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## Analysis of transect theory in Kyrenia West Coast settlement dynamics

### Girne Batı Kıyısı Yerleşim Dinamiklerinde Transekt Teorisinin Analizi

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#### Abstract

Besides Nicosia, there are four main settlements in North Cyprus: Kyrenia, Famagusta, Trikomo and Morphou. Kyrenia is one of the most important ones preferred by local and foreign people to live because of its social, environmental and economic values. In this direction, the city has experienced development spread towards the center perimeters to suburban and rural areas with increasing population. Thus, the ecological and socio-cultural sustainability values wear off. For protecting the socio-cultural and ecological values of the area and increase the level of sustainability approaches, an interference with systematic instruments from cities to rural areas is needed. Accordingly, the determination of the itinerary along with transect theory is important for the development of settlements. The data derived from the government planning organization and statistical data from the Cyprus Turkish Building Contractors Association (CTBCA) between 2004-2011-2016. The method is determined by SWOT analysis and the comparative analysis of the settlement dynamics of suburban and rural settlements towards the Kyrenia western-coastline.

**Keywords:** Transect theory, Urban- Suburban, Rural, Kyrenia western coastline, Sustainability.


#### Introduction

Urbanization has grown at an unparalleled rate during the previous few decades. The United Nations estimates that 55% of the world's population today resides in cities, and by the year 2050, that number will have nearly doubled to 70%. Urbanization has led to a number of issues, including rising social inequality, limited access to public an amenity, and a general disdain for environmental factors, which collectively

#### Özet

Kuzey Kıbrıs'ta Lefkoşa'nın yanı sıra dört ana yerleşim yeri bulunmaktadır: Girne, Gazimağusa, Trikomo ve Güzelyurt. Girne sosyal, çevresel ve ekonomik değerlerinden dolayı yerli ve yabancı insanların yaşamak için tercih ettiği en önemli ilçelerden biridir. Bu doğrultuda kentte artan nüfusla birlikte merkez çevrelere doğru banliyö ve kırsal alanlara yayılan bir gelişme yaşanmıştır. Böylece ekolojik ve sosyo-kültürel sürdürülebilirlik değerleri aşınıyor. Bölgenin sosyo-kültürel ve ekolojik değerlerinin korunması ve sürdürülebilirlik yaklaşımlarının düzeyinin artırılması için kentlerden kırsal alanlara kadar sistematik araçlarla müdahaleye ihtiyaç duyulmaktadır. Buna göre güzergahın kesit teorisi ile birlikte belirlenmesi, yerleşmelerin gelişimi açısından önemlidir. Veriler devlet planlama teşkilatından ve Kıbrıs Türk İnşaat Mütahhitleri Birliği'nden (CTBCA) 2004-2011-2016 yılları arasındaki istatistiki verilerden elde edilmiştir. Yöntem, SWOT analizi ve Girne batı kıyı şeridinde doğru banliyö ve kırsal yerleşimlerin yerleşim dinamiklerinin karşılaştırmalı analizi ile belirlenmektedir.

**Anahtar Kelimeler:** Transekt teorisi, Kent-Banliyö, Kırsal, Girne batı kıyı şeridi, Sürdürülebilirlik.

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contribute to the problem. Urbanization activities that have been accelerating since the Industrial Revolution are one of the main reasons for the environmental crisis that each region is facing currently as humankind. From this situation, both rural and urban habitats in a community get affected, and there is a lot of pressure on these habitats in terms of shrinking of the resources that nature has provided (Dubey & Narayanan, 2010). Therefore, it can be said that globalization and modernization trends that started in the last century bring serious environmental disasters in settlements (Asilsoy et al., 2017; Akansu & Gertik, 2018; Yildirim et al., 2020). After the Miami 21 codes has being utilized, the Urban Transect has been developed and implemented in a number of US cities, including Mississippi, Nashville, and Texas. The Urban Transect-based codes gained traction in the US and have since been adopted and modified for use in many contexts across the entire world (Sanders et al., 2016); (Hussein & Al-Jameel, 2023). The transect has been used more often in landscape architecture, mostly in Greek urban environments at micro spatial scales, moving beyond the multidimensional space of the rural landscape. Duany & Talen (2002); Vlami et al. (2023).

Socio-cultural continuity values “to respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles” (Ghilardi, (2001, pp. 61). relevant to both cultural diversity through the conservation and sustainable use of historical places including urban and architectural heritage.

Consideration about the conservation of architectural heritage instead of demolishing them has always been a worthy topic, and lately, this topic is investigated by means of both environmental, socio-cultural and economic points of view. Furthermore, the request for ecological sustainability in different fields is increasing, particularly in architectural conservation (Farjami, 2021). One of the most important of these disasters is the spread of cities towards suburbs and rural areas. Auclair and Fairclough (2015, p. 3) discuss the consistency of conservation and resilience themes with focus on cultural and social sustainability dimensions which should not be reflected as a separate pillar but as a vital part of sustainable development pillar named as socio-cultural pillar (Lebel et al., 2006), (Farjami, 2021).

As a result of expansion of urban settlements towards suburban and rural areas within the population growth, it has been observed that the ecological and socio-cultural values have disappeared in time. Therefore, Human population growth together with competitive land use causes land scarcity, conversion of wild lands to agriculture and other uses (Kanianska, 2016). While the suburbs competed with urban, they lost the necessary ecological values of rural areas, agricultural/pastoral landscapes and cultural interactions in traditional architecture. The topographic features and agricultural/ pasture landscapes that reflect the ecological diversity of the rural area are transformed into parcels in land qualification, and even take a new look by using serial production materials in factories instead of traditional materials which can serve an economical purpose in building and selling architecture. Yuan et al. (2019) conducted a study on the association between urban environment and how the higher density of the population can lead to environmental degradation. The results of the study suggested that noise pollution is a significant issue in urban areas, and as the population of these areas starts to expand, the rate of higher environmental risk increases. It is so because a higher population leads to congestion in terms of housing and traffic as well that eventually affects the overall environment (Mahmood et al., 2020).

In relation to that, this situation causes problems in the interaction of urban and rural settlements and causes the suburban and rural areas to act like cities. As it has been observed; with the disappearance of agricultural / pasture lands, agriculture and livestock are starting to decrease or even not to be done. This situation leads people, who live in rural areas, to turn towards different business areas. It causes difficulties in the ecological values of the region and in handing the environment down to the next generations. In this direction, the decrease or the disappearance of the climate and vegetation cover of the region causes the biological diversity (Hyderabad, 2009), which is important for the living experience to be negatively affected. Uncontrollable building dynamics (floor heights, building densities, uncontrolled development of green spaces and built-up areas). The problematic aspect of the work reveals the inadequacy of planning studies and the negative impact of the autonomous decisions on the parts of the land. The overcoming of this problem reveals the necessity of considering and evaluating the rural values of the urban areas. Therefore, as the findings of this research, the importance of ecological and environmental aspects in urban rural context has been considered by presenting the case study analysis in Kyrenia coastline.

## Literature Review

Ghilardi, L. (2001) Preserving the present needs without compromising the capacity of upcoming generations in order to encounter with their needs, this development became sustainable as discussed in the Conejos et al., 2011. In order to contribute to the development of rural areas together with urban areas but preserving their own values, a new urbanism movement emerged in America in the late 1980s and early 1990s. In this way, planning activities to be done are aimed to increase and support human relations, to offer neighboring units where social relations can be made more easily and permanently in the cities that are pushed to loneliness by becoming individualized in the modern world to define each other descriptively instead of separating living, working and entertainment areas (Onuc, 2002). Moreover, awareness of the need for urban planning policies and private entrepreneurship has been considered for different contexts and the Transect scheme, which is a system that aims to arrange all the elements of the built environment has been developed. (Ozidal, 2010).

The Transect scheme, which deals with urban-rural areas; reveals the edges which include the center, the general area, the rural and urban, with various urban densities in the different types of settlement and concepts (Bressi, 2002; Akansu & Karaman, 2023). Thus, the features and design characteristics of the lighting elements, building densities and uses, public spaces, sidewalks, intersections, parking spaces, green spaces and landscaping items will be taken for each series as well as transportation axes, facades, masses, street silhouettes. In addition, it is considered that all urban elements within the system are in a suitable location and continuity (Walters, 2007; Stueteville & Langdon 2003). In this regard, the urban-rural scales categorization structure offers settlement proposals that include natural open spaces from the urban core to the outside of the urban. Thus, the suburbanization that exists in the cities is important in decentralization and in the curing of the cities that grow unconsciously in the horizontal.

Worldwide, it has been observed that these studies have been done in mostly large square measure and densely populated settlements. Additionally, application of sustainability approaches on the urbanization identity have been investigated in minor scale. It also needs to be applied to settlements with a smaller surface area and population, such as Cyprus Island. Accordingly, the necessity of the method to be used within the scope of planning studies that can intervene with urban areas with more dynamic means to rural areas is important for the transfer of settlements to future generations and the formation of livable environments. This article has been conducted by analyzing approximately 1000 researches and studies retrieved from the Web of Science and local articles to achieve trends and patterns characterizing different decades.

Accordingly, this study claims to reveal the research question sourced from uncontrolled development of the building dynamics, densities, green area, and constructed area as a result of urban expansion that revealed due to structuring from urban areas towards rural areas in the small square measure island. Newly urbanizing areas on the edges of cities have not been researched very much but this study tries to understand what is happening there as it tends to result in quite a lot of ecological decline. The northern shoreline of the Cyprus island affects the intensity of construction in the city center of Kyrenia, but still the purpose is, the examination of the dynamics of suburban towards western settlements and residents in rural areas with the transect theory. This article attempts to explore the merit of the Transect Theory for interpreting the urban developments in Kyrenia. In this context, the proposals to be put forward will play an active role in the planning studies to be carried out. In following up the introduction, the article structured into three sections: The methodology explanation, case studies simulations and assessments with final remarks and future perceptions for this research.

**Presenting the Literature review title is not evident.**

## Materials and Methods

The study was developed based on both qualitative and quantitative method. As for qualitative method, the literature review has been conducted via grounded theory method. The observation and case study analyze have been done for the quantitative method part. In the first stage of study, the literature data has been collected through vital recourses related to the field of study particularly the local investigations and researches about the Kyrenia suburban areas. Furthermore, as the second stage of the method; case studies

have been selected according to the analyzed criteria. The method used for data in the case study was by photography technique, observation technique, drawing sketches, and interview and questionnaire technique with a host of selected urban, suburban and rural settlements.

City of Kyrenia and suburban (Lapithos and Karavas towns) and rural (Orga and Livera villages) settlements in western part were discussed/ compared as the study area. Within this context the building dynamics, intensity, green space and built-up areas have been influential in choosing this sampling. When these criteria are determined, the last 2011 population census and housing count results in Northern Cyprus and the statistical data within the reports of the Cyprus Turkish Building Contractors Association (CTBCA) 2004-2011-2016 data are taken into consideration (Akansu & Karaman, 2023). CTBCA data was carried out with the participation of all the public in the northern part of the island of Cyprus. The study area was carried out with the participation of all the people living there (as population and housing census by the state) with rural settlements and suburban settlements where dense construction takes place on the northern coastline of the island.

Transect Theory is a way in which present the changes in Kyrenia urbanism will be assessed. In addition to data collection, the drawing method has been done by sketching the existing area and evaluating based on the Transect scheme. The aim here is to reveal the development dynamics of the regions and their situation in the intensive construction process.

As a result of the drawing method, it drawn out for the districts, the height and density of the building floors have been determined and a suitable Transect scheme has been created for the study area. In accordance to get the precise data for the quantitative analysis, the interview was conducted for the study in a 12-month period starting from the last quarter of 2021 to the last quarter of 2022.

The main interview question was conducted about the research era which focuses on the rural urban, housing census and population developments after 2011. Therefore, the interview has been prepared for the users with the CTBCA knowledge for achieving the precise SWOT evaluation analysis. Hence, the SWOT analysis has been distributed to 100 users, among all of them. 75 people has been responded by regional users and the remain 25 were analyzed by data analysis based on interviews with experts in the region (non-governmental organizations and relevant institutions of the state).

The western residential areas of the northern coastline, which were chosen as the study area for SWOT analyses, were first divided into regions according to the transect theory. Tables were created and evaluations were made for each allocated region, taking into account the socio-cultural, economic and ecological values.

The assessment was carried out by SWOT analysis (strong, weak, threat and opportunities), which had formed by data analysis based on the interviews and questionnaires taken from the people in each of the selected region, non-governmental organizations and the related institutions of the state. The questions have been designed for SWOT analysis in order to describe the comparison of each region which are determined in the scope of the Transect Theory (T1 – Natural Zone, T2 – Rural Zone, T3 – Suburban Zone, T4 - General Urban Zone, T5 – Urban Center Zone and T6 – Urban Core Zone) of ecological and socio-cultural values. However, the comparative analysis of housing dynamics in the suburban and rural areas towards the west Kyrenia settlements (Karavas, Lapithos, Orga and Livera) has been explored. In this manner, the findings of the questionnaire illustrated the present state and existing issues while the statistical data supplied an insight of the status in the regions surveyed. Moreover, the selected settlement area where there are intense effects of construction in Kyrenia urban center have been perceived, evaluated and suggestions to achieve the socio-cultural, economic and ecological sustainability for the future generations have been put forward.

In all these studies, people who participated in the interviews were informed about the purpose and scope of the study.

## Result and Discussion

Cyprus Island carries many of the characteristics that are typical of the Mediterranean. It lies in the East Mediterranean, at the crossroad of Europe, Asia and Africa, which is located to the west of Syria, and south of Turkey, it is the third largest island in the Mediterranean Sea after Sicily and Sardinia. The geographical

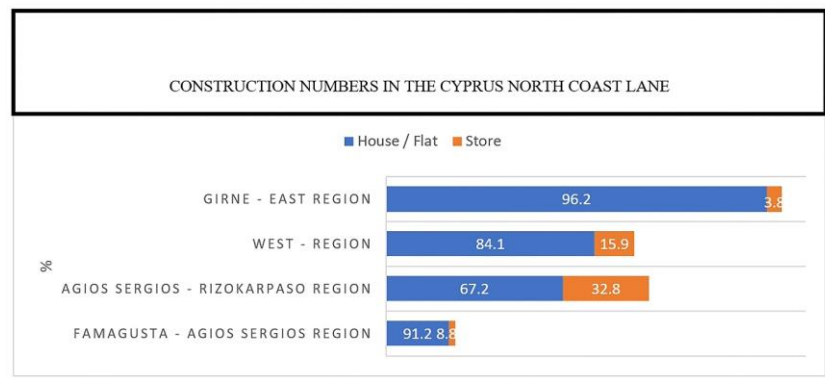
characteristics of the island has defined by famous researcher Casson, (1985) as, Cyprus is 40 miles (64.37 km) on the south of Turkey peninsula, 60 miles (96.56 km) on the west of Syria and 40 miles (386.4 km) on the North of Egypt. Its area is 3572 square miles (9251, 48 square km), 670 (1735,3) of the area includes forest land (Casson, 1985).

The island of Cyprus is divided into north (Turkish Cypriot) and south (Greek Cypriot) due to political reasons today. Larnaca (Larnaka), Limassol (Limassol) and Paphos (Baf), the southern part of Nicosia (Lefkosa) district, and a small area of Famagusta (Magusa) district are located at Southern Cyprus and administered by Greek Cypriots. Nicosia is the capital and largest city. Kyrenia (Girne), Famagusta, Morphou (Guzelyurt), Trikomo (Iskele) and Nicosia district including a small portion of Larnaca district are administered by Turkish Cypriots. Coastal cities Famagusta on the east and Kyrenia on the north are additionally the main parts of North Cyprus. When the eastern coastal strip settlements were examined, it was observed that the settlement in Famagusta and the surrounding suburbs and rural areas were not as intensive as the Kyrenia. When focused on the regions as a result of the examinations made; both the demands of the local people and the foreign investors for the settlement of Kyrenia and the rapid construction in this direction attract attention.

The urban development dynamics of the Kyrenia settlement on the northern shore of Cyprus island, represents the unplanned development in line with market trends in this direction, besides the urban identity, it causes the identity of the suburbs and rural areas to change. Numerous elements influence the process of urban development. A few of these elements include the city's advantageous position, the coexistence of residents from various socioeconomic and cultural backgrounds, developing and changing of relationships, and political developments. According to the circumstances of the period, it is therefore possible to see maintained historical texture in some areas of the city and changes and development in others. However, several other zones are in a useless and idle state as they wait for renewal (Akansu & Duman, 2022; Akansu & Karaman, 2023). As Akansu and Karaman stated in 2023, the increase in construction will leave unusable building areas with concreting instead of green areas. Failure to provide the necessary conditions (mixed use) at the planning stage brings idle areas to the agenda, thus increasing the importance of regulations to be introduced in new development areas. The opening of the urban towards sub-urban and rural areas, differentiating people, natural and built environment that was destroyed with a coastline which opened to building, creates pressure in sub-urban and rural settlements. Hence, this repression of the ecological and socio-cultural characteristics of the rural settlements are caused to be exposed to danger (Farjami & Turker, 2019; Farjami & Turker, 2021). There is a discernible increase in the need for ecological sustainability across several domains, particularly in urban areas where alignment with cultural and social elements necessitates improvement rather than demolition.

The main reason for conducting this research is the lack of preventive policies are due to the fact that the planning system is not effective and sanctioned since the urban design strategies are beyond the range of designers exploration about the city center atmosphere Abusaada, & Elshater, A. (2020). This kind of development; disrupts the ecosystem and causes the formation of urban, suburban and rural areas without identity. It is inevitable to observe that the regions that have developed without identity gradually disappear in their socio-cultural values. At this point, it is important to put this situation in place and include it in the planning studies to be done, in order to make the urban, suburban and rural areas livable. In this context, according to the examination of the eastern and western coastal settlements of the city of Kyrenia city, it can be obtained that eastern settlements have more troubles than the western settlements. In the scope of a 2011 population census result, the number of houses newly built or under construction in the suburbs and rural areas of the Kyrenia East Region is 1814 and the number of the stores is 72, and 994 houses and 188 stores in the Western settlements are obtained Figure 1.

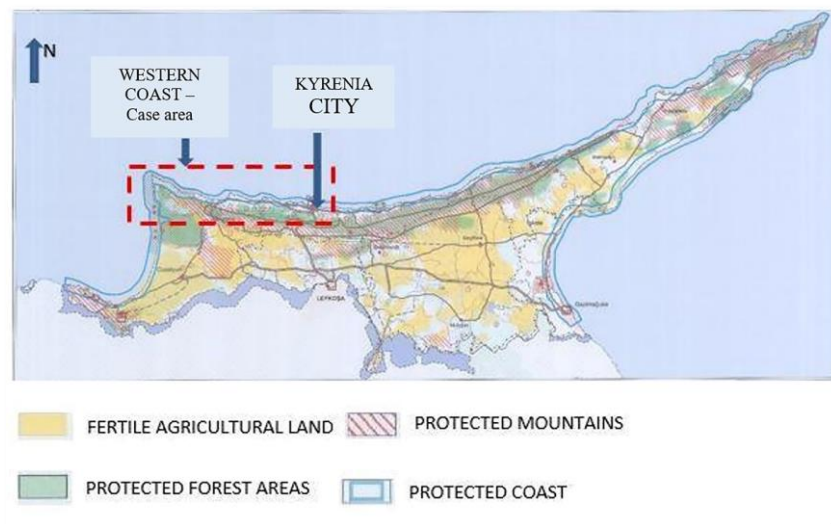




**Figure 1.** Cyprus North coast lane building statistic.

Source: (CTBCA, 2011)

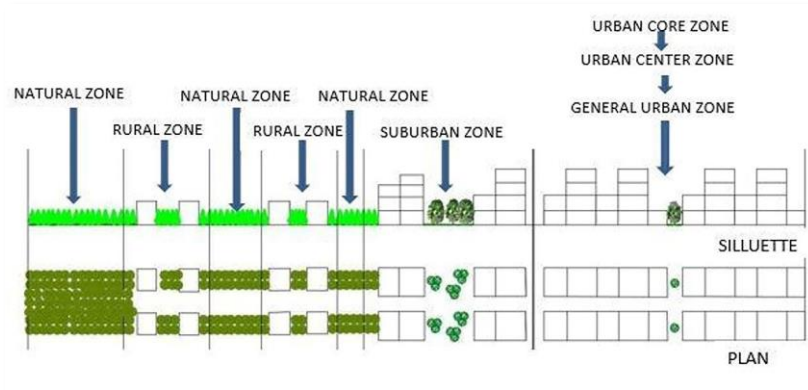
In the consideration of these data, it is observed that the most intense structuring is in Kyrenia city. However, focusing on the western settlements was deemed appropriate, as the continuation of work on the eastern settlements where the Kyrenia city was observed two times more intense, the thought of more destruction of the rural and the development of the rural areas as a continuation of the city would be troublesome for the construction of transect schemes. In this direction, work continued in Kyrenia city and the new construction sites in the western suburbs (Lapithos and Karavas) and rural settlements (Orga and Livera). In all western settlements, the existence of mountain, coastal and forest areas which show development by preservation played an active role in selecting the region Figure 2.



**Figure 2.** Workplace boundaries and biodiversity map.

Adapted by the author.

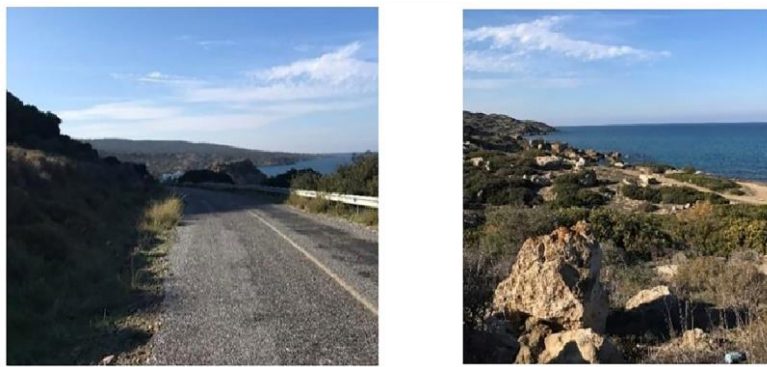
There is a significant amount of scientific literature underlining the benefits of transect theory in spatial and temporal dynamic of sprawl, reconciling environmentalism and urbanism (Yu & NG, 2007). Regardingly, this article expresses that Western settlements are determined according to the transect scheme on the designated area. In this context the regions are accepted as; the west of Livera (which also known as Sadrazamkoy), the west rural settlements - T1 Natural Zone, the natural area beyond Livera village - T2 Rural Zone, Lapithos (Which also known as Lapta) and Karavas (which also known as Alsancak) settlements - T3 Suburban Zone, Kyrenia City - T4 General Urban Zone, Kyrenia City Center - T5 Urban Center Zone and Kyrenia City and its periphery - T5 Urban Center Zone. Within this scope, a transect scheme has been established over the determined regions Figure 3.



**Figure 3.** Kyrenia Western Region- Transect Schema by author in 2018.

Under the present transect scheme for the region, the situation of Kyrenia city and the east coast lane has been established. From 1984 to 2017, when the settlement plans of the territories were examined within the scope of Google Earth data, it was observed that the density of settlement after 2003 increased. In this context, while the transect scheme of the region is being developed, the new settlements in the rural settlements and their surroundings reveal that the natural and rural zone areas are threatened today and the suburban areas are progressing to urbanization step by step and day by day. The general urban, central and core zone areas are showing an unplanned development, indicating that these areas are intermingled. The following situation arises when the design situation of urban-suburban areas and rural areas is examined from this point.

Transportation axes: Public transport is starting to be inadequate towards rural areas in connecting urban-suburban and rural settlements together. While the support given to the use of individual vehicles causes atrophy to socio-cultural sustainability relations, the ways to facilitate the transportation of the users cause problems in the development of ecological values (Farjami & Turker, 2021). The characteristic that distinguishes rural settlements from urban areas and suburban areas is that the density of tar in the material used on the road is reduced. In Figure 4, it can be seen leastwise as an advantage for the rural ecological values.



**Figure 4.** A view from the natural area between suburban and rural.  
Source: by author.

Building density and usage: There is not much difference in floor height and density from urban areas to suburban areas. Urban and suburban areas are observed to have a collective settlement and a high number of floors, both due to the increased population impact and the short distance to the city center. In the rural areas; mass structuring is observed and build and sell architecture consisting of one-storey, two storey and triplex residences of similar material and quality is composed of holiday residences of people with different cultures Figure 5. As it has been discussed about causes the combination of different cultures, the disappearance of old neighborhood relations, and the forgetting of customs. In addition to these findings,

the degradation of the topography, the material effects that are used and the intensity of the construction are adversely affecting flora and fauna habitats within the climatic change.



**Figure 5.** Density of collective settlement in rural area and building masses.  
Source: by author.

Frontage and mass features: It have been observed that in the newly designed buildings around the traditional residential areas of urban-suburban and rural areas, the constructions are built similar to each other without considering the user's need with the effects of the built and sell architecture. This situation has caused the observation of buildings in square and rectangular forms where reinforced concrete structures reflect single-sided fronts Figure 6. In particular, this distressing situation in the building settlements does not offer the opportunity to co-develop open space and the ecological environment. In addition, it makes living spaces the only units to be used for compulsory needs.



**Figure 6.** Mass reconstruction in suburban area and appearance from similar fronts.  
Source: by author.

Lighting elements of public spaces, parking spaces, pavements, street silhouettes: Publics that are located at interrelated walk-able distances in public space designs are rarely observed. In addition to that in urban and suburban areas, it is often observed that there are insufficient parking spaces, street-side commercial spaces, street silhouettes made up of unsuitable buildings, and insufficient lighting elements and sidewalks Figure 7.





**Figure 7.** General view from Kyrenia city center.  
Source: by author.

Green areas and landscaping elements: it cannot be said that many landscaping elements have been designed except parks which are considered as green areas. The information obtained as a result of these analyzes reveals the situation of the Kyrenia city and the western settlements, which develop in accordance with the planning studies. The build-and-sell architecture, the collective building sites and the needs of the user are ignored by the inadequacy of planning studies, and the concept of urbanism and architecture are designed by only considering today. In addition, the effects of the increase in urbanization due to population growth have also been reflected in suburban and rural settlement areas over time. With the effect of this reflection, it will be not right to evaluate the urban area separately from the rural and suburban settlements.

In this context, it is inevitable to use the Transect theory which evaluates urban, suburban and rural areas together. In the light of these determinations of the Transect theory, the ecological and socio-cultural sustainability values in the regions were revealed by the aforementioned SWOT analysis results. The SWOT analysis was made over the defined regions and assessed for the threats and opportunities beside the strong side and weaknesses of the regions. First of all, evaluation of Transect theory (T1- natural zone) in natural area beyond Livera village Table 1.

T1 Natural Zone (Natural area beyond Livera village): This zone covers areas for wildlife and its habitat but excludes places that are unsuitable for habitation because of their topography, hydrology, and vegetation. However, due to necessity, these zones are being opened for construction in the northern villages of west Kyrenia, putting their topography, hydrology, and biological variety in danger. Natural spaces are gradually losing their ecological qualities as these areas, which were identified as the boundaries of forest areas, are incorporated into residential borders. Additionally, it is noted that as more green space is developed in rural areas, these areas are starting to lose their natural features. (Akansu & Karaman, 2023).

**Table 1.**  
*T1 Natural Zone - Orga and Livera Village*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-Cultural Value
T1 - Natural Zone – (Natural area beyond Livera village)	Strong	Topography, geological features, natural vegetation and hosting habitats of endemic species	The existence of socio-cultural values in the settlement around the region
	Weak	Inadequate decision mechanisms for ecological protection of the zone	It cannot be said to be weak because it is not open to building.
	Threat	Slowly opening up of the surroundings to the structuring areas	Inadequate decision-making mechanism to prevent the opening up of the region to the structuring
	Opportunities	Not opening up of the region to any structuring	Not opening up of the region to structuring

Source: by author

Overall these findings are describing that, when natural areas are assessed, topography provides important ecological values that are not opened to construction by the presence of mountain and marine ecosystems, which are favorable for geological features, natural vegetation and endemic species. By not being open to building, it can be explained that people integrate into their natural habitat, breathe fresh air and embrace visitors from different regions. In the continuation of this, evaluation of Transect theory (T2 – Rural Zone) in Orga and Livera village Table 2.

T2-Rural Zone (Orga and Livera village): This zone includes cultivated, open, and sparsely populated areas. These consist of agricultural fields, forests pastures, and irrigation zones. The northern coastline of Kyrenia today has a number of rural settlement options, including fields, agricultural land, and forests, that can be developed. They are now incorporated into built-to-sell architecture. (Akansu & Karaman, 2023).

**Table 2.**  
*T2 Rural Zone - Orga and Livera Village*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Sosyo-cultural Value
T2 - Rural Zone-(Orga and Livera)	Strong	Sea and mountain ecosystem reserving of the region	Protection of socio-cultural values
	Weak	Inadequate planning	Mixing different cultures into new settlement areas
	Threat	The presence of residential design which were built with unsuitable methods and materials for rural settlement	The curiosity of tradition, custom and socio-cultural values of people in new construction areas
	Opportunities	Decrease in construction due to housing that cannot find buyers in recent year	The concentration of new structuring in a specific area

Source: by author.

It is observed that, in rural areas, animal husbandry is being done rather than agriculture. However, it is observed that people who are living in traditional residential areas grow their own vegetables. The tradition, custom and cultural similarity of the people in the region strengthens the neighborhood relations. However, besides all these developments, it is observed that the contractors, who take the advantage of opportunities in natural values in the Orga and Livera village settlement and the deficiencies arising from planning, will gradually destroy the natural life and cultural values by the mass housing project which they built for region during urban expansion process. At this point, the evaluation of Transect theory (T3 –Suburban Zone) in Laphitos and Karavas settlements Table 3.

T3-Sub Urban Zone (Laphitos and Karavas Settlements): This zone is distinct from low-density suburban areas despite sharing similarities with them in that it is host to a wide variety of occupational disciplines. The vegetation there is still native. The blocks and the roadways don't fit with the natural layout of the settlement. Moreover, the chunks are remarkably broad. Notable for their social accommodations and apartments are the residential districts that grow out from the high-density city and suburban towns along the north coast of West Kyrenia. There are settlements where infrastructure improvements that are incompatible with the natural structure are observed, and its greenery is steadily disappearing. (Akansu & Karaman, 2023).

**Table 3.**  
*T3 Suburban Zone - Laphitos and Karavas Settlements*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-cultural Value
T3 - Suburban Zone-(Laphitos and Karavas Settlements)	Strong	Featuring settlement characteristics in the skirts of Kyrenia mountains and the seaside	The protection of neighbourhood relations and socio-cultural values in traditional residential areas existing in the regions.
	Weak	The number of floors existing in urban areas is also being observed in suburban areas	Users in multi-storey, residential areas do not know each other

	Threat	The presence of intense and mass housing projects with excessive floors	Living together with people of different socio-cultural values
	Opportunities	Presence of green areas in mass housing construction	The existence of activities organized for the continuity of socio-cultural values within the regions

Source: by author.

The Lapithos and Karavas settlements are developing horizontally and vertically, as the city centers are inadequate for the needs of the population. In the settlements mass housing, collective multi-story apartment blocks are observed. Green areas are decreasing day by day, and in parallel with the ecological values existing in the region are observed only in unstructured parts of mountainsides. The structuring starts from the center of the settlements and extends to the seashores and the mountainsides. In this way, the construction leads to its disappearance in socio-cultural sustainability values. It is observed that, the presence of ongoing mass settlements presently and the wasteland projects that are waiting for not to be wronged in any planning study for the future. In the continuation of this, evaluation of Transect theory (T4 – General Urban Zone) in Kyrenia City (Table 4), T4-General Urban Zone (Kyrenia City): In comparison to the other zones listed, this one is denser and mostly consists of housing settlements. It features a variety of mixed-use residential architectural orders, including terrace and detached homes. The landscape is variable, and the streets are designated by medium-sized block islands. Traditional Kyrenia urban neighborhoods were often made up of detached or twin homes. Today, though, this is coupled with a lot of apartment buildings and commercial structures. Besides, all around the city, the streets are the same. (Akansu & Karaman, 2023).

**Table 4.**  
*T4 General Urban Zone - Kyrenia City*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-Cultural Value
T4- General Urban Zone– (Kyrenia City)	Strong	Featuring of mountain and marine ecosystem together	The commitment of the people in the new housing areas to socio-cultural values
	Weak	Developing with autonomous decisions without a city development plan	The existence of planning that allows people from different cultures to live together
	Threat	A constant increase of build and sale architecture with dense and high number of floors, where green areas are insufficient	Living people usually composed of working people
	Opportunities	The existence of preservable ecological values in the scope of planning studies	The existence of activities for transferring the socio-cultural values to the future.

Source: by author.

It can be said that Kyrenia city developed by destroying the coastline within autonomous decisions, without considering the green areas and the city development plan. It is observed that there are traffic problems in the city right now because the multi - storied structures were constructed without considering the road arrangements. Without considering the population density in the settlements, it has not developed any qualitative development that gives opportunity to expand the roads. At this point, evaluation of Transect theory (T5 – Urban Center Zone) in Kyrenia City center “Table 5”. T5-Urban Centre Zone (Kyrenia City Centre): The center of this area is made up of retail stores, offices, terrace homes, and apartments that are connected to the main routes. It features trees and spacious pavements on its tiny streets. Apartments serve as the primary living quarters in the Kyrenia city center, which also has houses at a considerably lower density. Commercial buildings are highly concentrated there. Although it is impossible to specify how a mixed-use neighborhood containing both residential and business spaces is used, it is clear that the commercial locations are densely populated. Additionally, the streets with pavements are not all that wide, with the exception of the zone's core. There weren't enough attempts to make the city center green. (Akansu & Karaman, 2023).

**Table 5.**  
*T5 Urban Center Zone – Kyrenia City Center*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-Cultural Value
T5 - Urban Center Zone-(Kyrenia city center)	Strong	The existence of endemic plants in the construction areas that are built with traditional materials	The preservation of historic buildings and traditional houses
	Weak	The prevention of green areas forming due to dense structuring	The observation of lost neighborhood values in traditionally residential areas and surroundings of the region
	Threat	The absence of open green areas out of parking and built environment	Incorporating the different cultures together
	Opportunities	To be in seashore location	The existence of traditional residential areas and the presence of people past to present

Source: by author.

The Kyrenia city center was an ancient tradition. However, it is observed that in recent years, the hotel and apartment blocks, which were built within historical buildings, are in competition with the historical buildings. Leaving the wastes of the hotel buildings to the sea negatively affects the marine ecosystem. It is also observed that traditional residential buildings in the region have lost socio-cultural values today. To sum up, evaluation of Transect theory (T6 – Urban Core Zone) in Kyrenia city and surrounding “Table 6”. T6-Urban Core Zone (Kyrenia and surrounding): This is where the city's center is. In this area, which has little to no natural vegetation, are found the city's tallest building as well as distinctive and different kinds of public buildings. In certain sections of this zone, a significant concentration of tall apartments with ground floors intended for commercial use coexist with detached houses. (Akansu & Karaman, 2023).

**Table 6.**  
*T6 Urban Core Zone - Kyrenia City and Surrounding*

Evaluation of SWOT Analysis& Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-cultural Value
T6 - Urban Core Zone-(Kyrenia city and Surrounding)	Strong	To be a settlement with mountain and marine ecosystem	The existence of socio-cultural values in the city
	Weak	Decreasing of ecological values due to recently increasing structuring area	People who live in very high-rise apartment blocks do not know each other
	Threat	Developing with built and sell architecture without considering green areas	Observation of loss of socio-cultural values
	Opportunities	The compulsory green area request of urban planning department in projects	Commitment to socio-cultural values

Source: by author.

It is observed that Kyrenia city has lost its ecological and socio-cultural sustainability values due to the increasing population and the profit aim of the contracting companies. It is observed that the marine and mountain ecosystem is facing the danger of extinction due to urban expansion towards its perimeters.

It is observed that the silhouette, which appeared horizontally and vertically at the center of the city of Kyrenia, is due to the inadequacy of planning studies. In this context we can say, it has emerged that urban dynamics are designed without considering horizontal and vertical green areas. If the city is inadequate, parts designed for the city have developed towards suburban and rural areas. It is revealed that this situation causes the loss of ecological and socio-cultural sustainability values.

## Conclusion

In planning studies, it is envisaged that the development plans to be prepared for the arrangements made from the city to the countryside will be considered in the context of transect theory. If we come to conclusion we can mention that, when world examples are examined, the transect theory has an important role in urban, suburban and rural area planning of large settlements. However, it has been shown that the surface area is also a theory that can be used in the planning of the small island countries, especially in protecting the social values besides ecological diversity along the coastal shore and avoiding the irregular settlements brought by the urban spread. In addition to all transportation axes, building densities and usage in island, the qualification for each series and the suitable settlement for design characteristics of frontages,



masses, public spaces, intersections, street silhouettes, lighting elements, parking spaces, pavements, green areas and landscaping items have place in handing them down the next generations. In the settlements that will be designed in this context, it is necessary to integrate all these elements into the planning studies on a regular basis. The planning studies in this concept, are expected to help the following issues;

- The protection of ecological and socio-cultural values,
- The formation of habitable settlements for future generations to use,
- The positioning of public, residential and commercial spaces which are easy to use and in walk able distance,
- The protection of urban-suburban and rural settlements' specific characteristics.

Besides these four issues, while planning studies are being carried out; it is expected that the decision makers of this study make contributions to city and regional planners, architects, ecologists and environmental scientists. It should be remembered that the design of the urban-rural areas and the suburbs are related to one another and that independent consideration will bring about the problems as well.

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