locating public transport stops according to a walking distance to housing areas, work places and local amenities improves mobility of people in a city. In addition, these public transportation nodes provide equal accessibility to city dwellers. The backbone of the micro structure of the city is the relationship between people, transport and amenities. But, there is a distinction between different size and population of spatial units. The micro structure of the city is expected to be hierarchical concerning cluster developments from neighborhood to districts and transportation systems, from bus to light rail transit.

When the recent urban planning and design approaches are examined, it is possible to see that they promote very similar planning and design principles to achieve a sustainable urban form. For example, the main features of New Urbanism are:

i) compact and mixed development,
ii) density averaging at least 15 units per hectare,
iii) a variety of building types (small-lot family, multi-family, residential over retail and various commerce and institutional structures close together),
iv) dwelling within a five-minute walk from the center, an elementary school in 1.6 km radius,
v) highly connected street networks,
vi) minimum parking lots, and
vii) parks and playgrounds not more than 200 meters from each dwelling (Schiller et al., 2010).

As such, 'urban village' trend, which is another type of neo-traditional approach invented by the planners close to Prince Charles in the UK, defines an urban village as a settlement created on a green field or brownfield site, or out of an existing development. Its features are high density; mixed use; mix of housing tenure, ages and social groups, high quality and being based on walking (Jabareen, 2006). The urban village trend seeks to fill the lack of community life, to provide convenient and efficient urban areas with a larger portion of humanity, to reduce traffic congestion, pollution, infrastructure cost and to increase the quality of life (Kenworthy, 1991). Therefore, it is possible to identify seven urban design strategies regarding micro structure urban form through a careful literature study on sustainability tools and urban design principles. The following sections explain these urban design principles and strategies in detail.

3.4.1 Density

There is a strong relation between density and the urban character. The increase in urban population in cities brings about urban sprawl which has put pressure on the existing transport networks and made walking and cycling difficult. It also encourages private car ownership because of the increase in distances in the city. This consequently results in increasing traffic congestion, decreasing road safety and rise in emissions from cars. Contrarily, high density and integrated land use can change social interaction, reduce travel time and energy, and produce more livable environments.

Density is an essential part of sustainable urban form. It is measured by the ratio of people or housing units to land area, such as a number of people per hectare or a number of housing units per hectare. There is a consensus that denser, compact cities which have less sprawling and land consumption are accepted more sustainable cities than others (Çalışkan, 2004). Therefore, compact development is the "relative density or intensity of land use activity" in the given urban area (Newman and Kenworthy, 1996). Talen (2011: p.956) states that "Density has been seen as an essential factor in maintaining walkable, pedestrian-based access to needed services and neighborhood-based facilities, as well as a vibrant and diverse quality of life".

According to Çalışkan (2004), a lower-density urban form needs more land than a higher-density urban form. As cities grow and expand on urban lands, walking distance increases and cities need more urban lands to conserve their low-density urban forms. This is the main reason which generates 'urban sprawl'. Nevertheless, a little increase in urban density prevents cities from a bit sprawling. Therefore, it is possible to argue that a high-density urban form prevents urban sprawl, saves urban

land and enhances easy access to services. On the other hand, a high-density urban form also has negative effects, such as traffic congestion, overload infrastructure and pollution **(Figure 3.2)**

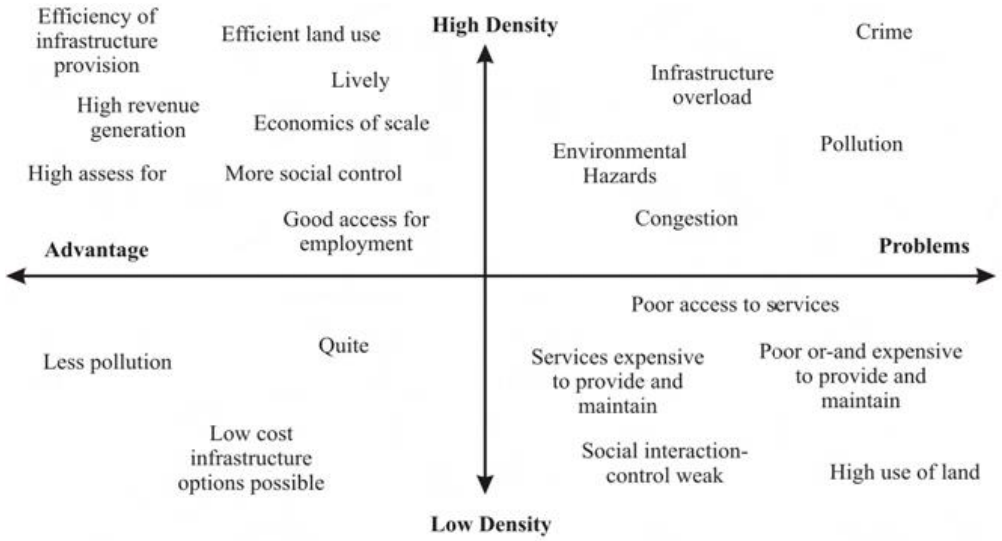


Figure 3.2: Advantages and disadvantages of high and low density (Acioly et. al., 1996 cited in Çalışkan, 2004: p. 16)

Churchman (1999) states the major goals and outcomes when higher density urban form is achieved. These are:

- Protecting agricultural land and natural resources from urban sprawl,
- Saving energy with high-density, mixed land-use urban form,
- Improving air quality by promoting public transportation usage and decreasing private car usage,
- Conserving green open spaces and natural habitat,
- Achieving a hierarchical multi-centered urban form that provides gradation of density with different types of housing opportunities,
- Concentration on the use of urban services,
- Giving an opportunity to walk or ride a bicycle to work, urban services and entertainment facilities.

Stead and Banister (2001), taking London as a model, suggest 40 dwellings per hectare as the ideal density for a sustainable or compact city. A very important design principle for sustainable cities is the in-fill developments to reuse urban lands. Vacant lots, existing low-density uses should be in-filled over time. This can be achieved by phasing plans with flexible strategies. (**Table 3.3**)

3.4.2 Mixed Land Use

Land use planning has a considerably important role in providing better conditions for living in cities. When the land use activities are separated from each other, there appears a higher travelling need. To reduce the need of travel, it is widely accepted that the activities should be close to each other. This also promotes walking and cycling. There is a general consensus that mixed land use is an important part of sustainable urban form. Mixed land use has different functional land uses, such as residential, institutional, commercial and industrial uses, and those related to transportation. In other words, the variety of land uses that are located close to each is a mixed use development (Newman and Kenworthy, 1996). Mixed land use reduces the private car usage and encourages walking and cycling by locating urban services (shops, residents, working places, leisure activity places) close to each other (Jabareen, 2006).

Çalışkan (2004) defines mixed use as "integration of land use by increasing the proximity of urban activities". Mixed land use is an important component of sustainable urban form and urban compactness. It is an indicator of compactness and a measure which shows whether there exists a balance between residential and non-residential land-uses. It is also an indicator of 'diversity'. In this sense, mixed use can be categorized in three categories:

1. *number and ratio of the facilities provided,*
2. *horizontal mixed of land uses*
3. *vertical mixed of land uses* (Çalışkan, 2004).

The first category requires 'diversity in supply of urban services and facilities' (**Table 3.3**). The number of key facilities for every 1000 residents or the ratio of residential to non-residential urban land is used to decide on how far an urban space is composed of mixed land uses. The second category implies individual developments of varied uses position close to each other within urban area and the third refers to a type of urban usage, such as 'living over the shop', or a mixed residential and commercial uses (i.e., the number of flats in commercial buildings) (Burton, 2002 cited in Çalışkan, 2004).

3.4.3 Diversity

Diversity of urban activities is an important part of sustainable urban form. Diversity and mixed land use resembles each other. However, diversity is a 'multi-dimensional phenomenon' that needs more urban characteristics, such as wide range of building and housing types, building densities, architectural styles, household sizes, ages, cultures and incomes' (**Table 3.3**). Therefore, diversity contains social and cultural aspect of urban form. Jacobs (1961) argues that in dense and diversified areas in terms of people, businesses, buildings, people tend to walk. Walking activity gets higher, if the urban areas gets intensely diversified and becomes higher density.

Likewise, the neo-traditional residential area design suggests a wide range of housing types for a wide range of income groups. Houses with front porches, narrow streets, back alley garages and streets will provide a livable neighborhood for the dwellers. This helps to controvert urban sprawl and inner-city decline by rebuilding livable neighborhoods rather than building superblocks and suburbs. Neo-traditional design seeks to encourage residents to walk, cycle and use public transit system (Jabareen, 2006).

If urban land is not diverse, similar built forms generate unattractive and monotonous urban lands. They also cause the creation of job-housing imbalances and social inequality between different income groups. Some of them are obliged to move other places where their needs meet. This leads to increase in commuting, travel-time and traffic congestion (Jabareen, 2006).

3.4.4 Accessibility

Accessibility is an important component of social sustainability. Within a sustainable urban form, people should live, work and reach urban facilities and leisure activities without travelling too much. Likewise, in a sustainable urban form, people should be able to access urban areas that have different urban facilities close to each other for the use of all family members. Everybody should have a right to freedom of movement from place to place and also have the opportunity of easy access to certain places (Chan and Lee, 2006).

Density, mixed land use, connectivity and *walkability* are the main criteria effecting accessibility (**Table 3.3**). According to Litman (2008), increasing density, locating different kinds of activities together (i.e., mixed use), increasing quality of walking and cycling and increasing network connectivity are the ways of improving accessibility. According to a research conducted by RTD Transit Access Committee (2009), a strong grid pattern, sideway connectivity, presence of commercial services and high residential density are the key walkability factors in urban areas. Easy

pedestrian crossings and the presence of a variety of street amenities are also other factors to encourage people to walk (RTD Transit Access Committee, 2009).

The connectivity of the street pattern is an important factor to increase accessibility. High level of connectivity provides a high level of accessibility. A grid network provides the simplest street pattern. It is also seen as the preferred model in neo-traditional neighborhood design. It increases walkability by providing a better sense of direction. Yet, circuitous, cul-de-sacs and dead ends decrease walkability and encourage more the use of car.

To improve the walkability, therefore, accessibility, the design of cities and neighborhoods according to the maximum walking distance and location decision of public amenities and services (school, nursery, shops, pharmacy, post office, community center, etc.) within this walking distance become crucial. For many neo-traditional design approaches, the distance between 600 m and 800 m is shown as the walking distance (Urban Design for Sustainability Union Expert Group, 2004). For Transit Village promoters, the main distance between someone's home to a transit station should be the five-minute walking distance (www.transitorienteddevelopment.org).

Also, it is important to have a hierarchy concerning cluster developments from neighborhood to districts and transportation systems, from bus to light rail transit. The intensity of street network, a hierarchy of boulevards, streets and alleys, car free public access and neighborhood accessible on foot are all necessary to achieve a sustainable urban form. Interface with parking is another important urban design principle. Parking management will help to balance the demand for various travel modes. It should create an area for both cars and bicycles. Appropriate parking standards, structured parking facilities and on-street parking issues should be considered.

3.4.5 Sustainable Transportation

Sustainable transport means "transportation services that reflect the full social and environmental costs of their provision; that respect carrying capacity; and that balance the needs for mobility and safety with the needs for access, environmental quality and neighborhood livability" (Jabareen, 2006). Sustainable transportation systems have become necessary in urban areas. Because the current intentions towards increasing car ownership, producing high amount of CO_2 emissions, consumption of high fuel energies, increasing air pollution create unsustainable way of living in cities (Goldman and Gorham, 2006). That is why, it is very important to consider how to produce a sustainable urban transportation to generate a sustainable urban form.

Sustainable urban form must give residents the opportunity of easy access to urban services and facilities with efficient public transport facilities and services, walking and cycling opportunities. With more pedestrian-friendly designed neighborhoods where public transport infrastructure and services are also provided, private car usage can be decreased (Jabareen, 2006).

According to Stead et. al. (2000), the proximity of households to urban center and main transport networks, settlement size, mixed land use, the provision of local services and facilities, population density and residential parking availability affect travel patterns and transport energy consumption.

Sustainable transport can be achieved by designing walkable and pedestrian friendly cities to encourage people for walking and cycling, improving public transportation and restraining private car usage. Land use patterns should be designed to make people use public transportation instead of private car. Mixed land use can help sustainable transport by locating shops, jobs, urban services and facilities close to each other to reduce the demand of private car usage and encourage people to walk. (**Table 3.3**)

3.4.6 Conservation of Historical, Natural and Local Assets

Historical, natural and local assets of urban land should be protected in order to achieve sustainable urban form, to preserve local identity and to conserve these assets for future generations. This can be achieved by conserving historical structures, local characteristics of an area and existing community

network. The design and planning strategies should be developed accordingly. Uniqueness of an area can be highlighted through the protection decision on the cultural heritage and local characteristic (Chan and Lee, 2006). (**Table 3.3**)

3.4.7 Availability of Open Spaces

Availability of open spaces is also an important part of sustainable urban form because open spaces play a crucial role in urban scale by providing buffer zones in dense urban areas for social interaction. Greenery open spaces are seen as major contributors to human health and social well-being, since they reduce human stress and improve public health (Chan and Lee, 2006). That is why, it is crucial to design cities, districts and neighborhoods to connect open spaces. (**Table 3.3**)

3.5 Concluding remarks

This chapter has explained how sustainable development has developed in the world, defined the notion of sustainable urban form, as well as the urban design principles and strategies that can be followed at the macro and micro structures of cities. It has emphasized that there is a strong relation between the physical form and the way people can have access to the services they need. It claims that the changes in the urban form may make important contributions in people's quality of life, although they may take a long time. In this sense, how urban forms are delivered by urban planning and design has of great contribution to sustainable urban environments.

This chapter has underlined that it is hard to define a single sustainable urban form as a perfect model. It is necessary to shape the planning and design principles regarding the characteristics of the cities or localities. Therefore, localities and the characteristics of localities play crucial roles in making decision on what kind of urban form can be suitable to achieve a sustainable urban form and structure.

This chapter has claimed that the urban form is shaped by both 'macro' land-use strategies and principles and 'micro' design policies and principles. Through the literature review, common urban design principles and strategies have been drawn together and explained. Accordingly, compactness, density, mixed-land use, diversity, settlement size and walkability play crucial role in promoting more sustainable urban form. Compact cities contain high density and mixed land uses. In principle, these features encourage people to live close their work, find the places for their daily activities close to their homes. There is a strong relationship between density and the urban character. High density and integrated land use functions also reduce travel time and energy, foster social interaction and ultimately produce more livable environments. Sustainable transport strategies, improving accessibility, conservation of historical, natural and local characteristics, heritage and values and availability of open spaces are crucial for achieving sustainable urban form in cities.

Table 3.3: Indicators of sustainable urban form

MACRO STRUCTURE INDICATORS	MICRO STRUCTURE INDICATORS
• ***Core city model*** • ***Star city model*** • ***Satellite city model*** • ***Galaxy of settlements model*** • ***Linear city model*** • ***Polycentric net or regional city model***	• ***DENSITY*** o *High density in terms of population and housing units* o *Compactness – less sprawl* o *Walkable, pedestrian-based access to needed services and neighborhood facilities* o *A vibrant and diverse quality of life* o *Infill developments*
	• ***MIXED LAND USE*** o *Number and ratio of the facilities provided* o *High horizontal mixed of land uses* o *High vertical mixed of land uses*
	• ***DIVERSITY*** o *Existence of a wide range of buildings and housing types, building densities, architectural styles, households sizes, ages, cultures and incomes*
	• ***SUSTAINABLE TRANSPORTATION*** o *Integration of transportation modes* o *Well-served public transport* o *Pedestrian-friendly and walkable street sections* o *Availability of cycling* o *Restraining private car usage* o *Mixed land use*
	• ***ACCESSIBILITY*** o *Density* o *Mixed land use* o *Connectivity* o *Walkability* ▪ *Intensity of street network* ▪ *Grid-system plan* ▪ *A hierarchy of narrow streets, boulevard and alleys* ▪ *Interface with parking* ▪ *Car free public access* ▪ *Neighborhood accessible on foot*
	• ***CONSERVATION OF HISTORICAL, NATURAL AND LOCAL ASSETS*** o *Preservation of local identity* o *Conserving historic structures and local characteristics* o *Conserving natural environments*
	• ***AVAILABILITY OF OPEN SPACES*** o *Open space availabilities per capita* o *Connection of a land-use pattern and design to open spaces*

CHAPTER 4

AYVALIK

This chapter aims to interrogate the urban form of Ayvalık regarding the measures of sustainable urban form defined in detail in Chapter 3. Besides, it aims to reveal and discuss the difficulties, challenges and controversies in Ayvalık's urban form in terms of second-home developments, since the second-home developments in Ayvalık have significantly impacts on its macro and micro structures. This chapter first introduces Ayvalık with its urban and planning history. It gives a brief history of the second home development in Ayvalık and its surroundings. The following sections provide the analysis of the urban form of Ayvalık regarding sustainable urban form measures.

4.1 Introducing Ayvalık

Ayvalık is a coastal settlement situated on the northwestern Aegean coast of Turkey. It is a district of Balıkesir Province and locates on a narrow coastal plain surrounded by pine and olive tree hills to the east. It is also surrounded by the archipelago of Ayvalık Islands on the sea and facing the Greek Island of Lesbos (Midilli, in Turkish). The Ayvalık's neighboring districts are Gömeç at the north-east, Bergama at the south and Dikili at the south-east. Natural boundaries of the town is Bezirgan Stream at the north, Sazanlık Stream, Demirhan and Hisar straits at the east, Altınova at the south, Sarımsaklı Peninsula at the south-west, Ayvalık Islands (22 islands including Cunda Island) and Aegean Sea at the west (**Figure 4.1**).

Figure 4.1: Location of Ayvalık within the Northern Aegean (Resource: http://www.loadtr.com/332861-Ayvalik_haritası.htm)

According to 2011 census, Ayvalık has a population of 37.182. But, the population of this town especially increases three to four times in summers (between the months of May and October) due to tourism activities (**Figure 4.2**). Second home dwellers, foreign and local tourists and the employment population temporarily stayed in Ayvalık during high holiday season cause this increase. Before starting the analysis on the urban form of Ayvalık regarding sustainable urban form measures, it will be useful to explain its urban development history.

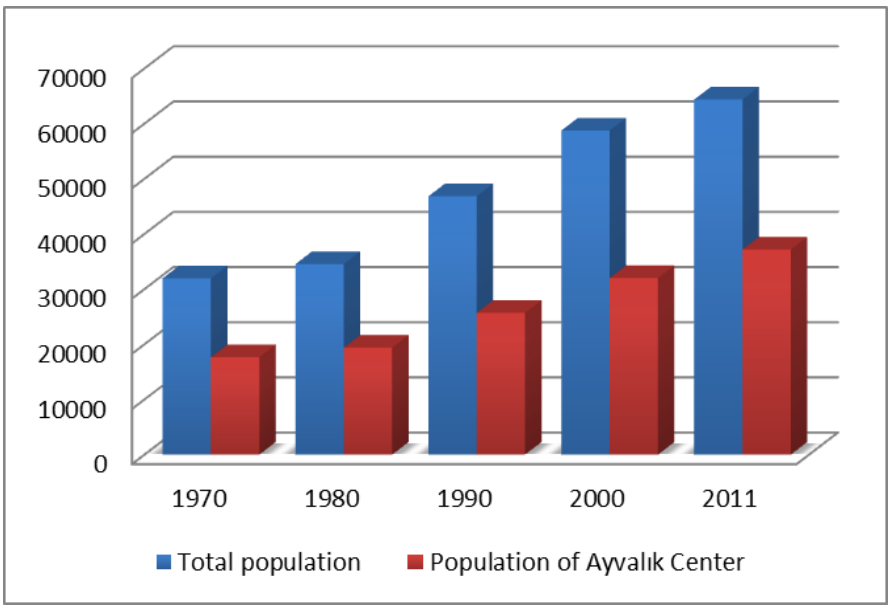


Figure 4.2: Population Chart of Ayvalık (Resource: Turkish Statistical Institute)

4.2 Ayvalık and its history

The historical development process of the settlements in Ayvalık and islands dates back to the ancient Greek times. In these periods, Ayvalık were called as *Kydonies* and the islands around Ayvalık, including Cunda, were known as *Hekatonnesoi*. For many centuries, especially Ayvalık and Island of Cunda (also called Alibey Island which is the largest island among these islands around Ayvalık), were very important settlements for Greek-Christian and Muslim population (Güçhan, 2007).

There is a lack of written documents about establishment of Ayvalık settlement; but, Turkish and Greek scholars have different ideas on this issue. Greeks assert that Aegean pirates used Ayvalık as a distribution point in order to run their smuggling. In 1580, Ottoman Empire started to use Lesbos as the main naval base at the Aegean Sea. Therefore, the inhabitants of Lesbos were obliged to migrate from Lesbos to Ayvalık. Then, Ayvalık was built by settlers from Lesbos alongside the beach that used as a pier for swags to be transmitted to smugglers from the mainland. On the hill above the settlement, there was a copse of wild quince trees that gave the town its Greek name 'Kydonies' and its Turkish name 'Ayvalık'. On the other hand, Turkish scholars claim that Turks established Ayvalık settlement between 1430 and 1440 in order to use as a naval base. This naval base was positioned on the slopes of hills to control the port. Military based settlement could not develop its economy and then, Greeks migrated and settled around the port in Ayvalık between 1750 and 1760 (Aka, 1944; Psarros 2004).

Between the 18th and 19th centuries, Ayvalık was a settlement under the rule of Ottoman. The majority of Ayvalık residents was Greek. The importance of Ayvalık has increased with the privileges given by Treaty of Küçük Kaynarca. Until the beginning of the 19th century, Ayvalık had grown rapidly and

earned high level of prosperity as a result of increase in agricultural production (especially in olive production), commercial and cultural activities in the region. This has a significant impact on architectural character, urban pattern and daily life of the city (Güçhan, 2007).

There had been a migration from Aegean settlements to Ayvalık after Turkish-Venetian Wars which led to population increase and settlement growth in Ayvalık. Increase in population had resulted in settlement growth towards the southern side of the river that divided Ayvalık in north-south direction and the fourth neighborhood had been established in the 18th century (**Figure 4.3)** (Psarros, 2004).

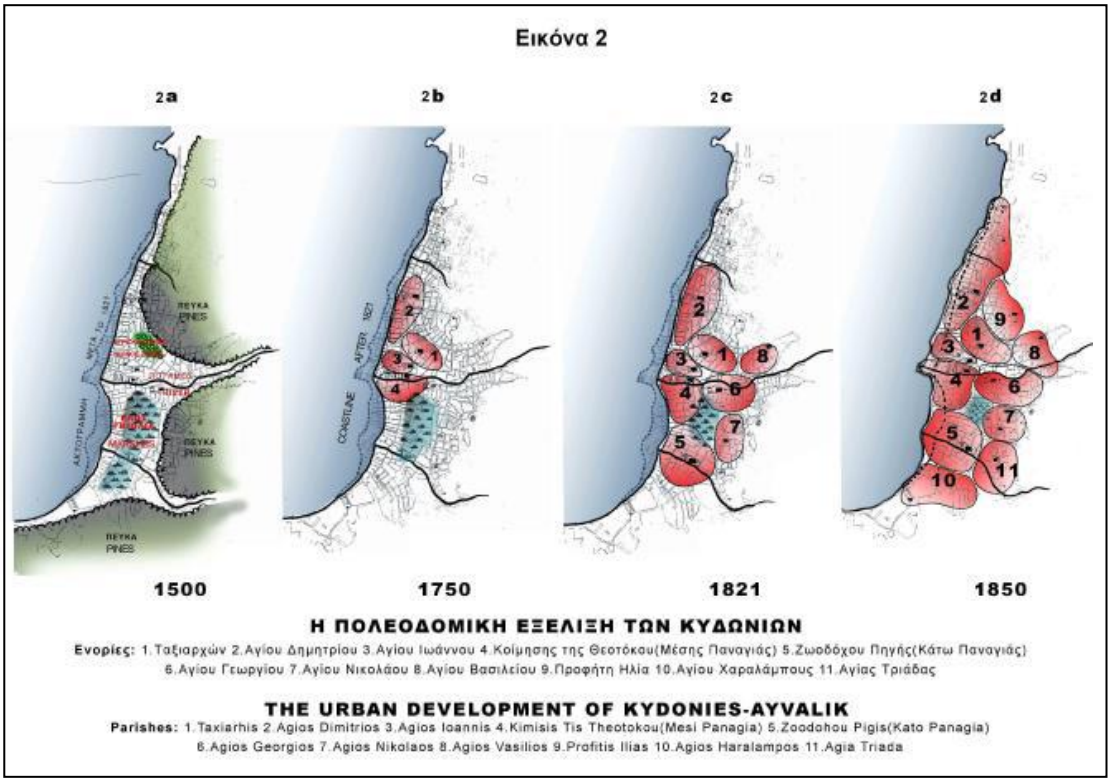


Figure 4.3: Urban Development of Ayvalık (Psarros, 2004)

Ayvalık was one of the most well-known Aegean coastal settlements within the second part of the 18th century and 19th century with its commercial activities, cultural level and wealth. In the late-19th century, commercial and agricultural activities enhanced international relations of Ayvalık and it became the third most important city in terms of production and maritime commerce after Bandırma and İzmir in the Aegean Region. Most common industrial types were olive oil, tobacco, viticulture and viniculture, salt refinery and leather industry.

In the meanwhile, nationalism movement began to spread throughout the Ottoman Empire. Consequently, Ayvalık Greeks joined the Greek Rebellion (Morean Revolt) on the 3rd September 1821. Ottoman Army surpassed this rebellion. Many inhabitants of Ayvalık and Ottoman soldiers were killed during this rebellion. Some of inhabitants left the city by ships. Then, Ottoman Empire permitted 20.000 inhabitants to turn back to Ayvalık after the settlement had remained abandoned until 1832. Most of the Greeks who left Ayvalık after rebellion, turned back to Ayvalık in 1850, and they settled the ruined buildings at the seaside, took back their properties and started to renew their physical environments. In addition to this, coastal line had been changed and moved 100-200 meters to westwards. In 1889, the population of Ayvalık was 19.842 and there were eleven neighborhoods (Psarros, 2004; Cengizkan 2004). After World War I, in 1919, Greeks gained their independence in Ayvalık until Turkish Independence War in 1922.

From the mid-19th century to the end of the Turkish Independence War in 1920, Ayvalık underwent a political and demographic change dramatically. According to the Treaty of Lausanne in 1923, the population exchange was made between Turkey and Greece. This situation draws both nations' citizens in a psychological trauma in social aspects. Also, distribution and supervision of abandoned property and land and products before and after 1922 became a crucial problem (Güçhan, 2007).

After Lausanne Treaty, Ayvalık entered a new period of change. With compulsory population exchange, immigrants started to come from Crete Island, Macedonia and Lesbos Island to Ayvalık and Ayvalık Greeks left the Ayvalık and moved to Greek Coasts and Islands. In 1944, Ayvalık was seriously damaged by a strong earthquake. Following the earthquake, new buildings were built. Despite this earthquake and many changes and development, Ayvalık has never lost the Greek City characteristic.

4.3 Planning history of Ayvalık

The first master plan of Ayvalık was prepared by the Ministry of Development and Housing in 1948. Yet, this plan was not implemented. With the support of The Bank of Provinces, Yavuz Taşcı prepared the second plan of Ayvalık at the scale of 1/1000 (**Figure 4.4**). The need for urban development increased after the 1960s. On 19th June of 1976, the High Commission of Ancient Monuments decided to designate Ayvalık as a "Natural and Historical Site" with the decision coded A 160 (**Figure 4.5**). The historical city centers of Ayvalık and Cunda became the 'historical urban conservation site'. Likewise, the forest areas around Ayvalık turned into the 'natural conservation site'. Thus, building restrictions came into force in both Ayvalık and Cunda. As the existing master plan did not meet the new demands, a new plan was prepared. The first Environmental Plan of 1/25000 was prepared in 1978, and later, in 1981, the second Environmental Plan of 1/25000 was prepared. Especially in the 1980s, the rapidly increasing urbanization process led to a need for preparing a new development plan. Baran İdil, a private practice specialized on city planning and architecture, was commissioned to prepare the development plan of 1/5000 in 1981 (**Figure 4.6**). This plan was also supported by the Bank of Provinces and it was completed by adding new places for development outside the conservation sites in 1983 and 1984, Cunda Island and Çamlık Region in 1985 and 1986 and then Ayvalık and Laka Regions. A new plan was prepared due to the shortcomings and deficiencies of this plan. The Department of City and Regional Planning of Dokuz Eylül University started the planning studies in Ayvalık in 1991. These studies were completed in 1994 and they mainly aimed to protect historical city center of Ayvalık (Aksu, 1988; Erdem 1999; Uztuğ, 2006).

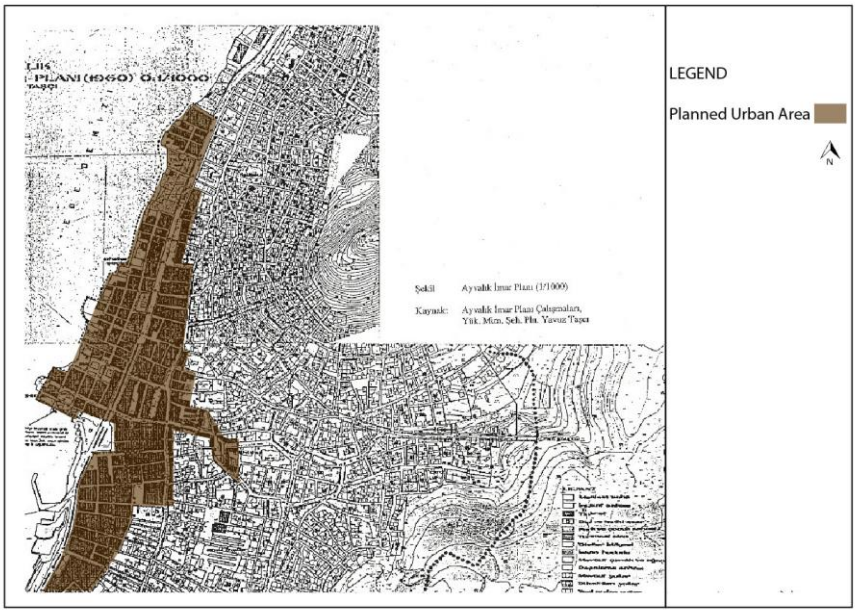


Figure 4.4: The development plan of Ayvalık scaled 1/1000 dated 1960 (Erdem, 1999)

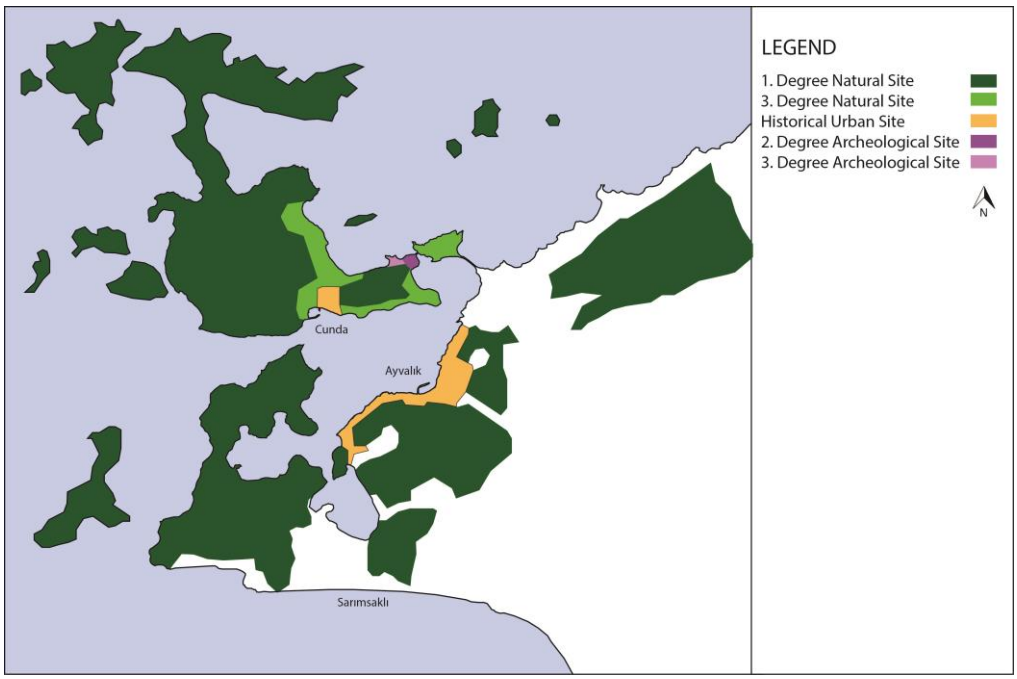


Figure 4.5: Natural, archeological and historical urban conservation sites of Ayvalık (resource: Ayvalık Municipality)

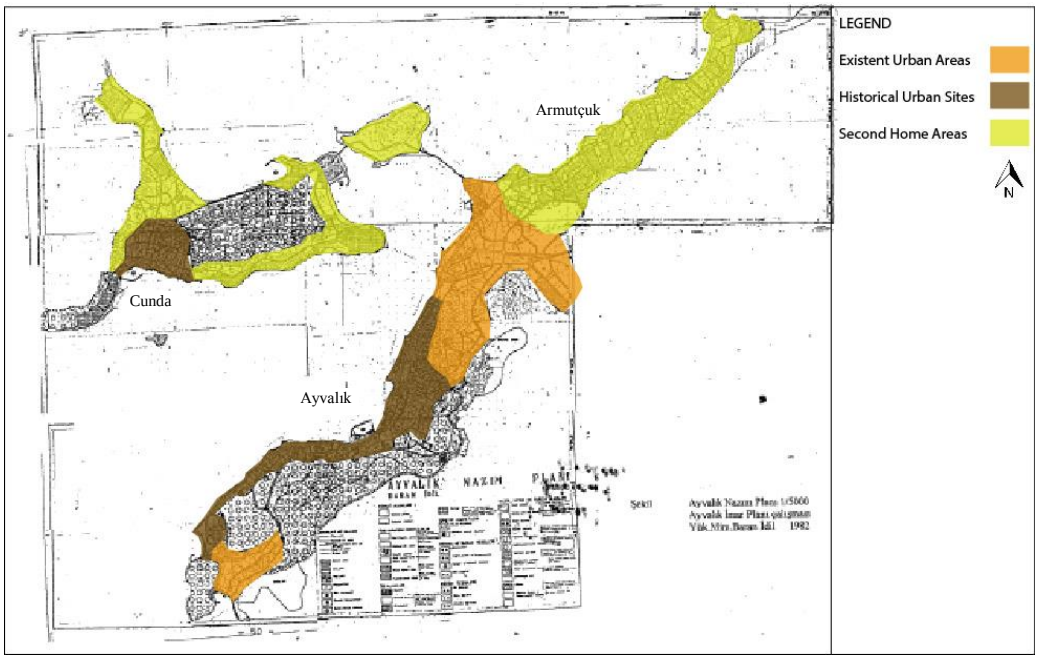


Figure 4.6: The Master Plan of Ayvalık dated 1982 (Erdem,1999)

The last large-scale plan of Ayvalık and its surroundings is Environmental Plan of Edremit Gulf Coastal Zone of 1/25.000 which was approved on 22 March 1994 by the Ministry of Public Works and Settlement. This plan was revised on 16th July of 2010 by Ministry of Public Works and Settlement (**Figure 4.7**).

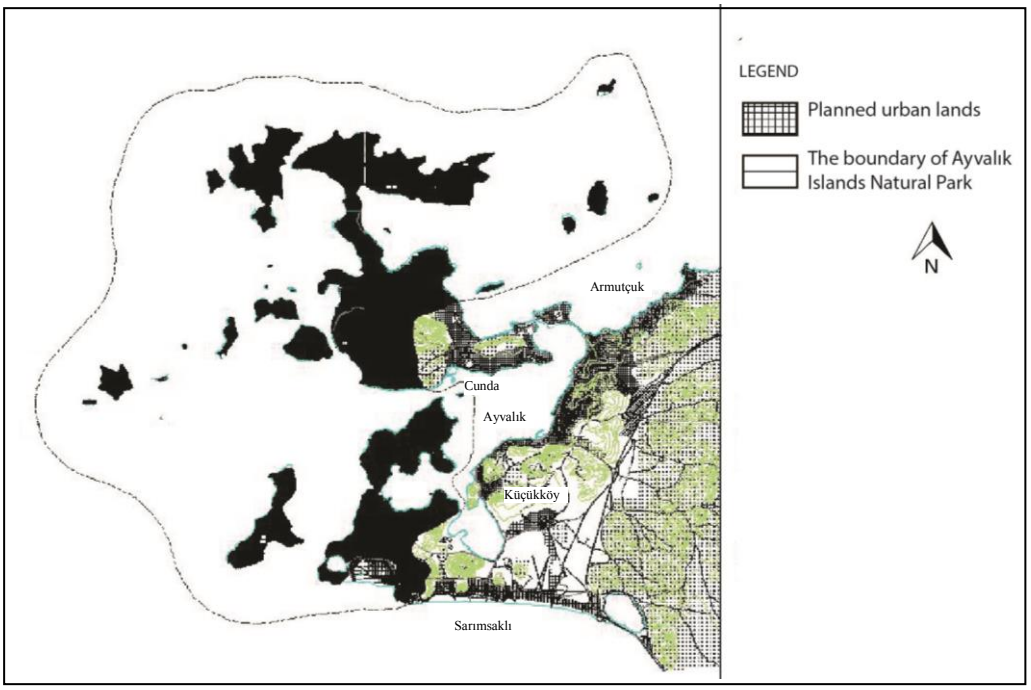


Figure 4.7: Environmental Plan of Edremit Gulf Coastal Zone dated 2010 (Resource: Ayvalık Municipality)

4.4 Emergence of second-home development in Ayvalık

In the 1970s, housing cooperatives for second-home developments were established in Cunda. After the decisions of conservation sites in 1978, cooperatives were abolished before they started to construct houses. Only Parlementerler and Doktorlar Housing Cooperatives remained, since Doktorlar Housing Cooperative was in planned area and Parlementerler Housing Cooperative had building permit. Thus, local development plans were prepared for both sites. After the 1980s, tourism policy changed in Turkey. The shift from the conservation of coasts to open up the development of tourism along the coastlines and coastal resort towns caused the increase in urban development in the form of hotels, pensions and second-home development. In the case of Ayvalık, Armutçuk which is located further north of Ayvalık and Sarımsaklı which is located to the south became the two major areas which were developed along with the second home developments. In Armutçuk, second-home cooperatives developed residential sites linearly along the coastline. In Sarımsaklı, there was only 'Holiday Camp of State Motorways General Directorate' in the 1970s. But, after the 1980s, along with the construction of other holiday camps of some public institutions (Ministry of Finance, Foundations and Police Department of Turkey), the second-home development along Sarımsaklı coast increased.

Günay (1985) determined the land use activities along the coastline of Ayvalık and Altınova on a sketch map of Turkey. All the urban functions including housing, industry, tourism, are determined in this study. In this work, tourism and summer house (second home) developments are shown as orange lines along the north and south coasts as the potentials, while all the other items are either existing or in the implementation process. In **Figure 4.8**, tourism and second-home potentials of Ayvalık were foreseen by Günay in 1985. Today, present situation of second home development of Ayvalık comply with this prediction.

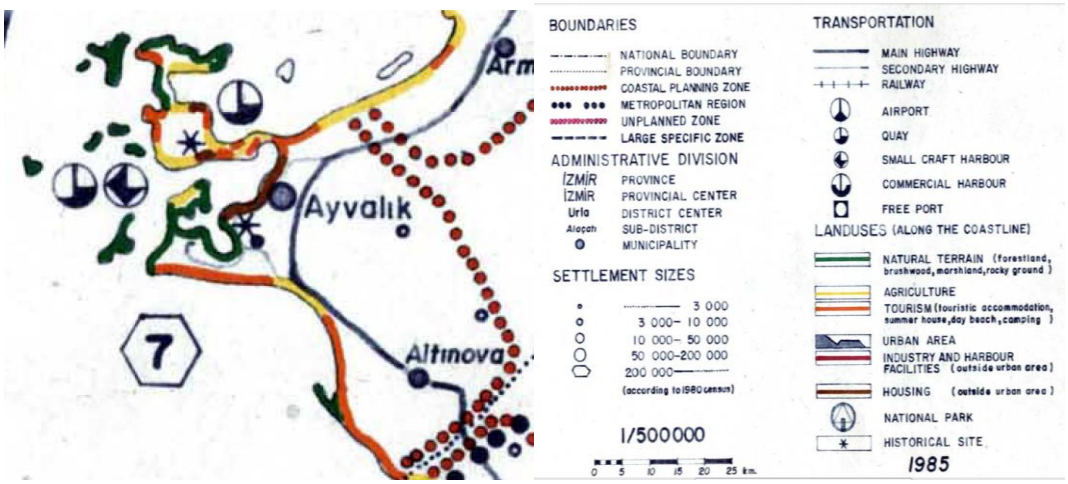


Figure 4.8: Land use map drawn by Tuba Günay dated 1985 (Günay, 1985)

Second-home development in Ayvalık and its surroundings was defined in the large-scale environmental plans. In the small-scale development plans, however, there is no article related to second home developments. The last Environmental Plan of Edremit Gulf Coastal Zone of 2010 (1/25.000) shows the development areas for second home (**Figure 4.9**).

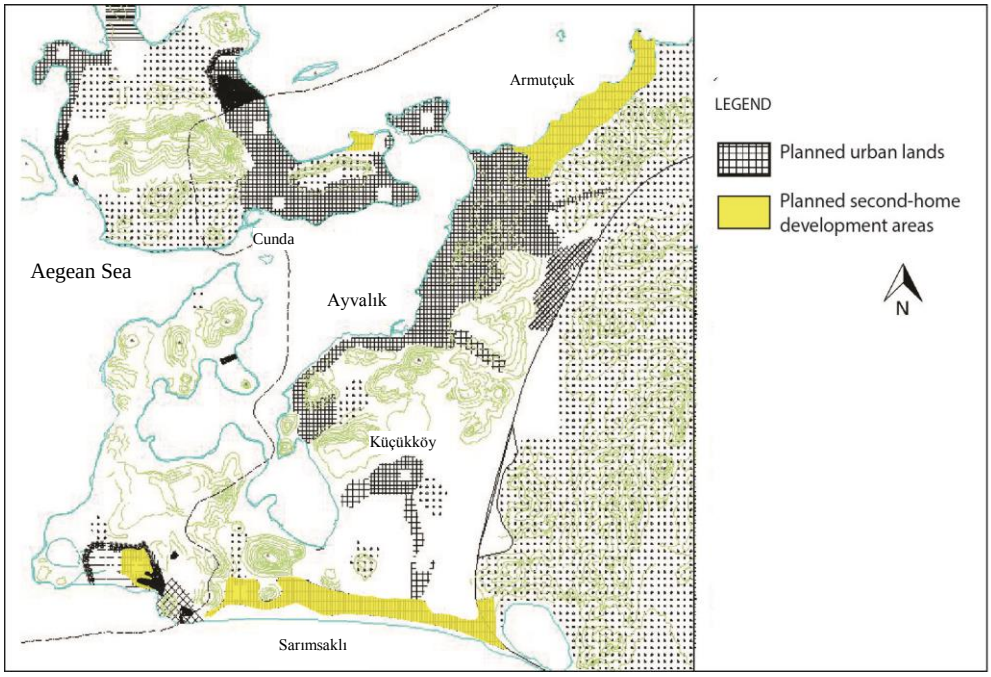


Figure 4.9: The planned second-home development areas in the latest Environmental Plan of Edremit Gulf Coastal Zone of 1/25.000 (Resource: Ayvalık Municipality)

The article 5.2.2.2 of the 1994 Plan's notes defines the building conditions of second-home development areas. The article divides second-home development areas of Ayvalık into three: high-, medium- and low-density second-home areas (**Table 4.1**). This plan seeks to keep the building density of the second homes in Ayvalık and its surroundings considerably low. For high-density second-home areas, maximum building coverage ratio was 0.10, maximum floor area ratio is 0.20. The same plan defined 6.5 meters and 2 storeys as the maximum height of buildings, and minimum land to be subdivided was 500 m^2. As for low-density second-home areas, maximum floor area ratio was

identified as 0.15; maximum height for buildings was 6.5 meters and 2 storeys, and minimum land to be subject to subdivision was 1000 m^2.

Table 4.1: Building conditions of the second-home development areas according to Environmental Plan of 1994 (Resource: Ayvalık Municipality)

High-density second-home areas	Max. building coverage ratio (TAKS) :0.10 Max. floor area ratio (KAKS) : 0.20 Max. height : 6.50 meter 2 storey Min. subdivision (ifraz) : 500 m^2
Medium-density second-home areas	Max. floor area ratio : 0.15 Max. height : 6.50 meter 2 storey Min. subdivision (ifraz) : 800 m^2
Low-density second-home areas	Max. floor area ratio : 0.15 Max. height : 6.50 meter 2 storey Min. subdivision (ifraz) : 1000 m^2
At least 14 m^2 green spaces per person will be allocated.	

On 16th July of 2010, the Environmental Plan of Edremit Gulf Coastal Zone of 1/25.000 was revised by the Ministry of Public Works and Settlement. The article 5.2.2.2 of this plan notes was also revised; and the building conditions for second-home development areas were described once again. As the previous plan, the article divides second home development areas of Ayvalık into three as in the previous plan: high-, medium- and low-density second-home areas (**Table 4.2**). But, for this time, the plan has introduced higher building densities. For example, regarding high-density second-home areas, maximum building coverage ratio increased from 0.2 to 0.75. In the same plan, 6.5 meters and 2 storeys defined as the maximum height of buildings were increased to 9.5 meters and 3 storeys, and minimum land to be subdivided was decreased from 500 m^2 to 350 m^2. Therefore, the latest plan revision has significantly increased the building density for second-home areas. As for low-density second-home areas, the maximum building coverage ratio was increased from 0.15 to 0.30; maximum height for buildings was kept the same (6.5 meters and 2 storeys); but the minimum land to be subject to subdivision was reduced from 1000 m^2 to 350 m^2. As one can note, the building density for low-density second home areas has been also significantly increased.

Table 4.2: Building conditions of the second-home development areas according to the revised Environmental Plan dated 2010 (Resource: Ayvalık Municipality)

High-density second-home areas	Max. floor area ratio : 0.75 max height : 9.50 meter 3 storey min subdivision (ifraz) : 350 m^2
Medium-density second-home areas	Max. floor area ratio : 0.50 max height : 6.50 meter 2 storey min subdivision (ifraz) : 350 m^2
Low-density second-home areas	Max. floor area ratio : 0.30 max height : 6.50 meter 2 storey min subdivision (ifraz) : 350 m^2
At least 10 m^2 green spaces per person will be allocated.	

Beside the large-scale environmental plans, the current small-scale development plans do not constitute the detail building density decisions. For Ayvalık and Cunda, the prevailing building conditions for low-density second-home areas are the same with those of the Environmental Plan of 1/25.000 (**Table 4.3**). On the other hand, the building density of Sarımsaklı's second-home areas is much higher than those of the Environmental Plan of 1/25.000 (**Table 4.4**). According to the Development Law in Turkey, there should not be a contradiction between higher- and lower-scale plans. The building conditions of second homes in the Sarımsaklı's low-scale plans, in this sense,

create a significant contradiction. On the other hand, in terms of sustainability, the latest Environmental Plan has introduced higher building densities for second homes, and this might seem to create a much more sustainable urban form. As mentioned earlier, the increase in building density might help less consumption and development of urban land for construction. This also prevents urban sprawl.

Yet, in terms of sustainable urban development and sustainable urban form, the main issue and strategy which has to be discussed here is not the increase in the building density, but whether there needs to be so much urban lands for second home development. Because the plans become a means of legitimizing the strategy of opening up the coastal lands for either second home or hotel developments, or both. As the plans identify the building conditions without enquiring how far the second home developments should be permitted and how far they should be limited, the new building and development pressures on the coastal town come to the local and country agenda day-by-day. As in the case of Ayvalık and its surroundings, there has been a continuous demand on the second home developments. Since the 1980s, the second homes have been developed without the limitations of the development plans. This has ultimately created a sea of second homes along the coasts and expanding in some places (such as Sarımsaklı) to the inlands. This large stock of buildings, with their physical infrastructure, is only used for summer seasons, and creates unsustainable urban sprawl for the coastal resorts, damaging agricultural lands and natural environment.

Table 4.3: Prevailing small scale building conditions of second homes in Ayvalık and Cunda (Resource: Ayvalık Municipality)

Low-density second-home areas	Max. Floor area ratio : 0.30 Max. height : 6.50 meter 2 storey Min. subdivision (ifraz) : 350 m^2

Table 4.4: Small scale building conditions of second homes in Sarımsaklı (Resource: Ayvalık Municipality)

Residential Areas	Max building coverage ratio (TAKS) :0.40 Max floor area ratio (KAKS) : 1.20 3 storey, detached buildings

4.5 Assessment of second-home development in Ayvalık regarding sustainable urban form measures

4.5.1 Second-home development effects on the macro structure of Ayvalık

The urban pattern of Ayvalık has a unique Aegean identity. The urban form of Ayvalık represents a unique water-town relationship. Although the development of Ayvalık is similar to other waterfront settlements of Aegean Sea, Ayvalık's urban structure clearly shows the physical reflection of local culture and social fabric. Additionally, the relationship between water and social fabric can be easily understood from morphological changes in Ayvalık's urban structure (**Figure 4.10**).

Figure 4.10: Urbanization process of Ayvalık (Kıyak, 1997)

Ayvalık firstly started to developed around Taxiarchis Church which is the Ayvalık's first church. Other neighborhoods of Ayvalık were also subsequently developed around the churches. Thus, church-oriented neighborhood development can be seen in Ayvalık in the 1700s (**Figure 4.11, Figure 4.12**).

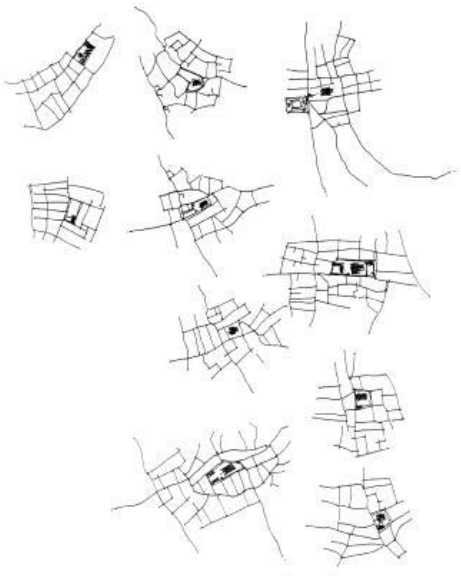


Figure 4.11: Church-oriented development of neighborhoods (Kıyak,1997)

Figure 4.12: Church-oriented development traces in Ayvalık urban structure (Kıyak,1997)

Morphological development stages of Ayvalık, Cunda and Sarımsaklı can be analyzed by comparing **Figure 4.13, Figure 4.14** and **Figure 4.15**. In **Figure 4.13**, Ayvalık, Cunda and Küçükköy are the main settlements, all of which had compact forms. Ayvalık and Cunda were developed around the ports compatible with its identity as the port cities. There was no settlement in Sarımsaklı at that time.

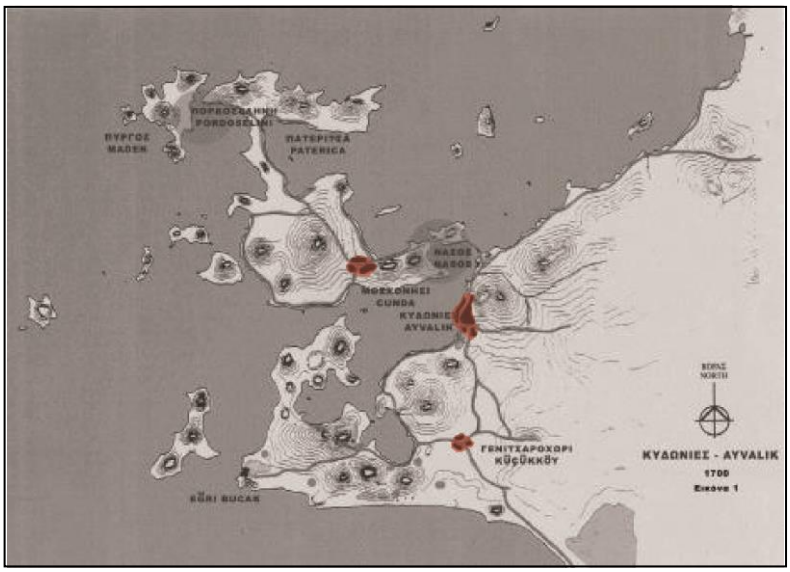


Figure 4.13: The macroforms of Ayvalık, Cunda and Küçükköy in the 1700s (Psarros, 2004)

Figure 4.14 shows the urban development of Ayvalık, Cunda and Küçükköy in 1978. It is possible to note that Ayvalık's macroform expanded around its historic center. This part of Ayvalık seems to be rather compact. Due to some natural and historical thresholds, new urban developments emerged along the coastlines to the north and south. In the mid-1970s, Ayvalık's urban extensions to the north and south had linear forms. In the same time period, Cunda's macroform seems to be rather compact. It also expanded around its historic core. This is the same case for Küçükköy. One should note that in the mid-1970s, there was no settlement in Sarımsaklı. This area was called 'Beaches (Plajlar)' due to its long and large beach. The inner part of the coast used to be covered by agricultural lands. Sarımsaklı was mainly visited by the locals on the daily basis, especially during the weekends, for picnicking and swimming.

As mentioned earlier, in 1976, Ayvalık's and Cunda's historical centers were announced as the historical urban conservation sites. Consequently, building restrictions came into force in these areas. Then, new urban development lands were opened in order to meet new building demands. Along with the new demands for urban lands to develop second home, other tourism uses and service sector

activities since the 1980, Ayvalık and its surroundings have grown in an extremely large scale. **Figure 4.15**, which shows the urban development in 2009, clearly depicts this gigantic and uncontrolled urban development. Compared to the macroforms of Ayvalık, Cunda, Küçükköy and Sarımsaklı in 1978, the macroforms of the same settlements have grown almost three times larger. From Figure 4.14, the total developed urban land in Ayvalık, Cunda and Küçükköy is approximately 355 hectares. It is possible to see that to the north of Ayvalık, two new cities, which were as big as the historic core of Ayvalık, are included in the macroform of 2009. To the south, Ayvalık expanded along the coasts. Küçükköy's macroform was doubled. Sarımsaklı developed as a gigantic city along the coast and towards the north. Cunda did not only expand around the historic core but also along the east coastline. From Figure 4.15, it is possible to argue that the macroform developments of the waterfront settlements have taken place linearly along the coastlines to a large extent. But, there are also intentions to grow towards inlands when there are threshold and limitations along the coasts. Küçükköy, interestingly, has not grown as a compact form. It has rather grown along the main road by producing a second town next to the core one.

Figure 4.14 : The macroforms of Ayvalık, Cunda and Küçükköy in 1978 (Resource: Ayvalık Municipality)

Figure 4.15: The macroforms of Ayvalık, Cunda, Küçükköy and Sarımsaklı in 2009 (Resource: Google Earth, 2009)

The urban sprawl in Ayvalık and its surroundings is immense. Ayvalık has continued to grow linearly along the south and north coasts. Similarly, Cunda and Sarımsaklı have experienced a dispersed urban development (i.e., an urban sprawl) in high amenity landscapes. The macroform developments of Ayvalık, Cunda and Sarımsaklı have been mostly affected by the second-home developments as shown in **Figure 4.16**.

Based on **Figure 4.16**, it is possible to draw a new map and show the urban developments in circle forms with different sizes. This can help us to note the similarities between the conceptual map of Ayvalık and its surroundings and the city models explained in detail in Chapter 3. **Figure 4.17** is the conceptual map of Ayvalık region in the form of circles with different sizes. It shows that the settlement system in Ayvalık and its surroundings is the overlap of the linear forms which is called 'polycentric net' model or 'regional city' model.

To remind the characteristics of this model, it emerges when some different linear developments overlap. This form has a wide range of different densities with intensive cores at the transport network junctions. There are high linear congestions along transport corridors between larger and smaller cores. This model offers a wide range of different housing forms, a large choice of access to services and open lands and a large range of transport means. This model improves equity, variety and choice by having different types of centers, activities, housing forms, open spaces and transportation choices.

Although Ayvalık and its surroundings show a similar form of polycentric net, there are some similarities and differences between the Ayvalık case and the characteristics of this model. First of all, Ayvalık and its surroundings offer the residential quarters with different densities, although it is not possible to see that each residential quarter has an intensive core at the transport network junctions. As can be seen from **Figure 4.16**, these intensive cores at the transport junctions are developed only in Ayvalık, Cunda and Sarımsaklı. At the macro scale, it is not possible to argue that the current urban form in Ayvalık and its surroundings offers and improves equity, variety and choices by having different types of centers, activities, housing forms, open spaces and transportation choices. The transportation is largely dependent on private car use, buses and minibuses. Although second home developments have increased the variety of housing forms, they are highly affordable for middle- and upper-middle income groups. The local inhabitants with low income have not benefited from this increasing variety of houses. Therefore, it is not possible to argue that the booming of second-home developments in Ayvalık and its surroundings have improved equity. On the other hand, the urban

development in Ayvalık and its surroundings have expanded on the agricultural lands (especially lands covered by olive trees) and urban, natural and historic conservation sites. Especially when different types of conservation sites are considered in **Figure 4.5**, this can be easily noted. Therefore, from the macro structure, although the urban form of Ayvalık seems polycentric net and this is widely appreciated in the literature as a sustainable urban form, this cannot be truly told for the case of Ayvalık and its surroundings.

As described in Chapter 3, increase in personal mobility, accessibility to rural areas and escaping from urban life led to high demand on coastal resorts in Turkey. Increasing tourism activities affect carrying capacity of amenity rich landscape areas. After the 1980s, a rapid increase in second-home development has been observed in Ayvalık coasts, like other Mediterranean and Aegean coasts of Turkey, especially by the effect of Tourism Incentive Law. It can be easily observed in **Figure 4.16** that Ayvalık coasts were invaded by second-home developments for recreational purposes.

Ayvalık urban structure has been changed from compact to linear form in time with newly-opened residential areas and second-home areas (**Figure 4.18**). The settlement has extended along the north coast due to second-home developments. But, the second-home developments in Armutçuk Region (i.e., the north coast of Ayvalık) create empty built-up environments during off-season periods. During high-season periods, second-home owners come to their home and use the beaches in front of their dwellings. If they want to go the city center of Ayvalık, Sarımsaklı and Cunda, they have to travel by their private cars or public buses. This linear form does not offer equal access to services and facilities for second-home owners in Ayvalık, because commercial activities are still located in the historical city center. Newly-developed residential areas are located in the center of this linear form of Ayvalık with its commercial areas along the road which were developed according to the urban development plans. Therefore, second-home owners near the city center can access service and facilities better than others whose second homes are situated at the north coasts of the settlement.

Having a unique landscape and historical city center, Cunda attracts people to have their holidays. As such, Cunda has also been affected by second-home developments (**Figure 4.19**). As can be observed from the differences in **Figures 4.14** and **Figure 4.16**, second home invasion along coast of the island can be observed clearly. This sprawl causes the development pressure on the amenity-rich landscape of Cunda. Vacant housing stocks have been developed especially throughout off-season periods. Likewise, these second homes occupy very fertile agricultural lands and valuable urban lands. They also create empty and unsightly building blocks. The second-home developments in Cunda have spreaded along the coast of the island and have created an unsustainable urban form that are only built for residential purposes of vacationers.

Having one of the longest beaches of Turkey, Sarımsaklı attracts domestic and foreign tourists during summers. Especially after the 1980s, Sarımsaklı has started to grow only for tourism purpose (mostly second-home tourism). Today, second homes occupy all the coastline of Sarımsaklı. The urban development in Sarımsaklı also extends towards the north along some major arteries, showing the characteristics of finger plan (**Figure 4.20**). Urban development in Sarımsaklı mainly emerged due to tourism activities and the built-up environments are still being used for recreational and tourism facilities during high-season periods. Therefore, linear and finger-shaped macroforms of Sarımsaklı only serves for holiday purposes in summer seasons.

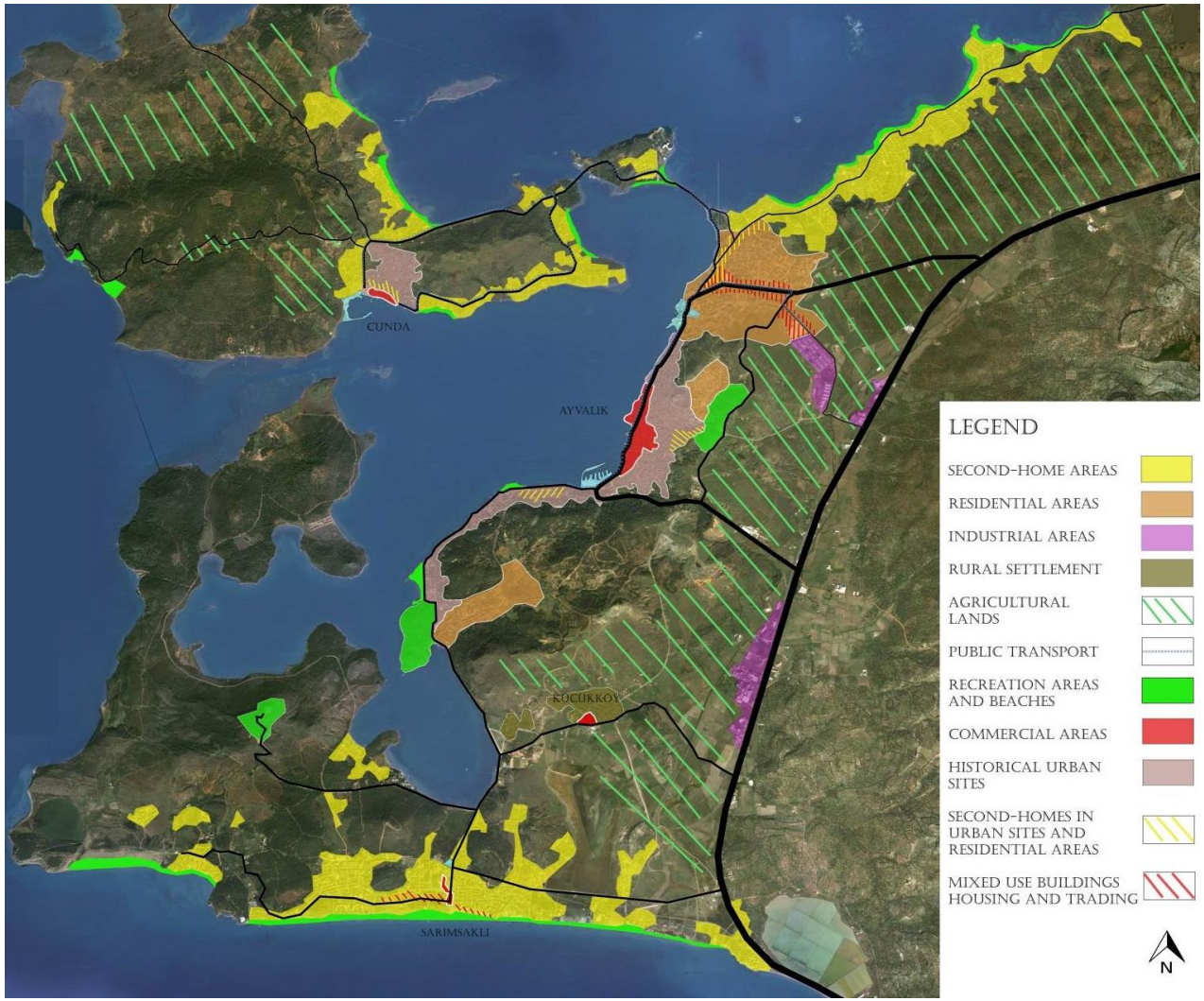


Figure 4.16: The second-home development effects on the macroforms of Ayvalık, Cunda and Sarımsaklı (drawn by Author)

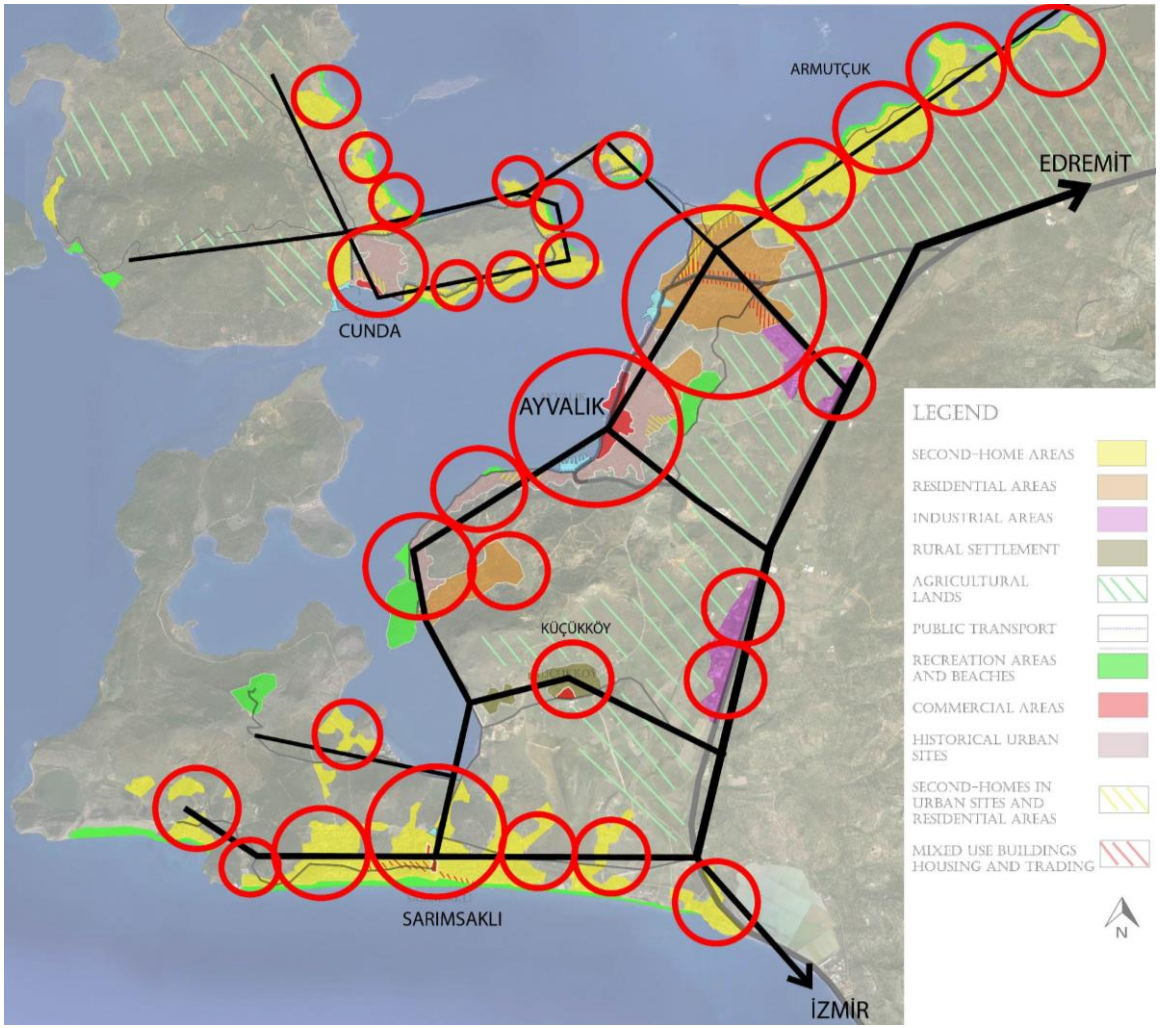


Figure 4.17: The macro structure of Ayvalık and its surroundings showing the features of the polycentric net model (drawn by Author)

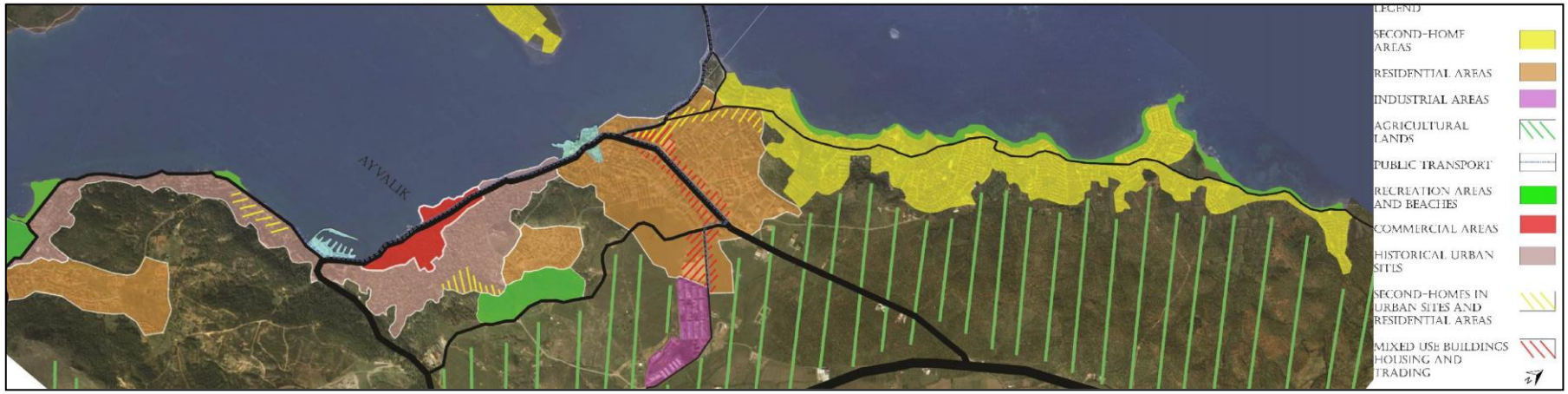


Figure 4.18: Second-home development in Ayvalık in 2013 (drawn by Author)

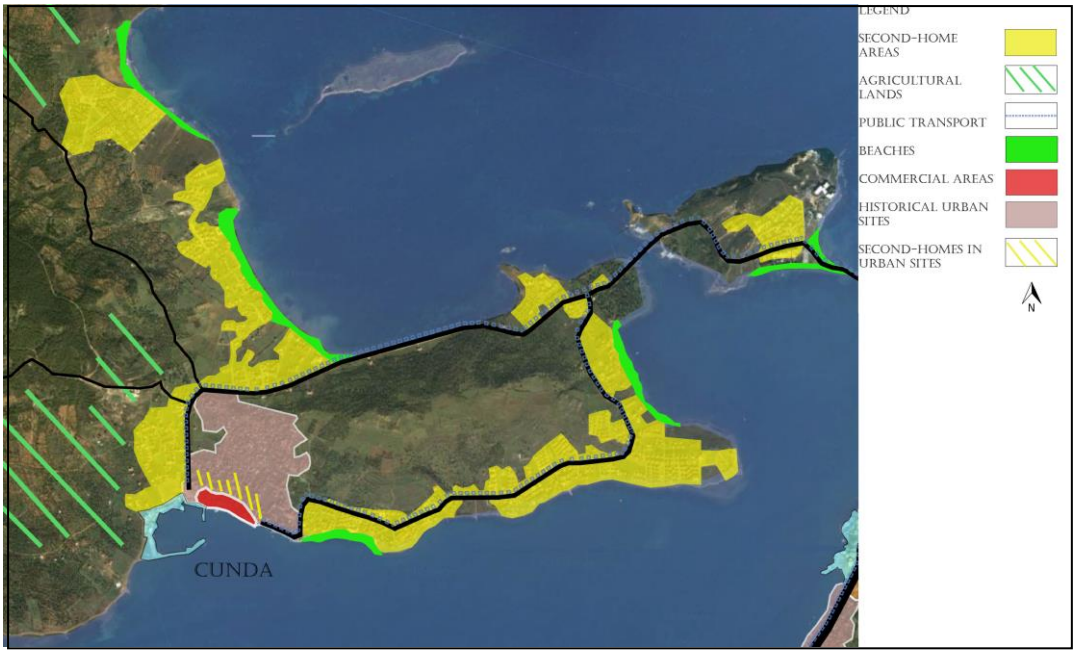


Figure 4.19: Second-home development in Cunda Island in 2013 (drawn by Author)

Figure 4.20: Second Home Development in Sarımsaklı Region in 2013 (drawn by Author)

4.5.2 Second Home Development Effects on Micro Structure of Ayvalık regarding sustainable urban form dimensions

Chapter 3 has explained micro-structure components of a sustainable city and has defined seven dimensions as the urban design strategies to develop a sustainable city. The following parts of this section will study Ayvalık's micro-structure urban form regarding five urban design strategies which are density, mixed land use, diversity, accessibility and sustainable transportation.

4.5.2.1 Density

Density is an important part of sustainable urban form in order to maintain walkable, pedestrian-based access to urban services and facilities as described in Chapter 3. There is a strong relation between density and the urban character. The increase in urban population in cities brings about urban sprawl which has put pressure on the existing transport networks and made walking and cycling difficult. It

also encourages private car ownership because of the increase in distances in the city. This consequently results in increasing traffic congestion, decreasing road safety and rise in emissions from cars. Contrarily, high density and integrated land use can change social interaction, reduce travel time and energy, and produce more livable environments.

As explained in detail, density can be measured by ***the ratio of people or housing units to land area, such as a number of people per hectare or a number of housing units per hectare.*** There is a consensus that denser, compact cities which have less sprawling and land consumption are accepted more sustainable cities than others. As Newman and Kenworthy (1996) claims, compact development is the "relative density or intensity of land use activity" in the given urban area. Density has been seen as an essential factor in maintaining walkable, pedestrian-based access to needed services and neighbor-based facilities, as well as a vibrant and diverse quality of life (Talen, 2011). According to Çalışkan (2004), a lower-density urban form needs more land than a higher-density urban form. As cities grow and expand on urban lands, walking distance increases and cities need more urban lands to conserve their low-density urban forms. This is the main reason which generates 'urban sprawl'. Nevertheless, a little increase in urban density prevents cities from a bit sprawling. Therefore, it is possible to argue that a high-density urban form prevents urban sprawl, saves urban land and enhances easy access to services. On the other hand, a high-density urban form also has negative effects, such as traffic congestion, overload infrastructure and pollution.

Ayvalık and its surroundings can be considered as a low-density region when it is compared to other holiday resorts in Turkey, such as Kuşadası, Çeşme, Alanya, Bodrum. The historical urban pattern of Ayvalık and Cunda are protected by the declaration of these areas as the historical and natural conservation sites. In this way, low-density urban pattern and pedestrian-based accessibility to urban facilities have been conserved in Ayvalık and Cunda's historical cores. However, new residential areas in Ayvalık are composed of multi-storey apartments without complying with local characteristics of town. Second homes in Armutçuk and Cunda consist of two-storey buildings and form low-density residential areas along the coast.

Figure 4.21 shows the density map of Cunda, Armutçuk and Ayvalık according to prevailing building conditions. 1 storey building zone has 60 person per hectare, 2 storey building zone has 120 person per hectare and 3 storey building zone has 360 person per hectare. According to these calculations, Cunda and Armutçuk form low-density residential areas which are occupied by second-home owners in high season period. These low density forms lead to the occupation of valuable agricultural lands in high amenity rich landscapes for seasonal holiday purposes. Consuming valuable lands for seasonal recreational purposes cannot create a sustainable urban form and a sustainable development pattern. In addition, this form generates urban sprawl along coastal lands of Cunda and Armutçuk. In terms of sustainability, new urban developments should be suitable for local, natural, cultural and historical characteristics. In the case of Ayvalık, Cunda and Armutçuk, the three-storey building zones provide a fairly and relatively sustainable urban form, despite the fact that the new urban developments are not generally compatible with the local, natural, cultural and historical characteristics of the Ayvalık region.

Figure 4.22 shows the density map of Sarımsaklı according to prevailing building conditions. In Sarımsaklı, there are 2 and 3 storey building zones. 2 storey building zone has 120 person per hectare and 3 storey building zone has 480 person per hectare.Different from Cunda and Ayvalık, Sarımsaklı is composed of multi-storey apartments which are used as second homes on seasonal basis without any coherence with each other.Therefore, compared to Ayvalık and Cunda, Sarımsaklı's second-home developments are medium-density residential areas. The majority of buildings which were developed for recreational and tourism purposes in Sarımsaklı are made up multi-storey apartments. Like new urban developments of Ayvalık, the three-storey building zones in Sarımsaklı provide a fairly and relatively sustainable urban form, despite the fact that three-storey building zone in Sarımsaklı are not compatible with the local, natural, cultural and historical characteristics of the Ayvalık region.

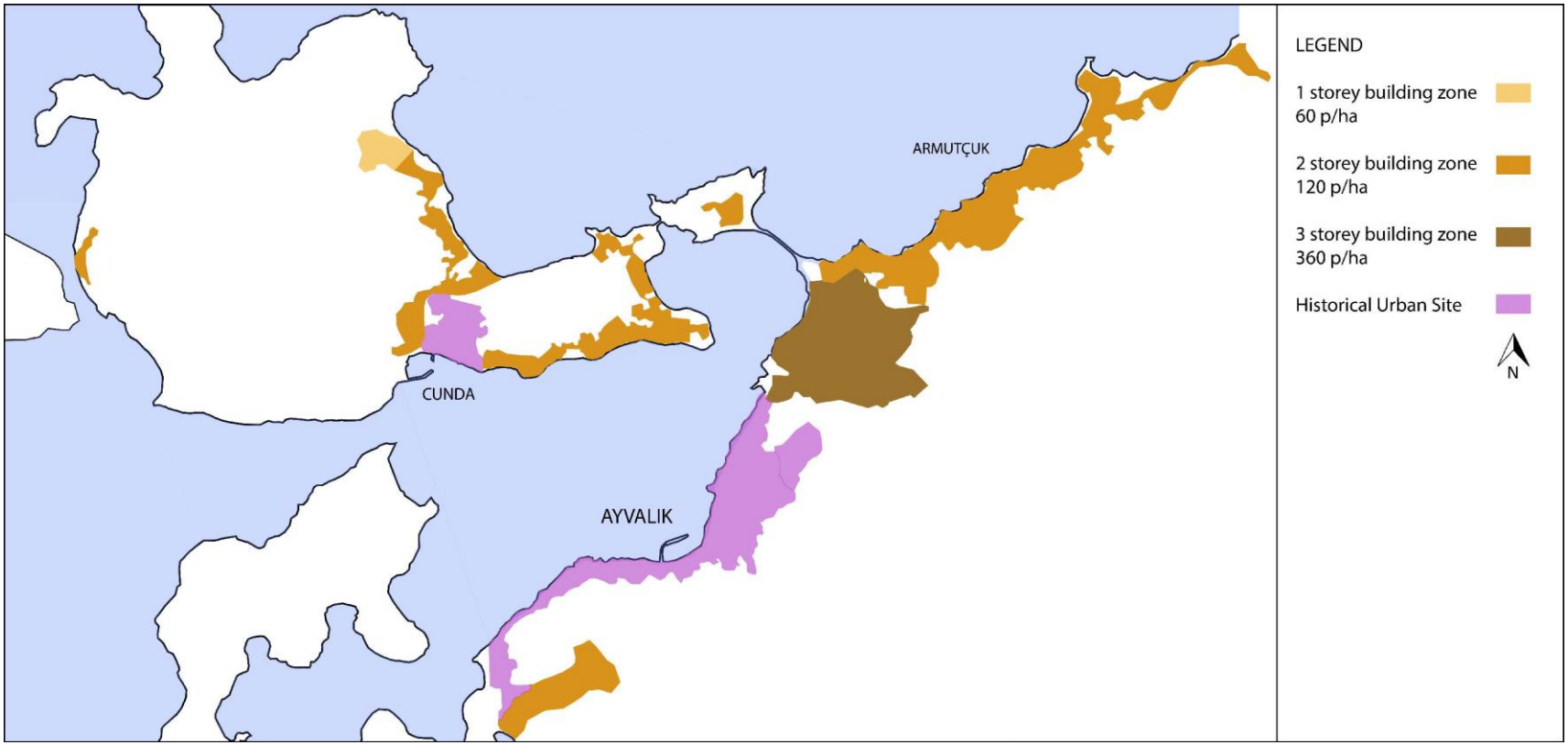


Figure 4.21: Housing density regarding building storeys in Ayvalık, Armutçuk and Cunda

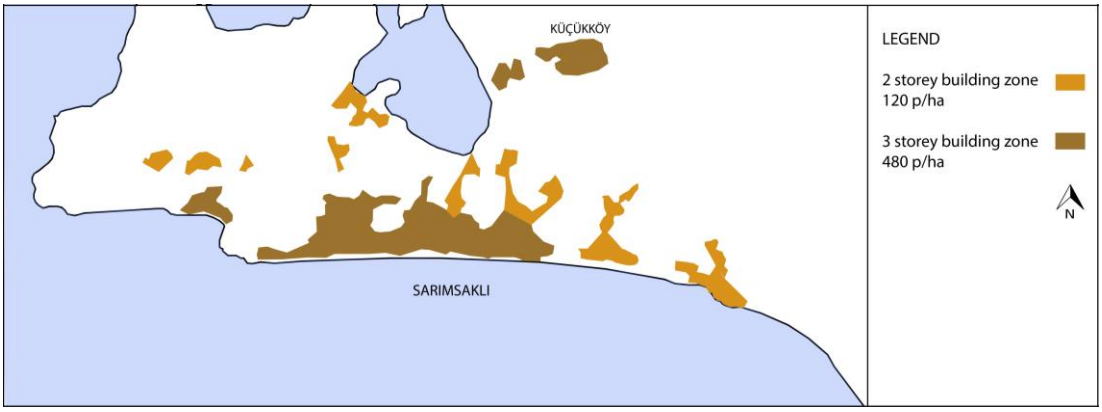


Figure 4.22: Housing density regarding building storeys in Sarımsaklı

According to the theory of sustainable urban form, the low density urban form in the historic core of Ayvalık and Cunda does not provide a sustainable urban form, whereas relatively higher density urban areas in Sarımsaklı and in the newly developed urban areas provide much sustainable urban form. Looking at the uncontrolled development of two-storey second houses around Ayvalık (i.e., in Armutçuk) and Cunda, it is not possible to argue that this urban sprawl provides a sustainable urban form. With this extensive second-home developments, it becomes very hard to protect agricultural lands and natural resources, to save energy, to conserve green open spaces and natural habitat, to improve air quality by promoting public transport usage and decreasing private car usage, to give opportunities to walk to get urban services and entertainment facilities. However, this is the same case when Sarımsaklı is considered, despite the multi-storey second houses. Although this type of buildings has provided Sarımsaklı with the opportunity to develop on a much more compact form than the alternative of developing a sea of two-storey villas which would occupy much more lands. In this sense, the case of Sarımsaklı provides us a much more sustainable urban form than the case of Armutçuk or the second-home areas along Cunda coasts.

The key question which has to be asked in the issue of second-home developments whether they are composed of two-storey villas or 3-5 storey apartment buildings, does Ayvalık region need so much holiday house development to create a sustainable city. The answer is probably 'no'. It might have been possible to generate a much more sustainable city without developing such a large sea of holiday homes to be used just for few months a year. A much smarter planning and design strategy for Ayvalık would be to limit the second home developments and provide alternative building types (ranging from villas to apartment buildings) based on the growth strategy of the city, to provide different ownership patterns for these holiday home options (ranging from, private ownership to condominium) to use some of the old historic building stock for this purpose, to give some permission for hotel and pension development to serve domestic and foreign tourists with different affordability choices.

4.5.2.2 Mixed use

As explained in Chapter 3, land use planning has a considerably important role in providing better conditions for living in cities. When the land use activities are separated from each other, there appears a higher travelling need. To reduce the need of travel, it is widely accepted that the activities should be close to each other. This also promotes walking and cycling. There is a general consensus that mixed land use is an important part of sustainable urban form. 'Mixed use' has different functional land uses, such as residential, institutional, commercial and industrial uses, and those related to transportation. As Newman and Kenworthy (1996) state, the variety of land uses that are located close to each other is a mixed use development. Jabareen (2006) claims that mixed land use reduces the private car usage and encourages walking and cycling by locating urban services (shops, residents, working places, leisure activity places) close to each other. Likewise, Çalışkan (2004) defines mixed use as "integration of land use by increasing the proximity of urban activities". Mixed

land use is an important component of sustainable urban form and urban compactness. It is an indicator of compactness and a measure which shows whether there exists a balance between residential and non-residential land-uses. It is also an indicator of 'diversity'.

Figure 4.23 shows a model of a typical coastal town in Turkey, suggested by Günay (1982). According to this model, a typical coastal town in Turkey includes a harbor and pier, located very close to a historic city center. A commercial center extension, including hotels, pensions and residential functions, as well as a residential zone are situated around this historic center. Hotels, second-home developments and public agencies camps are located around this urban strip. The interesting feature of this model is its compact-city form.

Using the same land-use functions of this model, **Figures 4.24, 4.25** and **4.26** depict the urban macroforms and the key land-use functions of Ayvalık, Cunda and Sarımsaklı. In the case of Ayvalık, the historic city center including commercial functions is situated close to the marina (**Figure 4.24**). The commercial center extensions are located at both sides of the historic center. Residential areas comprising both new and old buildings are located around this historic city center and commercial zones. Second-home developments, however, are located to the north along the coastline as a single-function zone. Cunda has also a historic city center very close to the harbor. There are small commercial center extensions at both sides of the historic center (**Figure 4.25**). Residential areas and pensions are located around these historic and commercial centers. Second-home areas are developed on both sides of the commercial center along the coastlines. As for Sarımsaklı, there is no harbor. But, a commercial center is located along the sea coast. While public institutions camps are situated along the coast on the one side of this commercial center as a single-function zone, hotels are located on the other side of the commercial center. Second-home developments however are located behind the commercial centers, hotels and public institutions camps (**Figure 4.26**).

As one can note, Ayvalık and Cunda's macroforms exhibit some similarities with the macroform model of Günay, The location of harbor, historic city center, commercial extensions and residential areas including some tourism functions are very similar to the typical coast town model of Günay. But, the expansion of second home development along the coast as an urban sprawl is the different feature of the macroforms of Ayvalık and Cunda. This feature leads both towns to grow unsustainable. The urban sprawl along the main transport arteries causes the development of a linear urban form which increases car dependency, while reducing walkability. Off these coastal settlements, Sarımsaklı shows the most unsustainable urban form with its linear urban form. The town has developed along the coastline, as an urban sprawl, with no consideration of walkability.

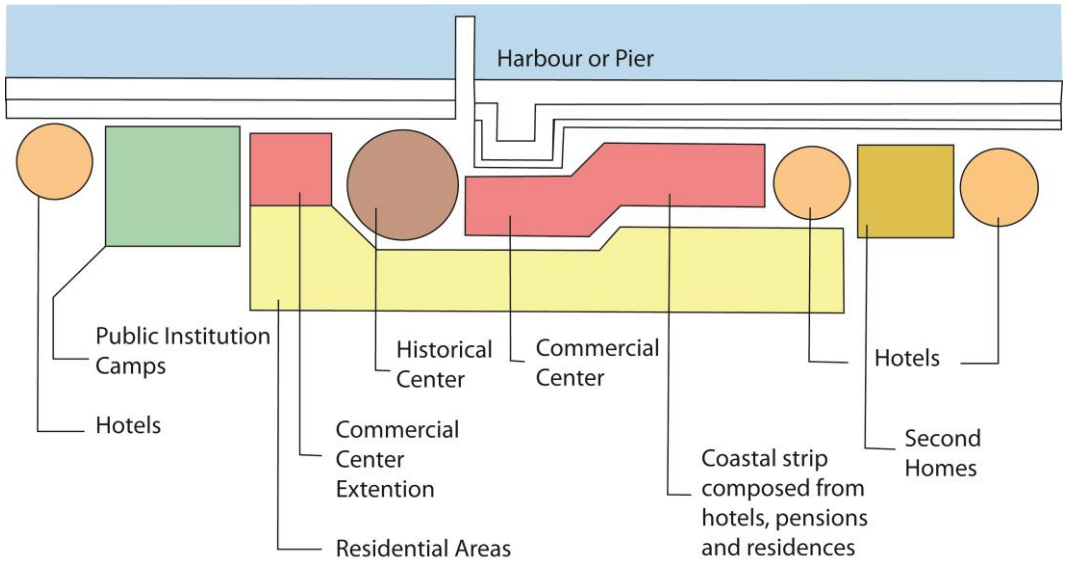


Figure 4.23: Model of a typical coastal town in Turkey (Günay, 1982)

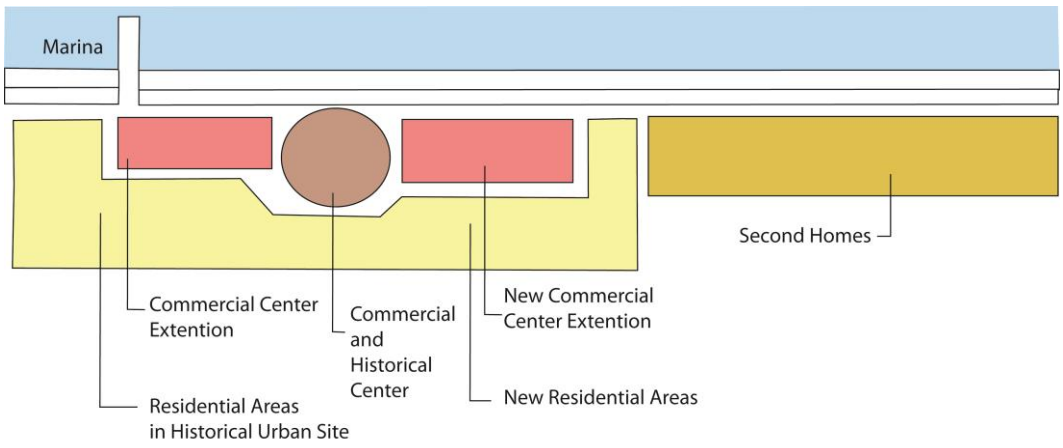


Figure 4.24: Urban structure of Ayvalık (drawn by Author)

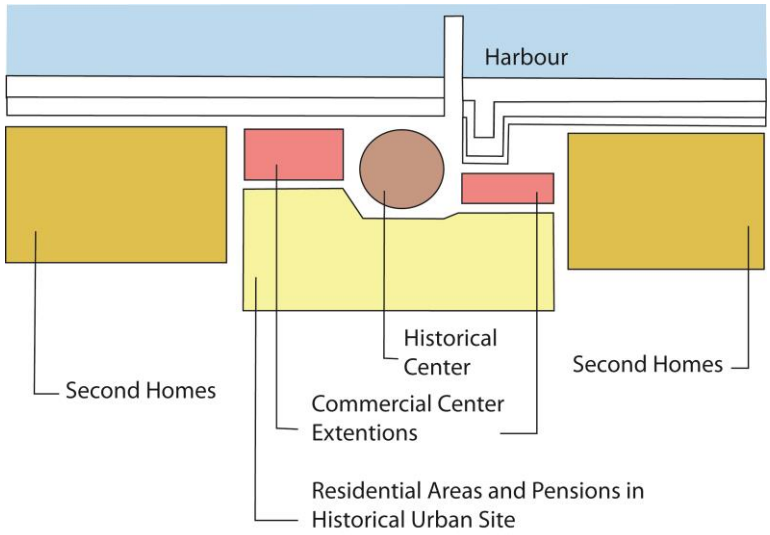


Figure 4.25: Urban structure of Cunda (drawn by Author)

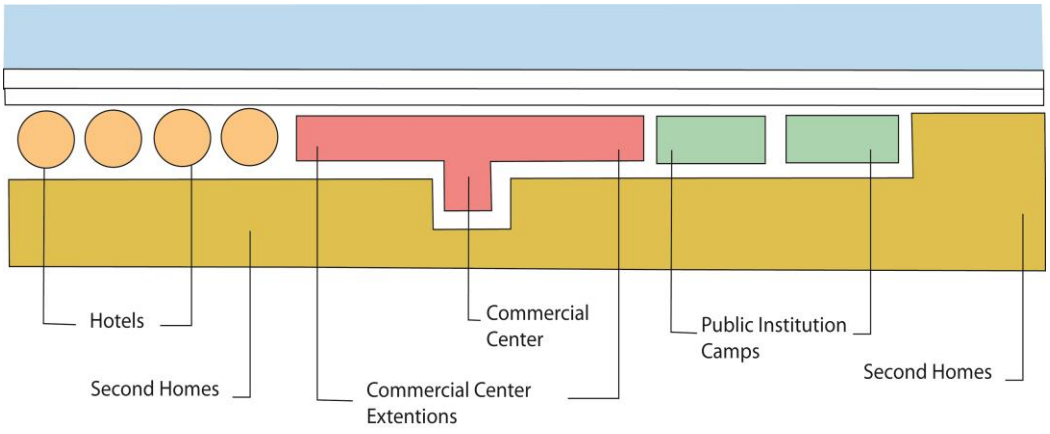


Figure 4. 26: Urban structure of Sarımsaklı (drawn by Author)

Mixed land use is an essential part of sustainable urban form which combine different land-use functions, such as residential, institutional, commercial, industrial uses. When Cunda, Ayvalık and Sarımsaklı are examined in terms of mixed land-use functions, Ayvalık is the most prominent settlement by having residential and non-residential land-uses (**Figures 4.27, 4.28**).

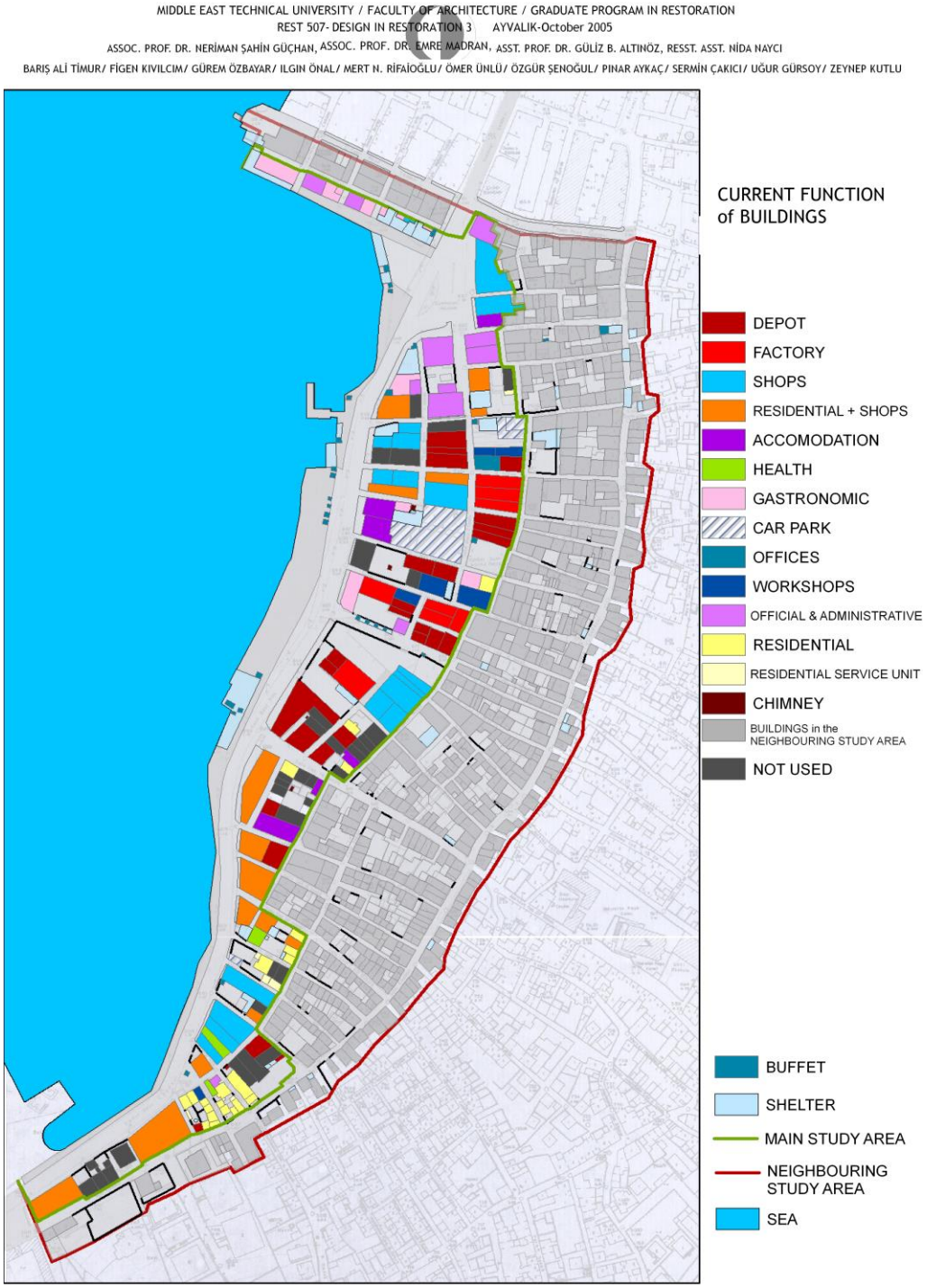


Figure 4.27: Current function of buildings in Ayvalık's historical center (Güçhan et. al., 2005a)

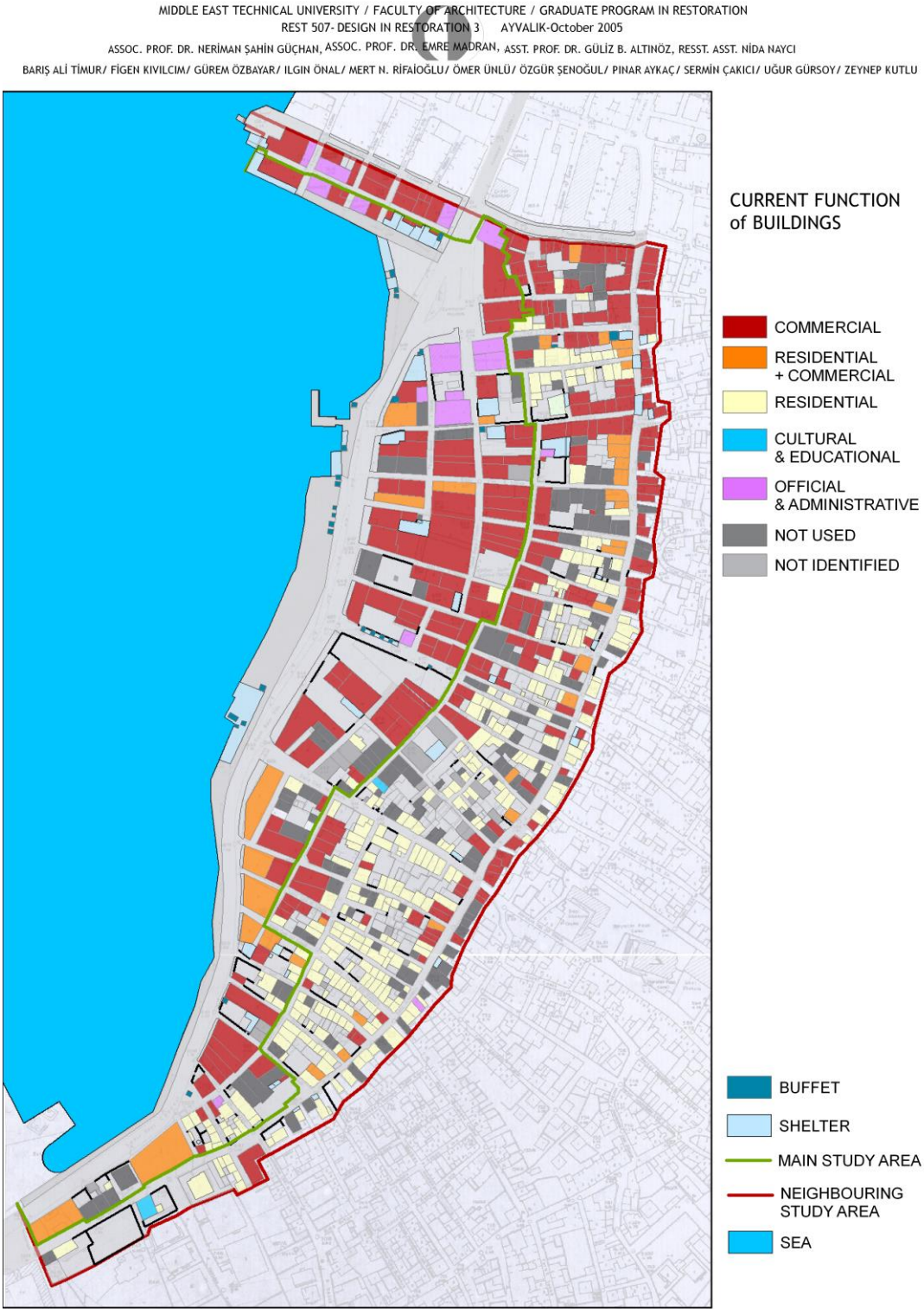


Figure 4.28: Current function of buildings in Ayvalık's historical center (Güçhan et. al., 2005b)

Chapter 3 categorizes mixed land use under three groups:

a) number and ratio of the facilities provided (diversity in supply of urban services and facilities),
b) horizontal mix of land uses (proximity of different land uses),
c) vertical mix of land uses (living over the shop).

The first category requires ‘diversity in supply of urban services and facilities’. The number of key facilities for every 1000 residents or the ratio of residential to non-residential urban land is used to decide on how far an urban space is composed of mixed land uses. The second category implies individual developments of varied uses position close to each other within urban area and the third refers to a type of urban usage, such as 'living over the shop’, or a mixed residential and commercial uses (i.e., the number of flats in commercial buildings) (Burton, 2002 cited in Çalışkan, 2004).

Having institutional, residential, commercial, industrial functions, Ayvalık is the best fitting mixed-use development than Cunda and Sarımsaklı. The old industrial town identity was able to be protected thanks to the decisions related to the announcement of the old industrial town of Ayvalık as the historical urban conservation site decision protects; and commercial activities in the historical city center are still within walking distances (**Figures 4.29, 4.30, 4.31, 4.32**).

Figure 4.29: Commercial activities in Ayvalık’s historical center (Author’s photo, 2012)

Figure 4.30: Commercial activities in Ayvalık historical center (Author's photo, 2012)

Figure 4.31: Commercial activities in Ayvalık's historical center (Author's photo, 2012)

Figure 4. 32: Commercial activities in Ayvalık's historical center (Author's photo, 2012)

Ayvalık's historical city center includes a significant degree of diversity in terms of urban services and facilities in its own local scale. The close proximity of different land use activities enables people to walk within the historical city center. In addition, vertical mixed of land uses (living over the shop) are observed around the historic city center (**Figures 4.33, 4.34**).

Figure 4.33: Vertical mix of land uses in Ayvalık (Author's photo, 2012)

Figure 4. 34: Vertical mix of land uses in Ayvalık (Author's photo, 2012)

There are also second homes within the historical urban conservation sites of Ayvalık. These second homes which are within walking distance to the city center are much more sustainable than second-home development areas far away from the historic city center, such as Armutçuk. The first-generation dwellings in the city center of Ayvalık which have started to be used as second homes very recently, are compatible with the urban pattern of Ayvalık (**Figures 4.35, 4.36**).

Figure 4. 35: Second homes in historical urban site of Ayvalık (Author's photo, 2012)

Figure 4.36: Second homes in historical urban site of Ayvalık (Author's photo, 2012)

Cunda and Sarımsaklı are small in size and they are dependent on Ayvalık in terms of the public use of urban services (i.e., shops, public institutions, working places). Their basic usage is tourism today. Therefore, tourism activities become prominent in these settlements. They do not comprise mixed land use activities as much as Ayvalık has (**Table 4.5**).

Table 4.5: Land use distribution in Ayvalık, Cunda, Sarımsaklı and Armutçuk (resource: Ayvalık Municipality)

	Ayvalık	***Cunda***	***Sarımsaklı***	***Armutçuk***
Commercial				
Residential				
Institutional				
Religious				
Health				
Parks				
Tourism				
Industrial				
Educational				

4.5.2.3 Diversity

Diversity of urban activities is an important part of sustainable urban form. Diversity and mixed land use resembles each other. However, diversity is a 'multi-dimensional phenomenon' that needs more urban characteristics, such as a wide range of building and housing types, building densities, architectural styles, household sizes, ages, cultures and incomes'. Therefore, diversity contains social and cultural aspects of urban form. If the urban areas gets intensely diversified and becomes higher density, walking activity gets higher. The neo-traditional residential area design suggests a wide range

of housing types for a wide range of income groups. Houses with front porches, narrow streets, back alley garages and streets will provide a livable neighborhood for the dwellers. This helps to controvert urban sprawl and inner-city decline by rebuilding livable neighborhoods rather than building superblocks and suburbs. Neo-traditional design seeks to encourage residents to walk, cycle and use public transit system (Jabareen, 2006).

If urban land is not diverse, similar built forms generate unattractive and monotonous urban lands. They also cause the creation of job-housing imbalances and social inequality between different income groups. Some of them are obliged to move other places where their needs meet. This leads to increase in commuting, travel-time and traffic congestion (Jabareen, 2006).

This research investigates diversity in terms of housing types, architectural styles and building densities. There are different housing types in Ayvalık, Cunda and Sarımsaklı. Ayvalık and Cunda are historic towns. That is why, they comprise historical housing stocks. There are many conserved old Greek houses and many historical buildings with religious and cultural functions in the historic urban patterns of both Ayvalık and Cunda (**Figure 4.37**). These buildings are generally two-storey terrace houses which run on both sides of streets (**Table 4.6**). Both commercial centers and historic residential neighborhoods of Ayvalık and Cunda are composed of this type of buildings. These residential houses are mostly accommodated by single families.

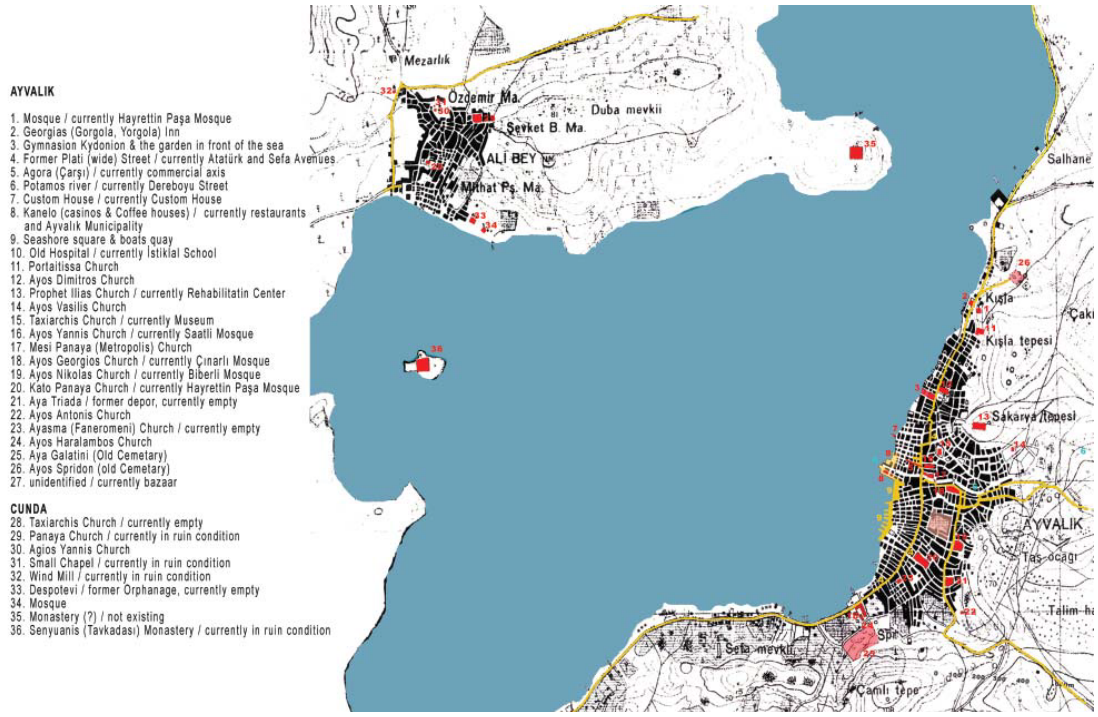


Figure 4.37: The monumental buildings within the historical urban conservation sites and the surroundings of Ayvalık and Cunda (Güçhan, 2007)

New residential areas in Ayvalık mostly include multi-storey apartment buildings, which provide a number of households with the opportunity of accommodation. They are modern buildings with no specific architectural character. They vary in terms of architectural details, construction materials and colors. Most apartment buildings in the new residential neighborhoods of Ayvalık are detached buildings. Although the newly developed buildings in Ayvalık do not seem to be compatible with the vernacular architecture and historical urban pattern of Ayvalık, they provide a range of building and housing types with building densities (**Table 4.6**). In this sense, they increase housing choices and visual richness. In the historic neighborhoods of Ayvalık, houses with large windows, high doors, careful design, gardens with mature trees and narrow cobble-stone streets provide a scene of warm, livable neighborhoods for dwellers. In these streets, walking is the main way of going from one place to another. This type of streetscape also provides an attractive and lively urbanscape (**Table 4.6**).

As for the new second homes in Ayvalık, especially in Armutçuk, it is possible to see a variety in terms of architectural style, color and building material. They are generally two-storey buildings. Some of them are single houses within a garden of different sizes. Some are semi-detached houses again with gardens. These houses are mostly used by only one family during summers. As they are unused most of the time of the year, these houses are not effectively used. This type of low-density building style causes a significant urban sprawl, discourages walking and encourages car use (**Table 4.6**). As such single houses are generally owned by the families with middle income, they do not provide mix social groups in the second-home residential areas. The variety happens some time in terms of people coming from different Turkish cities. The urban scene in such residential sites is not very monotonous. It is rather enjoyable with the gardens of houses, the detached buildings with different styles. But, these low-density residential areas are spread on a large area, and there is a significant distance between these buildings and public services. Thus, walking is not as attractive as the neighborhoods in the historic core of Ayvalık.

Cunda is very similar to Ayvalık in terms of diversity. The historic core of the town provides historic buildings with a variety of sizes. The new second home neighborhoods extend along the south and north coasts of the islands. They are generally two-storey single or semi-detached buildings with gardens (**Table 4.7**). The material, color and architectural style of these buildings vary considerably, although some of them which were built through housing cooperatives have the same architectural styles. Such buildings which used to be rather similar to each other, have changed in time due to the variations and modifications carried out by their owners. The historic buildings in Cunda are generally used by locals all year long, while the holiday houses are only used during summer seasons.

Sarımsaklı is composed of second-home apartment blocks with mostly four storeys. The apartment blocks, which are generally detached buildings, is composed of a number of flats (**Table 4.8**). Building styles in Sarımsaklı are similar to each other, but not identical. Although some argue that such an urbanscape creates a monotonous urban environment, Sarımsaklı consists of some variety in terms of building details due to the modifications carried out by the owners of the flats. The holiday houses in Sarımsaklı are mostly owned and used by middle-income families, providing a homogenous social structure. The difference lies from the people coming from different cities. Therefore, Sarımsaklı does not provide a variety in terms of social structure, housing types and building density.

The urban pattern in Sarımsaklı is based on a linear form. Because of the apartment blocks, it is possible to claim that Sarımsaklı has grown dense to some extent, compared to the historic cores of Ayvalık and Cunda. This dense form encourages walking within some distances, although the linear form of Sarımsaklı discourages it. The location of the growing commercial center which is located along the T-intersection in the middle of this linear form and extends to the east and west of this intersection is not coincidental, indeed. As one can note in **Figure 4.20**, these commercial strips help people to reach at some services and amenities by walking rather than driving. Nevertheless, this growing pattern of Sarımsaklı still tends to create a much more car-driven settlement than walking city. As all these buildings in Sarımsaklı are mostly used as second homes, it is not possible to argue that they provide a range of choices for accommodation for the locals. Most of the times of the year, they also stay unused.

Therefore, the second home developments in Ayvalık and its surroundings offer some variety in terms of building density, housing types and architectural style to a certain extent. This variety creates livable neighborhoods especially in the historic core of Ayvalık and Cunda, giving the opportunity of accommodating different income groups. These places also provide mixed use, heterogeneous and walkable environments. The second home developments in Ayvalık, Cunda and Sarımsaklı also provide variety in terms of housing types, building density and architectural style to some extent. Yet, in many aspects, they offer unsustainable structure. The second home houses or flats are generally owned by middle income groups, which create a homogeneous social structure. They are mostly unused most of the time of the year. Except those in Sarımsaklı, the second home neighborhoods in Ayvalık and Cunda are mostly two-storey buildings with gardens and they provide low-density urban sites which create a significant urban sprawl within the whole region. Such low-density urban development creates car-dependent environment, rather than walking city.

Table 4.6: Fine-ground maps and photos of historic center of Ayvalık, newly developed residential areas of Ayvalık and second-home neighborhoods in Armutçuk

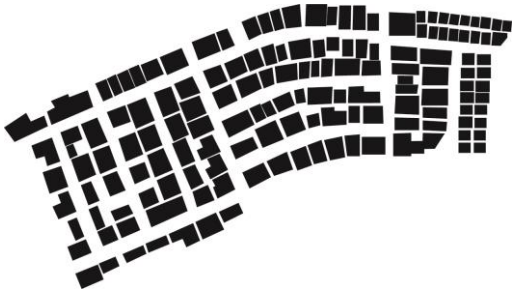
 Historic Center of Ayvalık (drawn by Author)	 Historic residential buildings in historical urban conservation sites of Ayvalık (Author's photo, 2012)
 Newly developed residential areas of Ayvalık (drawn by Author)	 Apartment buildings in new residential areas of Ayvalık (Author's photo, 2012)
 Second-home neighborhoods in Armutçuk (drawn by Author)	 Second home in Armutçuk Region of Ayvalık (Author's photo, 2012)

Table 4.7: Fine-ground maps and photos of historic center and second home neighborhoods of Cunda

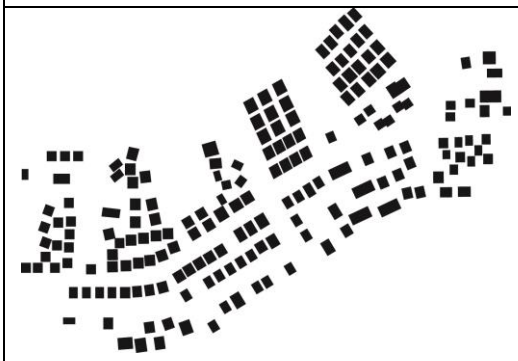
 Historic Center of Cunda (drawn by Author)	 Converted second home in historical urban site of Cunda (Author's photo, 2012)
 Second-home neighborhoods in Cunda (drawn by Author)	 Purpose built second home outside the urban site in Cunda (Author's photo, 2012)

Table 4.8: Fine-ground maps of second-home neighborhoods in Sarımsaklı

 Second-home neighborhoods in Sarımsaklı (drawn by Author)	 Multi-storey second homes in Sarımsaklı (Author's photo, 2012)

4.5.2.4 Accessibility and Sustainable Transportation

Accessibility is an important component of social sustainability. Within a sustainable urban form, people should live, work and reach urban facilities and leisure activities without travelling too much. Also, in a sustainable urban form, people should be able to access urban areas that have different urban facilities close to each other for the use of all family members. Everybody should have a right to move from one place to another and a right to have an easy access to certain places (Chan and Lee, 2006). *Density, mixed land use, connectivity* and *walkability* are the main criteria effecting accessibility. Increasing density, locating different kinds of activities together (i.e., mixed use), increasing quality of walking and cycling and increasing network connectivity are the ways of improving accessibility (Litman, 2008). A strong grid pattern, sideway connectivity, presence of commercial services and high residential density are the key walkability factors in urban areas (RTD Transit Access Committee, 2009). Easy pedestrian crossings and the presence of a variety of street amenities are also other factors to encourage people to walk (RTD Transit Access Committee, 2009). The connectivity of the street pattern is an important factor to increase accessibility. High level of connectivity provides a high level of accessibility. A grid network, which provides the simplest street pattern, increases walkability by providing a better sense of direction. Yet, circuitous, cul-de-sacs and dead ends decrease walkability and encourage more the use of car. To improve the walkability, therefore, accessibility, the design of cities and neighborhoods according to the maximum walking distance and location decision of public amenities and services (school, nursery, shops, pharmacy, post office, community center, etc.) within this walking distance become crucial. For many neo-traditional design approaches, the distance between 600 m and 800 m is shown as the walking distance (Urban Design for Sustainability Union Expert Group, 2004). For Transit Village promoters, the main distance between someone's home to a transit station should be the five-minute walking distance (www.transitorienteddevelopment.org). Also, it is important to have a hierarchy concerning cluster developments from neighborhood to districts and transportation systems, from bus to light rail transit. The intensity of street network, a hierarchy of boulevards, streets and alleys, car free public access and neighborhood accessible on foot are all necessary to achieve a sustainable urban form. Interface with parking is another important urban design principle. Parking management will help to balance the demand for various travel modes. It should create an area for both cars and bicycles. Appropriate parking standards, structured parking facilities and on-street parking issues should be considered.

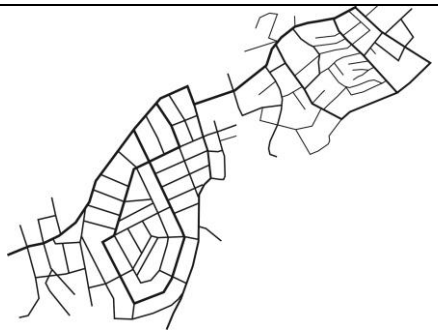
Ayvalık historic center provides a considerably accessible urban pattern. Although the historic city mostly consists of 2-storey buildings, there are mixed use buildings located close to each other. Walkability quality of the space is also high within the historic core due to some pedestrianized public spaces. The historic core is laid out on a distorted grid pattern which provides a higher connectivity, thereby accessibility (**Table 4.9**). As can be seen from **Figure 4.39**, many public amenities and services are within the walking distance. The historic core of Cunda is more or less the same with Ayvalık's historic core regarding accessibility. It provides walkable and pedestrian-friendly urban pattern with narrow streets perpendicular to the seaside (**Table 4.9**). The second home developments in both Ayvalık and Cunda however exhibit the contrasting features in terms of accessibility. As explained earlier, the second home developments in both Ayvalık and Cunda are generally two-storey single or detached villas with gardens. This provides a rather low density urban form. These areas are dedicated only to residential uses. Variety can be considered in terms of architectural styles, color and building materials. As these urban sites are expanded along the coastline linearly, they are not laid out on a walkable distances. Circuitous, cul-de-sacs and dead ends decrease the walkability of these areas and encourage more the use of car. Regarding these aspects, the urban pattern and the characteristics of urban pattern do not provide an accessible urban form (**Table 4.10**). In the case of Sarımsaklı and newly developed residential areas of Ayvalık, the density is much higher compared to the historic centers of Ayvalık and Cunda. Sarımsaklı's center consists of mixed land uses. Within a walking distance, it is possible to reach some important amenities such as shops, pharmacy, post office, hotels, restaurants, cafes and bars. There are considerably long and continuous sidewalks along the coast in Sarımsaklı, but the connectivity of these sidewalks to the inner neighborhoods is limited. The street network in Sarımsaklı is laid out on a grid pattern which also contributes to its walkability, connectivity and accessibility qualities. Therefore, Sarımsaklı's commercial center and its surroundings provide a rather sustainable urban form in terms of accessibility qualities. But, as Sarımsaklı is expanded to the east and west directions in a linear form due to second home developments, this form causes the settlement to lose its sustainable form quality (**Table 4.11**).

Table 4.9: Street Network Analysis of Ayvalık and Cunda

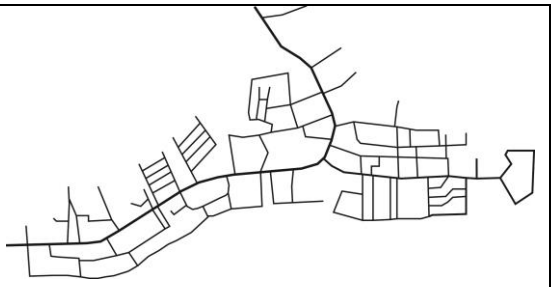
Ayvalık (drawn by Author)

Cunda (drawn by Author)

Table 4.10: Street Network Analysis of second-home development areas of Ayvalık and Cunda



Second home development areas of Ayvalık (Armutçuk) (drawn by Author)



Second home development areas of Cunda (drawn by Author)

Table 4.11: Street Network Analysis of Sarımsaklı and newly developed residential areas of Ayvalık

Sarımsaklı (drawn by Author)

Newly developed residential areas of Ayvalık (drawn by Author)

Regarding sustainable transport, as explained in detail, sustainable urban form must give residents the opportunity of easy access to urban services and facilities with efficient public transport facilities and services, walking and cycling opportunities. With more pedestrian-friendly designed neighborhoods where public transport infrastructure and services are also provided, private car usage can be decreased. The proximity of households to urban center and main transport networks, settlement size, mixed land use, the provision of local services and facilities, population density and residential parking availability affect travel patterns and transport energy consumption. Also, sustainable transport can be achieved by designing walkable and pedestrian friendly cities to encourage people for walking and cycling, improving public transportation and restraining private car usage. Land use patterns should be designed to make people use public transportation instead of private car. Mixed land use can help sustainable transport by locating shops, jobs, urban services and facilities close to each other to reduce the demand of private car usage and encourage people to walk.

When the transportation network is considered in Ayvalık and its surroundings, **Figure 4.38** shows the major artery and road system of Ayvalık and its surroundings. The main arteries are laid out generally parallel to the coastline. The coastal artery between Sarımsaklı and Ayvalık is connected to Çanakkale-İzmir highway by four major arteries in the direction of west and east. As can be seen in **Figure 4.38**, second-home developments are sprawled along the coastal roads which cause an increase in the accessibility of amenity rich landscapes. Therefore, the accessibility of amenity rich landscapes brings about second-home invasion along the coast, the construction pressure on amenity rich landscapes and conservation areas, urban invasion on countryside, and therefore, the loss and damage on natural environment, just as happened in the case of Ayvalık and its surroundings.

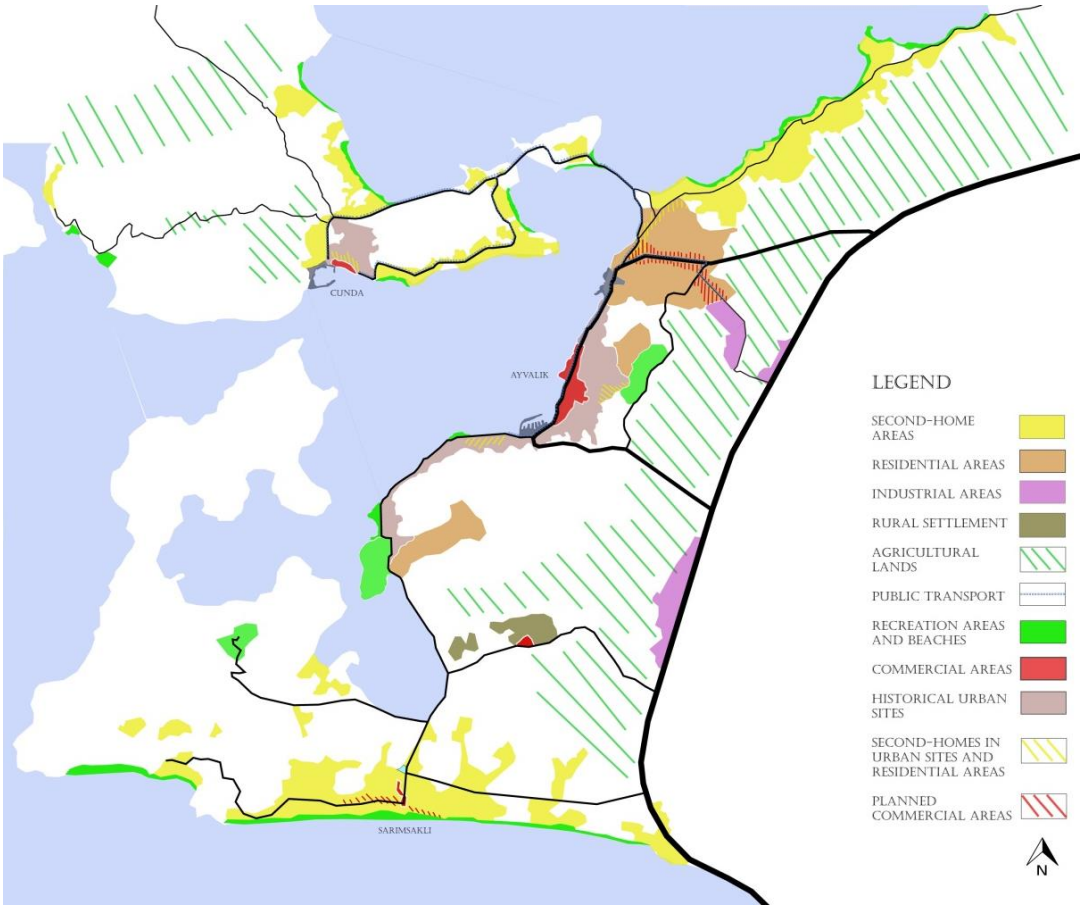


Figure 4.38: Transportation network of Ayvalık region (drawn by Author)

The dwellers of remote second-home areas have difficulty to reach at urban services and facilities. Second-home owners or users especially in Armutçuk, Cunda and Sarımsaklı have to use public transportation or private car to access urban services and facilities in the city center of Ayvalık. But, the owners and users of the second-homes in the city centers of Ayvalık and Cunda have the opportunity of easy access to urban services, open spaces, recreational areas and other urban facilities which are within walking distances. Yet, today, the second homes in the historical center (also commercial center) of Ayvalık, are smaller in number than those in Armutçuk, Cunda and outside of Ayvalık. Nevertheless, the city center of Ayvalık is mostly used by the residents of Ayvalık region, second-home owners of Cunda, Armutçuk and Sarımsaklı, tourists and visitors from Lesbos Island and adjacent settlements. **Figure 4.39** indicates pedestrian networks within the city center of Ayvalık with important focal points, bus stops and parking lots of the historical center. **Figure 4.40** shows the photos of the main pedestrian roads.

The public transportation services in Ayvalık and its surroundings are provided by buses and minibuses. Bus services provided by the local authority are not very sufficient and efficient for users, whereas minibuses run by local traders provide much faster services. Locals, tourists, visitors and second-home users prefer minibuses than buses. The public transportation is not operated effectively. In this sense, it is not possible to argue that Ayvalık has a sustainable transportation system. The weak and insufficient public transport causes the increase in private car usage. During summer times, the number of private cars significantly increases due to the second home dwellers. Although there are some parking spaces around the city centers of both Ayvalık and Cunda (**Figures 4.39 and 4.42**), the increasing cars and car usage create significant car parking problems in the centers of Ayvalık and Cunda.

In the city center of Ayvalık, there is a pedestrian circulation network as shown in **Figure 4.39**. Talatpaşa Street is the most frequently used pedestrian road which connects the coastline to At Arabası Square and Bazaar along with the commercial activities. Çınarlı Mosque is situated as a landmark of town at the east of At Arabası Square. The pedestrian circulation network is laid out between Atatürk Boulevard, Cumhuriyet Square, At Arabası Square, bazaar and Tostçular Market Area, as shown in **Figure 4.39**. There are minibus, taxi and bus stops on Atatürk Boulevard. The most frequently used public transportation road is the one between Ayvalık Marina, Custom Services, the industrial area, the historical centers of Cunda and Ayvalık, as shown in **Figure 4.41**.

Figure 4.39: Pedestrian network of the historical center of Ayvalık (drawn by Author

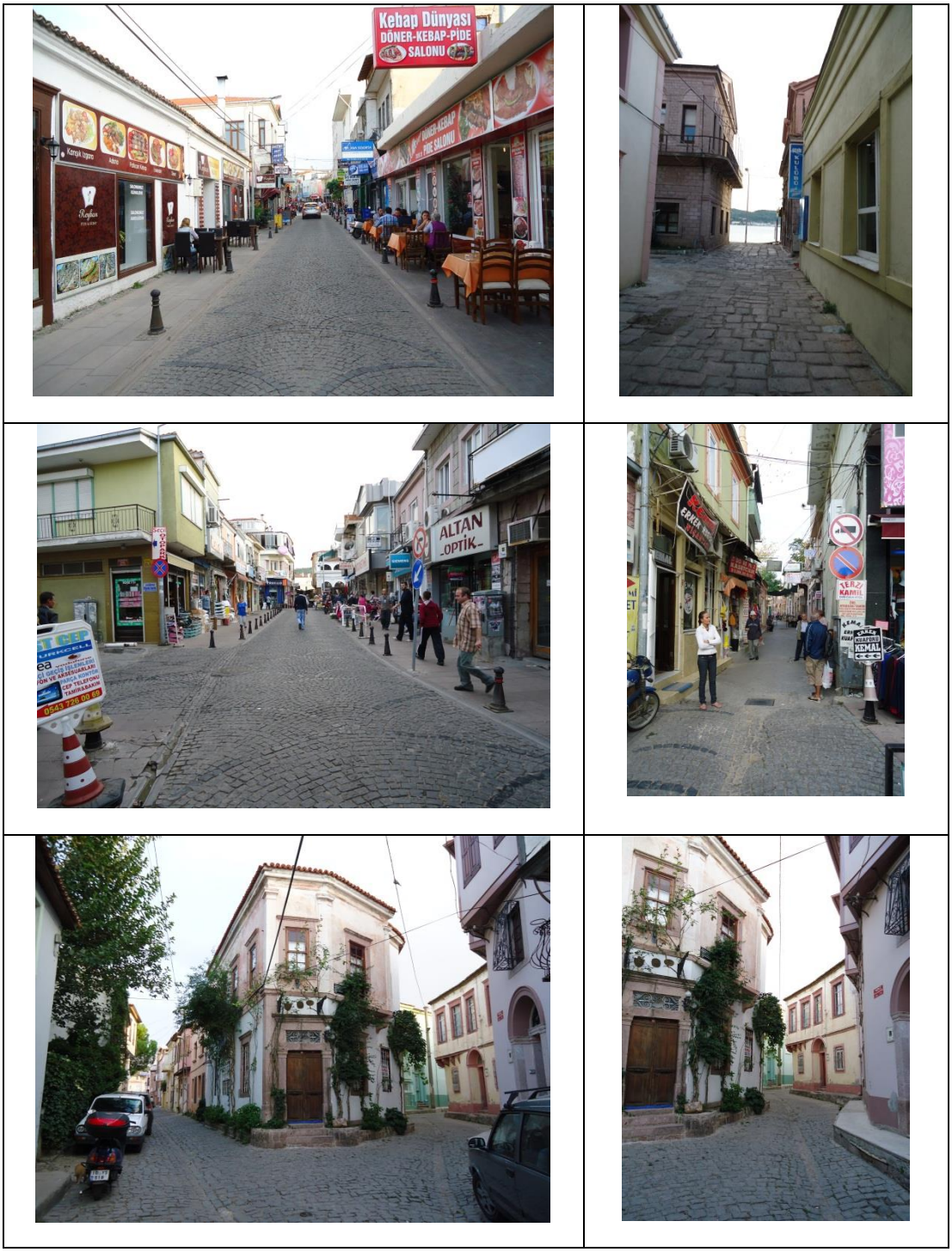


Figure 4. 40: Pedestrian roads within the historic conservation sites of Ayvalık (Author's photos, 2012)

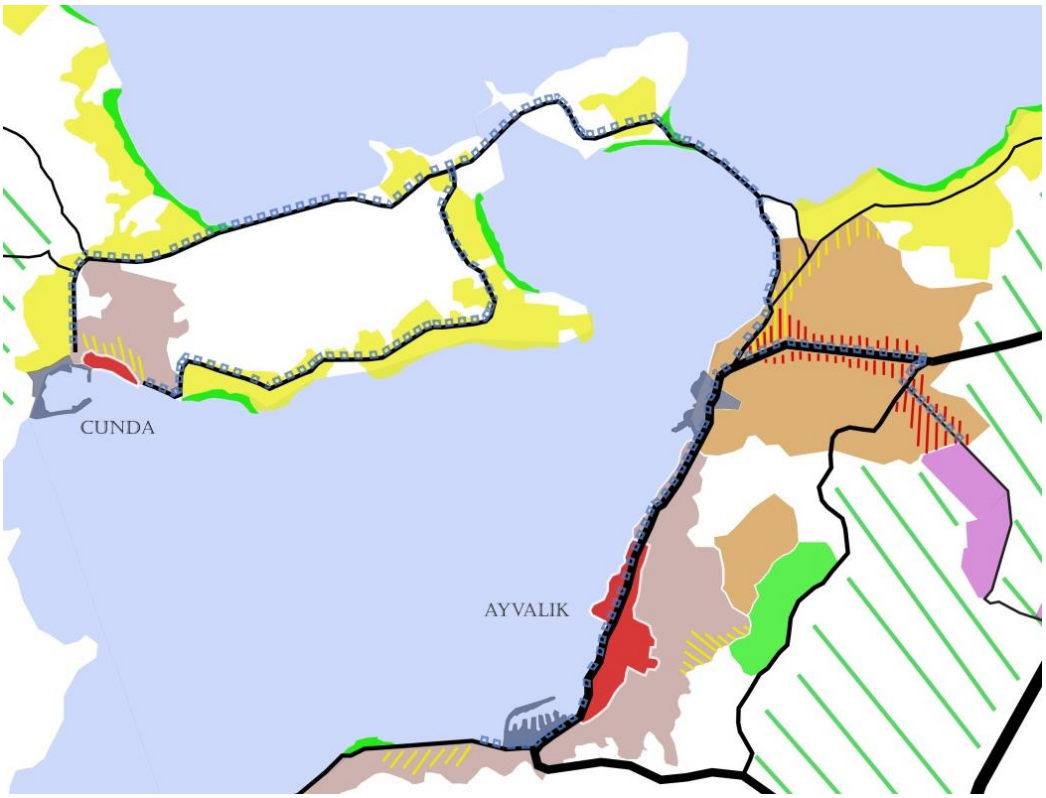


Figure 4.41: Public transportation network (drawn by Author)

The historical center of Cunda also comprises the second homes which provide the dwellers various amenities within walking distance. Walkable and pedestrian-friendly urban pattern of Cunda enables its residents to reach commercial and recreational activities in the shore by walking on the streets perpendicular to the seaside (**Figures 4.43 and 4.44**). There are public transportation stops and car-parking lots on the both sides of the coastal promenade which enable the dwellers of the remote second homes and tourists to easily access the historic center of Cunda. Taxiarhis Church is an important landmark of the settlement at the end of Namık Kemal Street. Pedestrian circulation network is laid out between coastal promenade and the streets connected to it. **Figure 4.42** shows pedestrian networks of Cunda with important focal points, bus stops and car-parking lots of the historical center.

Figure 4.42: Pedestrian networks of the historical city center of Cunda (drawn by Author)

Figure 4.43: Pedestrian roads of the historical urban conservation site of Cunda (Author's photos, 2012)

Figure 4.44: Pedestrian roads of the historical urban conservation site of Cunda (Author's photos, 2012)

Figure 4.45 shows the two main pedestrian networks of Sarımsaklı. The main pedestrian circulation occurs between them (**Figure 4.46**). The pedestrian road between Üçyol and PTT Squares and the pedestrian way throughout the beach are used by second-home dwellers and tourists especially in high season period. Sarımsaklı Beach is the most attractive open space that brings vacationers together. Private car usage is high according to Cunda and Ayvalık, since Sarımsaklı comprises mostly second homes and hotels. During off-season periods, most commercial activities on the coastal road are closed because of vacant second homes.

Figure 4.45: Pedestrian networks of Sarımsaklı (drawn by Author)

Figure 4.46: Main pedestrian roads of Sarımsaklı (Author's photos, 2012)

CHAPTER 5

CONCLUSION

5.1 Overview of the research

Academic studies on second-home development go back to the 1930s. In the 1970s and the 1980s, academic studies were mainly interested in the phenomenon of second home development spreading especially in the UK, Scandinavia and Canada. After the 1990s, academic research on this subject have significantly increased due to the rapidly expansion of second home development throughout the world. Increasing national, international, inter-regional, seasonal and retirement migration are seen as a driving factor of this. These migration form types have aroused researchers' interest on sustainability of second home development, as well.

Especially after the 1980s, there has been an increasing demand on second-home tourism in the coastal resorts of Turkey due to increasing personal mobility, car ownership and accessibility to rural areas, and escaping from urban life. Besides, fascination of rural environments, low cost of living and accommodation for holiday, considering second homes as investments and as future permanent homes after retirements, good climate conditions and less stressful way of life in such coastal towns attract domestic and foreign tourists to buy second homes in amenity rich coastal areas of Turkey. Despite these high demands on the second-home developments which have subsequently led to second-home invasion, there are several deficiencies, such as the lack of coordination between institutions, ignoring rural planning, contradictions between smaller and larger planning scales and neglecting integrated planning approach are the basic reasons that have brought about unsustainable urban and rural developments along Mediterranean and Aegean coasts of Turkey.

This thesis aims to analyze how far the second-home development in Turkey has generated sustainable or unsustainable urban forms in the coastal towns. Using Ayvalık as a case study, it seeks to investigate the effects of second home developments on macro and micro structure of the area. To this end, the thesis has defined sustainable urban form measures based on literature review of urban sustainability, planning and design. The literature on these issues is extremely large and there are a lot of debates on these measures. Nevertheless, this research has found out two levels of criteria: ***Macro structure measures*** which are *mobility* and *access to services and facilities within walking/cycling distance* or *easy access by public transportation* are used as the criteria for sustainable urban form and **micro structure measures** which are *density, mixed land-use, diversity, accessibility, sustainable transportation, conservation of historical, natural and local assets*, and *availability of open spaces*. Ayvalık and its vicinity (i.e., Cunda, Armutçuk and Sarımsaklı) are analyzed based on these sustainable urban form measures. The research has used all kinds of written documents, direct observation, informal interviews with professionals in the local authority and locals, and spatial analyses represented as visual maps as the sources of evidences.

5.2. Research findings

Ayvalık is an important coastal resort situated on the north-western Aegean coast of Turkey. Although it is currently known as a second-home coastal town, it also has an historical Greek town identity with olive oil industry. After the 1980s, second home invasion has affected Ayvalık coasts, like many other coastal towns of Turkey. Unlike other coastal resorts, however, Ayvalık constitutes a variety of urban activities and land use functions within its border. Before tourism activities started to operate, Ayvalık was an industrial town with an olive-oil production industry. In addition, it is an old Greek settlement established in the 1400s -1500s. Although the original inhabitants of the town were Greeks, the social and physical structures of the town were affected by compulsory population exchange between Greeks and Turks. Currently, Turks are the dominant group within the population of Ayvalık. Having

historical background and high amenity landscape, Ayvalık also is an important coastal settlement. When the land use pattern of the town is examines, it is possible to find out Ayvalık region with its own architectural heritage buildings, natural and historical urban sites, Natural Park, residential and industrial areas, tourism activities and second homes along its coasts.

After the 1970s, second-home housing cooperatives were established in Ayvalık and Cunda coasts. After the designation of these areas as the conservation sites, these cooperatives were stopped in Cunda, while the second-home cooperatives developed the northern coasts of Ayvalık (i.e., Armutçuk). After the 1980s, following the development and operation of public institution camps in Sarımsaklı, the second-home started to be developed in Sarımsaklı as a linear form along the coastline. The large-scale environmental plan defined the second home development areas in terms of building conditions. Additionally, some historic buildings in Ayvalık and Cunda within the historical urban conservation sites have been used as second homes. Armutçuk and Cunda Island comprise mainly low-density second-home housing estates whereas Sarımsaklı includes medium-density urban form which is made up of mainly second-homes apartment buildings.

Architectural types of purpose built second homes in Armutçuk and Cunda are not compatible with vernacular architecture houses of Ayvalık region. Therefore visual quality of urban silhouette of Ayvalık and Cunda historical centers are damaged by incompatible architectural types of second homes. Sarımsaklı also has unattractive and monotonous urban silhouette with similar types of apartment buildings along the coast. The historical urban pattern of Ayvalık and Cunda can be protected by the designation of some areas as conservation sites. But, new residential and second home areas are not suitable with the existing historical pattern. The physical reflection of old and new urban pattern forms of Ayvalık region can be easily understood since second home and new residential areas do not comply with historical pattern of Ayvalık.

In the 1700s, Ayvalık and Cunda settlements had compact forms developing around the ports compatible with industrial identity of Ayvalık region. There was no settlement in Sarımsaklı at that time. Today, Ayvalık has a linear form growing towards the north coast with the effect of second home developments. But this linear form was only created by second home housing estates without any urban facilities along the north coast of Ayvalık. This development form does not constitute a sustainable urban form, because the sustainable linear form develops along a transportation route and it is comprised of a good range of mixed uses, high and low density housing units around transportation nodes to enable equal access to urban facilities.

Ayvalık and its surroundings macroform comprise of the overlap of the linear forms which is called ‘polycentric net’ model or ‘regional city’ model. To remind the characteristics of this model, this form has a wide range of different densities with intensive cores at the transport network junctions. This model offers a variety of different housing forms, a large choice of access to services and open lands and a large range of transport means. Although Ayvalık and its surroundings show a similar form of polycentric net, there are some similarities and differences between the Ayvalık case and the characteristics of this model. Firstly, Ayvalık and its surroundings offer the residential quarters with different densities, although it is not possible to see that each residential quarter has an intensive core at the transport network junctions. These intensive cores at the transport junctions are developed only in Ayvalık, Cunda and Sarımsaklı. At the macro scale, it is not possible to argue that the current urban form in Ayvalık and its surroundings offers and improves equity, variety and choices by having different types of centers, activities, housing forms, open spaces and transportation choices. The transportation is largely dependent on private car use, buses and minibuses. Although second home developments have increased the variety of housing forms, they are highly affordable for middle- and upper-middle income groups. The local inhabitants with low income have not benefited from this increasing variety of houses. On the other hand, the urban development in Ayvalık and its surroundings have expanded on the agricultural lands and urban, natural and historic conservation sites. Therefore, from the macro structure, although the urban form of Ayvalık seems polycentric net and this is widely appreciated in the literature as a sustainable urban form, this cannot be truly told for the case of Ayvalık and its surroundings.

Ayvalık's linear form, however, does not possess these characteristics to achieve sustainability. Especially second-home developments along Armutçuk region create vacant and unoccupied built environments in off-season periods and cannot be a part of Ayvalık for the majority of the year. Besides, in high season period, Armutçuk only serves for accommodation and recreation facilities of second home owners. Linear form of Ayvalık does not create integrity within itself. On the other hand, historical urban site of the Ayvalık constitutes a sustainable urban form by offering mixed land use, walkable and pedestrian friendly city center, vernacular architecture homes, historical heritage buildings, open spaces and commercial activities within walking distance to residences. New residential areas and second homes of Ayvalık have never been a part of this sustainable urban form. Similarly, Cunda's historical urban site constitutes sustainability in its local scale with commercial activities and walkable pedestrian networks between vernacular architecture homes and historical heritage buildings. Except historical urban site, Cunda Island is filled with second home invasion along its coast. As a whole, Cunda constitutes a dispersed urbanization due to second-home developments along the shore. This creates an unsustainable urban form due to unemployed housing stocks in off season period as in Armutçuk. Linear form of Sarımsaklı only serves for accommodation and recreation activities of second home owners and tourists in high season period. Out of high season period, dead built environment was created by unemployed housing stocks. Therefore, Sarımsaklı is an unsustainable settlement considering sustainable urban form criteria.

Density is an important component of sustainable urban form in order to maintain walkable, pedestrian friendly access to urban facilities. Ayvalık and Cunda's historical commercial centers are protected by the designation decisions of these areas as urban conservation sites. This low-density urban pattern is also protected by the pedestrian-friendly urban structure. The research found that converted second homes in historical urban conservation sites provide much more sustainable developments than purpose built second homes which are located around these conservation sites. This form of second homes contributes to protection of the local culture without opening new lands for second homes and revives the social and economic development of region. In contrast, low-density purpose-built second home developments around Cunda and Armutçuk serve only accommodation needs of second home owners without being a part of Ayvalık. These low density forms lead to the occupation of valuable agricultural lands in high amenity rich landscapes for seasonal holiday purposes. Consuming valuable lands for seasonal recreational purposes cannot create a sustainable urban form and a sustainable development pattern. In addition, this form generates urban sprawl along coastal lands of Cunda and Armutçuk. On the other hand, Sarımsaklı has multi-storey second home developments along the coast. Although a substantial building density is recommended to achieve a sustainable urban form, the use of this medium-density settlement only for vacation and recreational purposes for a few months a year creates unsustainable city form. But this type of buildings has provided Sarımsaklı with the opportunity to develop on a much more compact form than the alternative of developing a sea of two-storey villas which would occupy much more lands. In this sense, the case of Sarımsaklı provides us a much more sustainable urban form than the case of Armutçuk or the second-home areas along Cunda coasts.

Mixed land use is an essential part of sustainable urban form which combine different land-use functions, such as residential, institutional, commercial, industrial uses. When Cunda, Ayvalık and Sarımsaklı are examined in terms of mixed land use, Ayvalık is the most prominent settlement by having residential, institutional, commercial, industrial and service functions. As Cunda and Sarımsaklı are small in size, they are dependent on Ayvalık in terms of the use of urban services and facilities. The prominent land use functions in Cunda and Sarımsaklı are tourism activities (eg., second homes, hotels, pensions) and tourism-oriented commercial activities (eg., restaurants, cafés). Therefore, tourism activities become prominent in these settlements. They do not comprise mixed land use activities as much as Ayvalık has.

Diversity is another component of sustainable urban form, differing from mixed land use by dealing with housing types and architectural styles. There are different housing types in Ayvalık region. Especially in the historical urban conservation sites of Ayvalık and Cunda, there are old Greek houses that can be used as either residential home or second home by dwellers. In the historical urban conservation sites, the old vernacular architectural pattern is protected. Therefore, there is a harmony within these protected urban lands. Architectural types of new residential areas and second-home areas of Ayvalık region (Armutçuk, Cunda and Sarımsaklı) are not comply with those of historical houses. Two-storey single houses or multi-storey apartments of these areas are not suitable with

historical pattern of Ayvalık. Therefore, the visual quality of the historical urban silhouette of Ayvalık is damaged by incompatible architectural types of second homes. On the other hand, the second home developments in Ayvalık, Cunda and Sarımsaklı also provide variety in terms of housing types, building density and architectural style to some extent. But, in many aspects, they offer unsustainable structure. The second home houses or flats are generally owned by middle income groups, which create a homogeneous social structure. They are mostly unused most of the time of the year. Except those in Sarımsaklı, the second home neighborhoods in Ayvalık and Cunda are mostly two-storey buildings with gardens and they provide low-density urban sites which create a significant urban sprawl within the whole region. Such low-density urban development creates car-dependent environment, rather than walking city.

Sustainable transportation and accessibility of urban facilities are the measures which constitute the backbone of sustainable urban forms. They can be achieved by designing walkable, pedestrian friendly cities that locate urban services close to each other within easy access by public transportation. The historical urban conservation sites in Ayvalık and Cunda constitute considerably walkable and pedestrian-friendly patterns that enable residents to reach commercial and recreational activities by walking. The historic cores are laid out on a distorted grid pattern which provides a higher connectivity, thereby accessibility. And many public amenities and services are within the walking distance. There are also historic buildings used as second homes in the historical urban conservation sites. Thus, the users of these houses are able to reach urban facilities easily complying with sustainable transportation. There are also public transportation stops and parking lots in Cunda and Ayvalık city centers which enable remote second home owners to easily access urban facilities and open spaces of centers. Outside these historical urban conservation sites, in the second home areas (especially in Armutçuk and Sarımsaklı), private car usage is dominant because characteristics of urban patterns of these areas do not provide an accessible urban form. On the other hand, increasing accessibility of amenity rich landscapes of the Ayvalık region has led to second home invasion along the coasts. Increasing accessibility of these areas has brought about the rising construction pressure on amenity rich landscapes, protected lands, countryside and natural environment.

Ayvalık and Cunda are the historical settlements, that are rich in architectural heritage stocks to be protected. Throughout the coasts, Ayvalık region has a unique natural environment. Thanks to the designation decisions of conservation sites the historical, natural and local artefacts and values of Ayvalık have been managed to be protected. The conservation of these historic, natural and cultural heritage artefacts and values will not only help to maintain local characteristics of the region, but also to highlight its uniqueness. Local characteristics of Ayvalık and Cunda have been protected so far. However, the second-home developments around Cunda, Sarımsaklı and Armutçuk are not suitable with local urban pattern of the region. Therefore such developments have damaged the local characteristics of Ayvalık region as a whole.

All in all, second home developments along the coasts of Ayvalık and its surroundings affect the macro-structure of the region without being a part of local identity. This type of development cannot be a part of a sustainable urban form. In micro-structure of the region, second-home developments also affect social, economic and environmental aspects of the micro-structure components of the region. Converted second-home developments in historical urban sites are more sustainable than purpose-built second homes around coasts because converted second homes protect historical and local identity of Ayvalık and enhance the sustainability criteria.

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