

VISUAL EFFECTS OF STRUCTURING ON COASTAL LANDSCAPE: EVALUATION FROM ÇANAKKALE-GÜZELYALI CASE

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Abstract

Unregulated coastal development disrupts the ecological equilibrium, yielding a host of adverse consequences that are evident both visually and physically. The natural coastal structure's deterioration leads to damage to beaches, vegetation, and the overall landscape. Beyond impacting coastal tourism, this situation fosters negative ecological effects, with pollutants like waste, sewage, and chemicals from constructions contaminating sea water and groundwater. The uncontrolled construction also compromises the natural coastal structure, imperiling marine habitats. Despite coastal areas being hubs for recreation, unrestricted construction, failing to align with natural and cultural landscape values, subjects these regions to detrimental physical and visual repercussions. An example of this dynamic unfolds in Güzelyalı district, situated 15 km from Çanakkale Province, renowned for its tourism and recreational potential. This study assesses the visual impact of construction along the Güzelyalı coastline and proposes remedies to enhance building facades.

Keywords: Coastal Areas, Uncontrolled Construction, Çanakkale, Güzelyalı

YAPILAŞMANIN GÖRSEL YÖNDEN KIYI PEYZAJINA ETKİSİ: ÇANAKKALE-GÜZELYALI ÖRNEĞİNDEN DEĞERLENDİRME

Özet

Kıyı alanlarında kontrolsüz yapılaşma, doğal dengeyi bozarak birçok olumsuz etkiye sebep olmaktadır. Bu olumsuz etkiler hem görsel hem de fiziksel açıdan kendini göstermektedir. Kıyıların doğal yapısının bozulmasıyla birlikte, kumsalların, doğal bitki örtüsünün ve doğal manzaranın zarar gördüğü söylenebilir. Bu durum kıyı turizmini etkilemekle beraber birçok olumsuz doğa etkilerini de beraberinde getirmektedir. Yapıların atıkları, kanalizasyonları ve kimyasal maddeler, deniz suyu ve yer altı sularının kirlenmesine neden olmaktadır. Aynı zamanda kontrolsüz yapılaşma, kıyıların doğal yapısının bozulmasına ve deniz canlılarının yaşam alanlarını tehdit ettiği söylenebilir. Kıyı alanları, birçok rekreasyonel faaliyete olanak sağlar; ancak doğal ve kültürel peyzaj değerlerine uygun olmayan kontrolsüz yapılaşma sonucunda fiziksel ve görsel açıdan olumsuz etkilere maruz kalır. Güzelyalı ilçesi, Çanakkale İli'ne 15 km uzaklıkta bulunan ve turizm ile rekreasyonel aktiviteler açısından ilgi çekici bir bölgedir. Bu çalışmada, Güzelyalı kıyı şeridindeki yapılaşmanın kıyı üzerindeki görsel etkileri incelenmiş ve yapı cephelerine yönelik çözüm önerileri sunulmuştur.

Anahtar Kelimeler: Kıyı Alanları, Kontrolsüz Yapılaşma, Çanakkale, Güzelyalı

1. INTRODUCTION

Coastal regions have been the preferred and strategically important settlement areas of great civilizations from past to present. These regions are rich in various resources such as agricultural areas, maritime transport and transport, water resources, sand and gravel deposits, filling areas gained from the sea, oil and natural gas reserves, seafood. These resources have made significant contributions to the economic and social development of the society and coastal regions have assumed more prioritized and strategic roles than other areas in terms of the general development of the country (Sesli, 2006). For this reason, coasts are a part of natural resources that should be carefully protected and used for appropriate purposes in the most efficient way.

Coastal areas can be defined as areas where land and water meet, and this combination creates an important value of its own, beyond the values they carry separately. Coasts, as natural resources, allow various uses for all living things. These uses include settlements, transportation routes, commercial centres, industrial facilities, agricultural areas, waste disposal, raw material supply, defence areas, recreation and tourism places, health facilities, energy production, fishing, and sports activities (Öztan, 1976). However, some of the previous uses have reached such dangerous dimensions that they disrupt the natural characteristics and ecological balance of the coasts.

The importance of coasts has increased due to the living opportunities they provide and the favourable location for economic and cultural functions such as transport and trade. Especially in recent years, coasts have become preferred areas for tourism and recreation activities and this situation has negatively affected coastal aesthetics and visual quality. With the increase in housing investments in coastal areas, coastal areas have gained an urban appearance. Coasts have gained importance in terms of landscape features such as colour, scale and texture that create emotional effects on people. During the physical planning of the coasts, coastal identity and culture should be emphasized with design decisions that provide a balance between the needs of the society and the natural potential, and integrity in the settlement should be ensured (Ateş & Koçan, 2011).

In this study, the visual effects of the construction on the landscape in Güzelyalı coastal area were examined. In this context, determinations were made on the current situation and problems, the coastal area was visually evaluated, and suggestions were presented.

1.1. Effects of Coastal Structuring on Visual Aesthetics and Natural Landscape

Buildings are generally expressed in detail scale with their mass and surfaces, which are perceived from the outside, as well as their features such as form, colour, texture, and material. Especially in residential areas, the harmonious combination of architectural masses is considered one of the most important elements affecting the visual quality of the city by softening hard lines and uncontrolled views.

In many buildings in coastal settlements, the use of architectural and outdoor elements is related to people's expectations and commercial concerns (Beyhan & Ünügür, 2006). However, ignoring the natural and cultural landscape values and not evaluating the environment in a holistic manner while creating settlements leads to serious losses in the physical and visual structure of the environment (Arapkirlioğlu, 1997). To benefit from the sea visually and to obtain a more impressive view, buildings are positioned parallel to the sea. However, with the effect of factors such as sea humidity, sun and wind, their appearance may deteriorate and deterioration may occur, which reduces the visual quality of the coasts.

However, social, cultural, and economic changes occurring in the tourism sector affect the environmental character of touristic developing regions (URL, 2007). Tourists prefer natural and peaceful areas where there is little construction, where concrete structures are not dominant.

In coastal areas, uses exceeding the carrying capacity and wrong constructions cause visual problems by negatively affecting the natural appearance of coastal areas, the unique character and aesthetics of the settlement (Beyhan & Ünügür, 2006).

Rapid and unplanned construction, uncontrolled growth and irregular settlement cannot be prevented in coastal areas (Önal & Nuray, 1997). Factors that cause visual pollution in coastal areas include monotonous and dense construction, buildings with similar appearance, complexity in facades, colour incompatibility, wrong material choices, ignoring the local architectural understanding, mostly multi-storey or large land-consuming residences and decreasing green areas. When these factors come together, they cause the natural landscape to

be negatively affected and visual pollution to occur (İnceoğlu, 1997). The perception of the built environment fulfils an important function in improving environmental quality.

1.2. Environmental Impacts of Legal and Administrative Decisions in Coastal Settlements

The legal and administrative decisions affecting the physical formation of the coasts of our country have been taken in the wrong way and this situation has led to the coastal areas to be surrounded by housing. The rapid enactment of coastal laws after the 1980s and the introduction of partial restrictions on the construction of coastal housing can be considered as a positive development. However, problems arising in the implementation of these laws, contradictions, and reasons such as the inability to fully implement the existing laws have led to an increase in the number of houses on the coasts in a way to damage the environment (Arapkirlioğlu, 1997). Especially after the 1980s, coastal tourism has been encouraged in our country and in this process, many coastal areas have faced various problems such as construction, depletion of natural resources and visual pollution (İnceoğlu, 1997).

The first coastal law was put into force in 1984 to protect the coasts, but it was cancelled in 1986 on the grounds that it was contrary to the principle of public interest. Following this process, a new coastal law, Law No. 3621, entered into force only on 04.04.1990 and with this law, the coastline was determined as "100 metres" wide. Therefore, it is accepted that the constructions will start after the 100-metre limit. For this reason, it is accepted that the constructions will start after the 100-metre limit. However, since the first real coastal dwellings started to be seen in the 1950s, until the 1990s, dwellings took their place in coastal areas without any distance limitation. In this case, the principle of Article 43 of the 1982 Constitution, which states that "the public interest shall be taken into consideration in utilizing the coasts of seas, lakes and rivers and the coastlines surrounding the coasts of seas and lakes", has changed to "coasts are restricted to the extent of the use of housing owners" (İnceoğlu, 1997).

The Coastal Law No. 3621 published in the "Resmi Gazete" No. 20495 dated 17.04.1990 and the "Implementing Regulation" published in the "Resmi Gazete" No. 20594 dated 03.08.1990 on the implementation of this law aim to protect the coasts of the sea, natural and artificial lakes and rivers and the coastlines that are under the influence of these regions and their continuation in accordance with their natural and cultural characteristics. These regulations also aim to utilize these areas for the benefit of society. This Law and the By-Laws contain the regulations for the coasts of the sea, natural and artificial lakes and rivers and the coastlines surrounding the sea and lakes, the principles of use in accordance with the public interest, the possibilities, and conditions of utilizing these areas for the public interest. This law is an important step that aims to provide a clear and precise definition of coastal zones, to determine the methods and protection tools for the utilization of these zones and to set the limits for physical changes to be made in coastal zones (Eke, 1995).

2. MATERIAL AND METHOD

Güzelyalı Town of Çanakkale Province in the Marmara Region was determined as the study area (Figure 1). The main aim of this study is to determine the degraded appearance of the coast caused by the construction in Güzelyalı region and to offer solutions by identifying the factors causing visual pollution. The buildings on the coast of Güzelyalı were used as research material. For the examination of this material, aerial photographs obtained from the research area and satellite photographs obtained from the "Google Earth" program were used.

Kalın (2004), classified the quality attributes compiled in his study on the Trabzon coastline and reduced them into basic quality groups as naturalness, continuity, perceptibility, novelty-mysticism, complexity-diversity, consistency and meaningfulness.

In this study, previous studies were reviewed, and theoretical information and data related to the research area were collected. Aerial photographs were taken from the research area and various determinations were made based on these photographs. As a result of the observations made in the study area, problems were identified and suggestions for solving the problems were developed according to the principles of naturalness and consistency based on general theoretical knowledge.



Figure 1. General View of Güzelyalı (Original, 2023)

3. FINDINGS

3.1. Natural and Cultural Landscape Characteristics of the Research Area

3.1.1. Natural environment characteristics

Surrounded by Edirne, Tekirdağ and Balıkesir provinces, Çanakkale province is located on the European and Asian continents. Gökçeada, Bozcaada and Tavşan Islands, which are the largest islands of Turkey in the Aegean Sea, are also located within the borders of Çanakkale province (Figure 2). The province has a large area between 25°40'-27°30' east longitude and 39°27'-40°45' north latitude and covers a total area of 9,933 km². A large part of Çanakkale province is in the South Marmara section of the Marmara Region, while a small area is located on the coast of the Gulf of Edremit in the Aegean Region. Within the borders of the province are Cape Baba, the westernmost point of the Anatolian Peninsula, and Cape Avlaka in Gökçeada, the westernmost point of Turkey. The total coastal length of the province is 671 km (KTB, 2023).



Figure 2. Location of Çanakkale Province in Turkey and Güzelyalı Town (Modified from Google Earth)

The climate of Çanakkale Province exhibits transitional climate characteristics due to its geographical location (Figure 3). It generally reflects the characteristics of Mediterranean climate. However, the average temperature is lower in winter months due to the province's northern location. For example, the minimum temperature in February drops to -4.2°C , while the maximum temperature in August can reach $+35.8^{\circ}\text{C}$. The average annual temperature of the province is 14.7°C and the average humidity is 72.6%. Another important feature that distinguishes the province from other provinces in the neighbourhood is that it contains a large part of the windy days. The annual prevailing winds generally blow from the north and the most common wind types are winds such as winds of the north-easter, star, lodos and Kibla winds. The average annual rainfall varies between 662.8 m3 and 854.9 m3. Especially in the summer months, the amount of precipitation is quite low. The months with the highest precipitation are December, January, and February. The maximum number of days covered with snow was determined as 8 days (KTB, 2023).

3.1.2. Cultural Environment Characteristics

The population of Çanakkale was announced by TÜİK as 535,358 for the year 2023 (TÜİK, 2023). The centre of Çanakkale province has the largest population (184,184), while Bozcaada has the smallest population (3,052). The population change graph between 2013 and 2023 is presented in Figure 3.

Yıllara Göre Çanakkale İli Nüfusları, 2013-2023
Population of Canakkale Province by Years

İl-Province	Yıllar-Years										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Toplam-Total	76 481 847	77 323 892	78 151 750	78 965 645	79 766 012	80 551 266	81 321 569	82 076 788	82 816 250	83 540 076	84 247 088
Çanakkale	497 888	501 987	505 955	509 834	513 663	517 433	521 149	524 804	528 405	531 927	535 358

TÜİK, Nüfus Projeksiyonları, 2013-2075
TurkStat, Population Projections, 2013-2075

Figure 3. Population of Canakkale Province by Years (Türkiye İstatistik Kurumu (TÜİK, 2023))

The population in Çanakkale city centre has a high level of education and this is evidenced by the presence of all public institutions and organizations. The city administration reflects its level of development by providing opportunities for artistic education.

The economy of Çanakkale is based on agriculture. The industrial sector is developing slowly. Tourism, fishing, and forestry increase their importance in the economy. The manufacturing industry sector is also developing. Fishing, grape production and ceramic production are among the prominent activities in the region.

In Çanakkale province, there are 6 Tourism Centres with thermal, nature and coastal themes and a coastal themed Culture and Tourism Protection and Development Zone. A survey of protected areas revealed that there is only one protected area in the city centre. This area is called Sarıçay (Figure 4).



Figure 4. Sarıçay General View (Anonymous, 2023)

In recent years, the intense interest in the Güzelyalı region has caused it to be evaluated as a region for tourism-oriented investments. This situation leads to the continuation of the second housing construction on the coast to a great extent and the population of the region increases exponentially in the summer months. However, with the onset of uncontrolled construction since the 1980s, the region has entered a development process that is not suitable for natural and cultural environmental values, lacks technical infrastructure and has no identity. This situation causes deterioration of the character of the coast and adversely affects the natural and cultural landscape of the settlement area.

On the coastline, buildings built in different architectural styles and not bearing the characteristics of local architecture are clearly observed. In this case, the protection of the natural image and architectural character of the settlement area is neglected (Kılıçaslan, 2006). Existing buildings cannot provide a unity in structural and functional features created for the requirements, and this situation negatively affects the visual quality. Significant differences are observed between the material types, colours, storey heights, roof and eaves forms, plan, and facade types such as terraces and balconies (Beyhan and Ünügür, 2006). In addition, different types of use such as accommodation, food and beverage, entertainment and recreation are observed among the commercial spaces on the coast. These commercial spaces include elements that affect the visual quality with advertisement boards and reinforcement elements that are used incompatible with the environment and each other. The buildings in Güzelyalı are generally 2 or 3 storeys and there are different storey heights between the limited buildings located close to each other. This difference creates a duality in visual perception and city silhouette.

Factors such as the fragmentation of building islands and strip growth along the coast lead to the fragmentation of space and overuse of land, creating visual pollution (Kılıçaslan, 2006). The buildings in the coastal settlement of Güzelyalı spend approximately eight months of the year empty. This situation causes unnecessary filling of the coast with buildings and damages the natural environment.

3.2. Problems Encountered in the Study Area

3.2.1. Problems caused by exterior paints of buildings

In addition to the physical characteristics of the building and equipment elements in the settlement areas, the colours of the building and equipment elements forming a harmonious whole together give identity to a settlement area. The fact that the buildings and equipment in the same line are in harmony provides an aesthetic appearance. When the colour element is not considered holistically, colour distortions called visual pollution occur (Önder & Konaklı, 1997).

It is observed that the exterior paints of the buildings in Güzelyalı are not selected in accordance with a certain order and standard, the worn-out buildings are not repaired, and their colours are incompatible with each other. While only a few buildings have exterior cladding, other buildings have incompatible colours and worn-out facade paints, creating a bad appearance. This situation has a negative impact on visual quality by disrupting the city silhouette (Figure 5).



Figure 5. General Facade Views (Original. 2023)

3.2.2. Problems caused by incompatible material selection

As a result of the examination of the research area, it has been observed that disproportionate, incompatible window and door joinery are used in many buildings to benefit more from the view. This disproportionate situation disrupts the overall harmony and affects the visual quality negatively by affecting the space-occupancy ratio. Likewise, balconies covered with different materials and colours to obtain more closed and shaded areas disrupt the mass to space ratio of the buildings, creating an incompatible shading element and negatively affecting the appearance (Figure 6). In addition, the irregular use of elements such as garden walls and railings can also create a negative appearance (Figure 7).



Figure 6. Facade Views (Original. 2023)



Figure 7. Coastal View (Original. 2023)

3.2.3. Problems caused by inadequate beach and coastal organisation

Beach and coastal landscaping are an important issue for the protection and sustainable use of coastal areas. Natural beaches and the coastal environment represent both an important habitat for the ecosystem and a valuable resource for tourism and recreation. Therefore, beach and coastal regulation is necessary to preserve the natural beauty of coastal areas and at the same time to ensure that people can safely enjoy these areas.

In the study area, it has been determined that there are no arrangement where recreational activities can be carried out in a way to cover the integrity of the coastline. It has been determined that the piers in some parts of the coastline are worn out and create a bad appearance (Figure 8).



Figure 8. Coastline View (Original, 2023)

4. CONCLUSION

Coastal areas cause serious losses in the following processes since natural and cultural resources cannot be used in a balanced manner due to incomplete laws and wrong practices. Coastal planning and design are necessary for the effective management of coastal areas. Decisions such as protecting resources and evaluating potential utilization options in coastal areas require the interrelation of landscape elements with environmental and visual impact assessments. For this purpose, public awareness and the establishment of an effective control system are important.

For the buildings on the coastline of Güzelyalı to gain diversity and new identity, changes in form and design approaches are required. In this context, the buildings were analyzed in detail. Visual problems were identified among the analyzed buildings and solution proposals were presented.

To mitigate the adverse effects of buildings on the coastline of Güzelyalı we provide some suggestions given below;

- It is recommended to prefer white or light tones close to white as exterior paint or exterior cladding of buildings to create integrity.
- It is recommended that window and door joinery should be of appropriate size, compatible with each other and selected from appropriate materials.
- It is recommended that incompatible and worn-out advertisement boards be removed from these areas.
- It is recommended to repair the worn-out piers on the coastline.
- It is recommended that recreational areas, which in small numbers in some parts of the coastline, be placed along the entire coastline to create integrity and to enable recreational activities to be carried out.
- It is recommended to remove the worn-out structures and equipment that spoil the silhouette on the coastline. Green business parks provide significant environmental, social, and economic benefits.

ACKNOWLEDGEMENTS AND INFORMATION

The article complies with national and international research and publication ethics.

Ethics Committee approval was not required for the study.

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