Analyzing Urban Neighborhood Sustainability: Case of Göçmenköy, Nicosia

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Abstract

Due to the rapid urban growth and development in many cities nowadays, the aspects of sustainability show an extensive disruption and neglect to the city's identity which usually happens due to unplanned urbanization. Additionally, this wreaking havoc to the local's way of life and threatening the future of those areas, and their neighborhoods in many cities. Göçmenköy which is one of the oldest neighborhoods in North Cyprus, constructed back in 1963, in time of economic and social instability, that took a toll on the sustainability measures that should have been taken, yet managed to still be standing until today. Nowadays, due to the urbanization process of the city by the great influx of students and immigrants, the neighborhood saw a rapid increase in housing settlements, shops, and other services adjacent to road networks. This caused a drastic change in the lifestyle of the area and showed an intentional disregard for user needs in terms of spatial planning. Within this manner, this study aims at analyzing the effect of urbanization of the area in terms of sustainability, in micro and macro scale levels, for example: density and context, movement patterns, land use, climatic designs, and community issues in Göçmenköy. The methodology adopted Oktay's model (2001) that performs critical evaluation of the sustainability of the neighborhoods along with the help of Geographical Information system (GIS) and field surveying. The final evaluation was summed up into a table with three scales (good, fair, and poor) assessing sustainability levels of the neighborhood according to Oktay (2001) method. The results showed an overall good result in regard to land use planning and movement patterns owing to the presence of all needed services within a close proximity from any point inside the neighborhood and a good transportation network that goes across the neighborhood. Additionally, fair results regarding density and context and community issues due to the mixing of urban pattern employed and low affordable housing.

Keywords: Sustainability, neighborhood analysis, north Cyprus, GIS, social housing

Kentsel Komşuluk Sürdürülebilirliğinin Analizi: Göçmenköy Örneği, Lefkoşa

Özet

Günümüzde birçok şehirdeki hızlı kentsel büyüme ve gelişme nedeniyle, sürdürülebilirlik yönleri, genellikle plansız kentleşme nedeniyle meydana gelen şehrin kimliğinde büyük bir bozulma ve ihmal göstermektedir. Ek olarak, bu durum yerelin yaşam tarzına zarar vermekte ve bu bölgelerin ve birçok şehirdeki mahallelerinin geleceğini tehdit edebilmektedir. Kuzey Kıbrıs'ın en eski mahallelerinden biri olan Göçmenköy, 1963 yılında ekonomik ve sosyal istikrarsızlık döneminde inşa edilmiş, alınması gereken sürdürülebilirlik önlemlerine zarar vermiş olsa bile ancak bugüne kadar ayakta kalmayı başarmıştır. Günümüzde öğrenci ve göçmen akını temelli kentleşme süreci nedeniyle, ilgili bölgede mahalle konut yerleşimlerinde ve yol ağları boyunca dükkanlar ve diğer hizmetlerde hızlı bir artış görülmektedir. Bu durum, bölgenin yaşam tarzında köklü bir değişikliğe uğramasına neden olmuş ve mekansal planlama açısından kullanıcı ihtiyaçlarının kasıtlı olarak göz ardı edildiğini göstermiştir.Bu bağlamda, bu çalışma, bölgedeki kentleşmenin etkisini mikro ve makro ölçekte sürdürülebilirlik açısından analiz etmeyi amaçlamaktadır, örneğin Göçmenköy'deki yoğunluk, içerik, hareket modelleri, arazi kullanımı, iklimsel tasarımlar ve topluluk sorunları gibi konuları ele alarak komşuluk birimi bazında sürdürülebilirlik açısından incelemektedir.Metodolojide Oktay (2001) modeli benimsenmiştir ki bu model Coğrafi Bilgi sistemi (CBS) ve saha araştırması yardımıyla mahallelerin sürdürülebilirliğinin eleştirel değerlendirmesini yapmaktadır. Sonuç değerlendirme, Oktay (2001) yöntemine göre mahallenin sürdürülebilirlik düzeylerini değerlendiren üç ölçek (iyi, orta ve kötü) içeren bir tablo halinde özetlenmektedir.Sonuç bulgular mahalle içindeki herhangi bir noktaya yakın mesafede ihtiyaç duyulan tüm hizmetlerin varlığı ve mahalleden geçen iyi bir ulaşım ağı sayesinde arazi kullanım planlaması ve hareket modelleri açısından genel olarak iyi bir sonuç göstermiştir. Ayrıca, kullanılan kentsel özellikler ve düşük maliyetli konutların karışımı nedeniyle yoğunluk-içerik ve topluluk sorunları açısından orta düzeyde bir sonuç göstermiştir.

Anahtar Kelimeler: Sürdürülebilirlik, mahalle analizi, kuzey Kıbrıs, CBS, sosyal konut

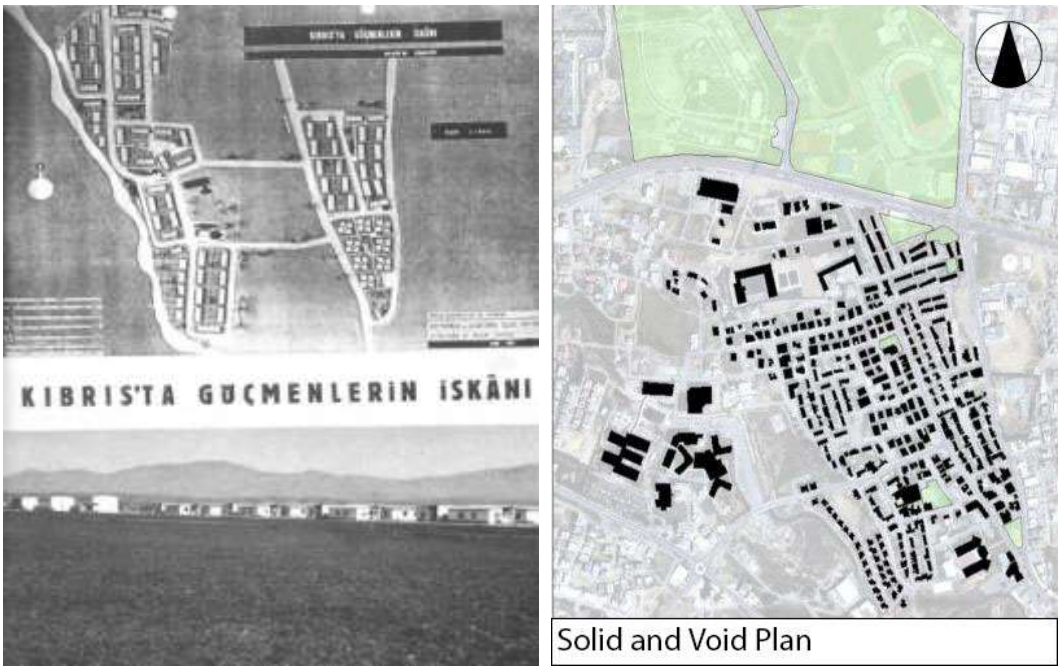
1. INTRODUCTION

During the past couple of years, a general term of sustainable development has emerged after the increase in rate of urbanization and population growth that highlighted the need of social, physical, and economic development for today's use and to be usable and long-lasting for the upcoming generations, underlining that this development is not an end goal, instead it is a vision for a better lifestyle (Newman & Kenworthy, 1999, p.5). The term sustainable development has been mentioned in different forms and definitions throughout the years, therefore in this context Neighborhood sustainability is the focus of this article, as they are vital elements in the development of a city (Dehghanmongabadi, et al., 2014). In order to obtain sustainable development in a Neighborhood, a good balance between social, economic, and environmental requirements must be integrated with the urban development measures (Blum and Grant, 2006; Al-Hagla, 2008).

There lie five main principles that would ensure a sustainable neighborhood as identified by the UN-Habitat; Firstly providing adequate space for streets and efficient street networks (I.e walkable, proper street hierarchy, adequate parking spaces), Secondly, High density (I.e efficiently accommodating more people, reducing the dependency of cars, enhancing social equity), Mixed Land-use (developing a range of activities and land uses in close proximity, to enhance the local economy and decrease care dependency), Social mix, (promoting social interaction, attract services to the neighborhood), and finally, limited land-use specialization (combining compatible land-uses in one neighborhood). Upon the implementation of these principles, a more sustainable version of a neighborhood will be established that will be more walkable, affordable, and will give a vibrant street life (Dehghanmongabadi, et al., 2014).

Rapid urban growth and expansion tend to cause changes in people's way of living by disturbing the existing urban form of the area. Old neighborhoods in old cities are one of the most prone locations to suffer the most; as the newer constructions in those areas cause changes in the cohesion of the place, mixed land-use ratio, percentage of greeneries, density, provision of parking spaces, and social equity resulting in a drastic change in the overall identity of the neighborhood.

In this study, the analysis of a neighborhood called Göçmenköy (The Immigrant’s Neighborhood) in Nicosia; the world’s last divided capital; is conducted. In 1966 the displaced Turkish Cypriots sought refuge from the southern parts due to inter-communal violence, therefore the government was faced with the task of accommodating them, as a start one of the important housing settlements created was in Hamitkoy and Ortakoy which became settlement and distribution centers for new urbanization of the area that was powered by the eagerness to house around 2103 families at the time, after that also came one of the newer housing district developments which were named as Göçmenköy and were aimed at rapid and quick housing for the displaced Turks. The aim of this paper is to compare the area’s urban form, and the changes that happened to it in terms of sustainability measures by breaking it down into six elements (density and context, movement patterns, land use, climatic design, land design, community concerns). The methodology used in this article adopted Okay’s model (2009) of qualitative assessment sustainability analysis supported by the use of GIS, along with literature review, observations, and field survey to help identify the main reasons of how the neighborhood took shape back in 1963 and evaluate the current level of sustainability and how it can be improved to create a more sustainable neighborhood.



(a) (b)

Figure 1: (a) Showing the Göçmenköy development plan that was going to be planned back in 1966 (Atun, 2006, from (Gürdallı and Koldaş, 2017), (b) shows the current plan of and pattern of Göçmenköy (2020).

2. STUDY AREA

Göçmenköy as a housing development area, started in the year 1966, back then the aim was to house few thousands and maintain the spatial needs of the people in terms of places for interactions, back yards, and some semi-open areas, as shown in Figure1 (Quiresh, 2004), It can be seen from the patterns created the accomplishments of such a task, but as the country settled and started to grow from within and started receiving more immigrants whether students or from Turkey, the area started growing and new settlements started to show in the area causing a rapid deformation and change in the character of the urban settlements of the area. Göçmenköy is surrounded by two neighborhoods, Ortakoy on the West and Taskinkoy to the East. The Neighborhood is seamlessly blending with them and both neighborhoods, share a bunch of services together like, schools, hospitals, and supermarkets which better reflects the sense of connection with the neighbors. The area is not created with the grid system unlike new developments like Köşklüçiftlik, instead, it was developed with a network structure that is mixed and is particularly considering that the tree types, organic, and grid pattern that facilitated high accessibility and permeability which better shows the integration with the surrounding context further improving the economic and social sustainability of the area (Zafersoy and Batirbaygil, 2004).

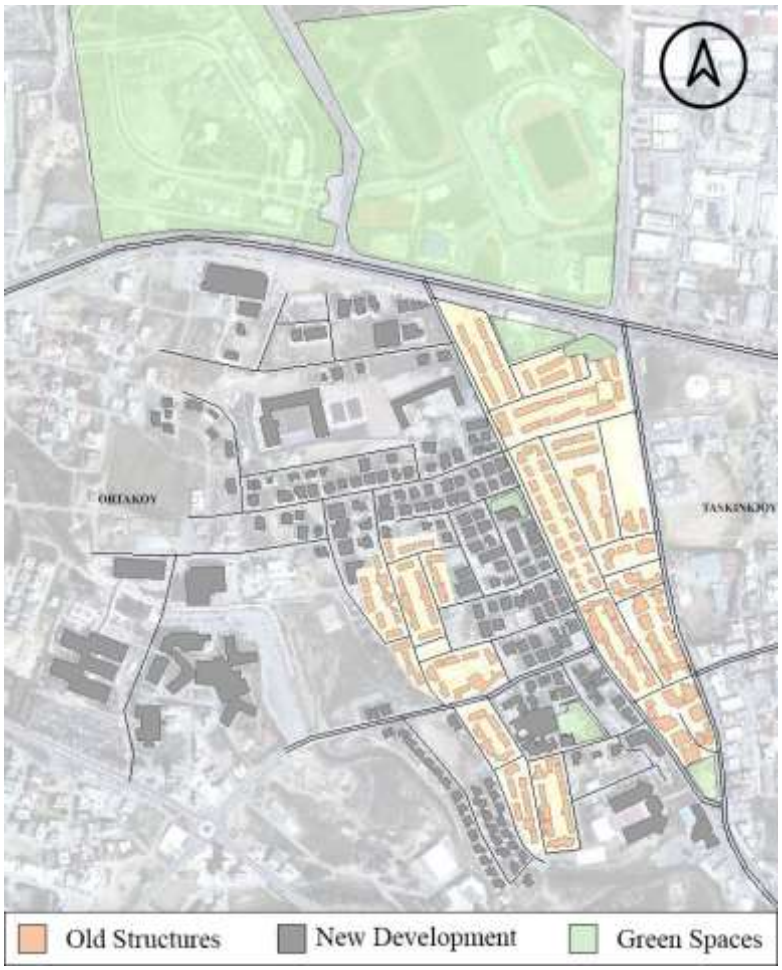


Figure 2: Shows the permeability and the integration of Göçmenköy with the surrounding neighborhoods, and how the old planning developments is still a great part of the current development.

One of the main goals back then was to create a sense of unity within the newly displaced residents and to create a sense of unity, so they can feel secure and at home, during the tough times they were going through (Atun, 2007)(Gürdallı & Umut Koldaş, 2017). Therefore, the urban was done with that element in mind, creating low-density housing areas, two-story houses that have front house terraces, and backyards that share a common green area which could be regarded as semi-private area, for the neighbors to meet and talk, more like the opposite approach from what is seen at Arabahmet when it comes to semi-private areas configuration. This further enhanced the sense of community in the area. Besides the fact that some old settlements were actually built by the residents themselves, which actually made them able to say that we built it by our own hands, as everyone played a role in the construction of their house, and they called them mujahideen as they had defense duties at night and worked in construction in the morning (Figure 3) (Quriesh, 2004), which at the end of the construction resulted in a really strong sense of community and safety that resulted in the name, "Göçmenköy" being given to the area.

As Quiresh (2004) stated that "Göçmenköy is the most perfect, and biggest implementation of immigrant settlement project", in another statement he said 'An exemplary village with shops, school and social facilities in the center' and was labeled the most modern during its time. The 1966 housing settlements were designed with modernist architecture principles in mind; they are naturally well lit, however Ozay (2004) pointed out some defects in the design, as it was

built on the most economical way possible following the minimal standards that would cost the lowest eventually lead to low comfort levels in the houses, even though they tried to balance that out with creating semi-open spaces like the terraces and garden were essential in terms of climatic and social qualities, Ozay (2004) also added that the orientation of the houses was lacking, as the houses were mostly orientated towards the sun which is not preferred as the living areas can't be used comfortably in areas oriented towards the western direction, especially during the summer heat. Moreover, the front terrace areas are covered by hard surfaces without any shading elements and vegetations that resulted in the absorption of large amount of heat in the summer. The presence of mature vegetation around the old settlements provides a proper shading for the near houses and makes up for the design flaws that were implemented creating a good and comfortable living areas (Figure 3 and 4).

Figure 3: Göçmenköy Immigrant Settlement Project, 1966-71 (photo taken from Atun, 2016) (Gürdallı and Koldaş, 2017)

Figure 4: Showing the monolithic view that is created in the neighborhood because of the new development (Ozay, 2005)

3. METHODOLOGY

The Methodology employed in this study is based on Oktay (2001) sustainability analysis for different neighborhoods that are located in Turkey and Northern Cyprus Cities. GIS (Geographic information system), which is a computer-based information system that is effective in planning, analyzing and decision making, etc. GIS is a good to be employed as it has a feature called map overlay that allows the user to perform spatial analysis of the desired area. Required information related to Oktay's (2001) approach for assessing the level of sustainability in urban neighborhoods can be easily present and analyze by using GIS. In order to assess sustainability aspects of the neighborhood, 6 major elements are used within this perspective. These are can be stated as movement patterns, land use, land design, climatic design, and community Issues. Related data are also presented in a measurement table based on the GIS information and observation remarks.

3.1 Movement Patterns

Due to the development of Rauf Denktaş Avenue as a main artery and a direct connector to the heart of the city center, the Göçmenköy area was divided into two sectors, The east and west zones. The Eastern zone is predominantly residential immigrant houses as shown in (Fig. 8), while the Western part has a mixed use functions and mostly contains newer 3 to 4 storey settlements made upon increasing need, Beside the fact that the area is pretty densely populated and that it connects main areas together in supporting of the fact that it is connected to the ring road that connects far neighborhoods together, like Gonyeli, Haspolat and most parts of Nicosia as it is regarded as a main network throught out Northern Nicosia (Zafersoy, 2014), in addition to that it is close to Near East University that resulted in the alteration of the demography of the area into being predominantly occupied by university students and old people who are to this very day still occupying most of the eastern immigrant settlements, therefore that placed pressure to include a main public transportation route for the area, covering the main streets shown in the (Fig. 7) below, which helped reduce the car dependency in the area and further enhancing the environmental sustainability of the area. The location of Göçmenköy area is a pretty good in terms of services and accessibility to services, for instance having a close proximity to Burhan Nalbantoğlu State Hospital, which has direct connection from the main street and another access from Göçmenköy secondary arteries, providing a quick access to the area in case needed, without the fuss of traffic jam and traffic lights. The area also houses 4 different schools that all of them are placed on the main route (Rauf Denktaş Avenue) which increase accessibility for those schools to include students from surrounding neighborhoods helping in bridging the two closest communities' distance wise and helps maintain the social sustainability element in the neighborhood.

Owing to the low car-dependency in the area due to sufficient public transportation options the car parking sufficiency is pretty good except on momentary stop areas on the main road that tends to cause some traffic congestion as it would be expected from a main service road, however yet as shown in (Table 1) the parking sufficiency is fair based on the ratio made by the GIS analysis, yet there exist allot of informal parking areas in the back street area as shown in the (Fig. 5).

Figure 5: Showing the informal parking lots created in empty lands

Moreover, the area is a pretty secure for walking as there is a good amount of traffic-calming measures (as shown in Table 1) in areas where speed might be employed by the drivers, not to mention the ones present on the main road, which eases the crossing for old people and children when crossing the streets (Fig 6).

Figure 6: Showing an example of the traffic calming measures employed to slow down traffic

Figure 7: Showing the Traffic Movability and Land uses analysis of the area (Map done by GIS)

According to the land use analysis, commercial uses, religious activities, offices, and some restaurants are located on the main road which splits the neighborhood. Due to the importance of this connection spine to the city center and to the main road on the north connecting to the university and to other further areas in the city, this changed the land use ratio into a linear form where commercial services are on the main road and the residential zones are at the back arteries, besides the traffic congestion that this change produces and the separation of the neighborhood into two, it still has its upsides, which is creating a self-sufficient area where all the needs are met in a close walking distance to all the services needed, further enhancing the walkability and reducing car-dependency and safety in the vicinity.

In terms of building characteristics, the area is generally divided into two types, the one to two storey high mass housing settlements created in the 1960s, and the newly developed 3 to 4 storey houses, the eastern side with the older settlements has lower density in terms of residents and the effect on the cityscape is quite minimal and harmonious, while on the other hand the 3 to 4 storey houses the density is higher and on the 3 dimensional aspect they created a

monotonous look that disrupted the sense of unity that the neighborhood had.

3.2 Climatic Design

The newer 3 to 4 story settlements that were created following universal template plans which didn't respond to the users' way of living or daily lifestyle and the monotonic use of reinforced concrete and plaster for the façade further separated and created a gap when it comes to the sense of place and community in the newly developed settlements (Quiresh, 2004). Moreover, the newer settlements also failed into achieving an efficient design from the point of climate aspects performing in a lower efficiency compared to the older settlements, for example, by the installation of large dimension windows and flat roofs, and wrong sun orientation and material selection that lowered the comfort levels in the building, besides the lack of semi-open spaces and greeneries in the buildings (Ozay, 2004).

Figure 8: Example of the old and New settlements (plans and orientations) (Ozay, 2005).

3.3 Land Design and the Community

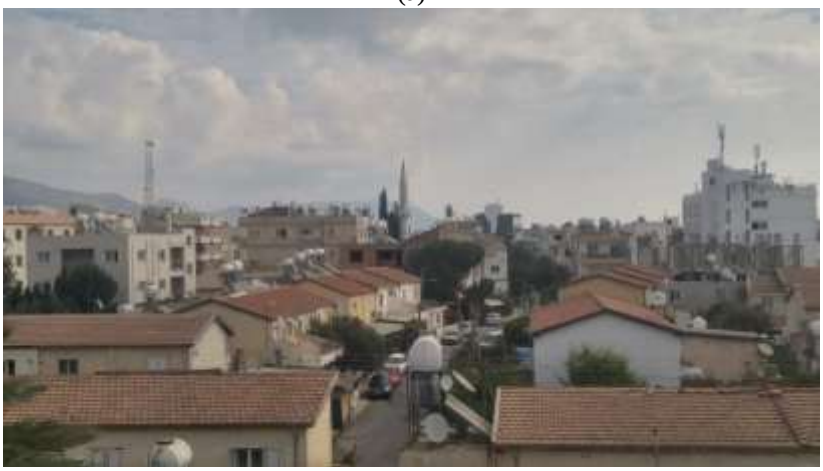
Even though the area doesn't have any natural green spaces in the close vicinity, the area still has a fair amount of greeneries and vegetation spread across the area, mostly surrounding the older settlements and providing shade for the pedestrians, and the residents making the walking in the area a pleasant activity as well as forming a barrier for the residents of the nearby houses from the streets and reduce the noise coming from them, the types of trees commonly found here are orange trees, lemon trees, palm trees, and cypress trees, which in turn plays a role in maintaining the environmental sustainability of the area (Fig. 9).

Figure 9: The trees that are aligned on the streets, some are edible in fact

When it comes to man-made open spaces for interaction, the area has around 4 of them spread around across the neighborhood, those neighborhood parks in the area that are shown in (Fig. 10) below follow the proper definition of a neighborhood park that offer a variety of recreational schemes even though they aren't very big, but they contain facilities such as a playground for the neighborhood kids, seating areas, open lawn and pathways that are sufficient to maintain social sustainability in the neighborhood. One of the parks are made in the surrounding area of (Nurettin Ersin Paşa Camii) the neighborhood mosque, and it is also another good place for people to meet besides the hosting of these gardens to religious events that happen weekly, monthly, or even yearly and further bridges the gap in tradition, culture and nationalities amongst the Göçmenköy residents and sometimes also referred to the building as a landmark as the mosque's minaret can be visible from certain places in the area (Fig. 11), Furthermore, the small park presents at the south intersection that links Göçmenköy and Taskinkoy together this park is currently used to celebrate the International Göçmenköy-Taşkınköy Festival of Culture and Arts, organized by GÖÇ-TAŞ, the Göçmenköy-Taşkınköy Culture Association. In the festival, folk dance groups from Turkey and Cyprus perform and local bands and singers have concerts. Moreover, there is another park in the close vicinity that houses a children playground elements and open bodyweight sports equipment for the people to use, and some hard surfaces, and soft surfaces to be used by the neighborhood residents and secluded and secure from the main traffic, also it provides an opportunity for the parents to monitor their children when they are in the field, However, as the results are shown in (Table 1) the play areas in the neighborhood is quite low that the children play in empty fields or on the sidewalk which would be a risk for them especially when in proximity to the street, Also there the presence of stepped seating areas that encourage the hosting of community events that also plays part in maintaining social sustainability in the neighborhood.

Figure 10: Neighborhood park maps in Göçmenköy. (1) Goc-Tas Park, (2) Göçmenköy children park, (4) Göçmenköy art park

(a)



(b)

Figure 11: (a) A view of Ernes pasha mosque's minaret which could be identified as a landmark. (b) view from a further point in the neighborhood showing the minaret. (photo by the authors).

On the northern side of the site, there lies one of the local parks in the city. Community parks are the kind of places that are located in an area that is very accessible for all the surrounding neighbors to come and to host all sort of events that require huge spaces, they are designed to engage the families, and visitors an entire day with multiple and diverse activities and amenities throughout. They usually have high-quality level parks and have a size of around 8 to 40 acres. In our case, her the Fuar community park is of an area of around 30 acres, however, the downside is that it doesn't have the sport fields required and that is because they are existing, but opposite to the park in the readily accessible Sports center in the district covering an area of around 40 acres containing all sort of sports fields (Football, foosball, tennis, swimming pool, indoor saloons, and a football stadium) that all host national scale events and has a team named after the place called "Göçmen", all these elements makes the neighborhood vibrant and lively, and help increase the sense of place.

(a)

(b)

Figure 12: (a) Fair Community Park, (b) Ataturk Sport Center

The area has been known to be very affordable as the houses over time grew with some defects especially the older ones as they were made with the most economical means and by following the minimum standards, so they appeal to people like the students as their stay is temporary, while the newer ones are more expensive but yet affordable compared to the services that it offers especially the advantage they have of being within close proximity to the university. The presence of those services and public spaces allow the people to meet, therefore, knowing one another from within the neighborhood, although as shown in (Table 1) the availability of semi-private areas is scarce and mostly limited to the older settlements, yet the enclosure that is created by the buildings, and the trees help maintain the sense of community, the neighbors know each other and the kids are playing around making the area lively, especially those living in the older houses on the east which creates a sense of safety for the pedestrians and a sense of active surveillance for the by-passers.

Table 1: Assessment result of Göçmenköy

CASE	Gocmenkoy Neighborhood	POOR	FAIR	GOOD
DENSITY & CONTEXT	RELATION WITH WIDER URBAN CONTEXT		•	
	ENTITY/COHESION			•
	GRAIN OF STREETS AND PUBLIC ROUTES		•	
	IDENTIY OF SETTLEMENT AND SENSE OF PLACE		•	
	QUALITY OF PUBLIC SPACE (DESIGN, SHAPE, SCALE)		•	
	THE SUCCESS OF PUBLIC REALM (USE OF STREETS, SQUARES ETC)		•	
	FOCAL POINTS AND PUBLIC BUILDINGS	•		
MOVEMENT PATTERNS	INTEGRATION WITH EXISTING TRANSPORTATION ROUTES		•	
	LOCATION OF PUBLIC TRANSPORTATION FACILITIES		•	
	INTEGRATION BETWEEN DIFFERENT MOVEMENT MODES (FOOT, CYCLE, CAR)		•	
	ACCESSIBILITY OF HEALTH SERVICES		•	
	ACCESSIBILITY OF FOOD SERVICES BY EASY MOVEMENT MODES			•
	CAR PARKING STANDARDS AND LOCATION OF CAR PARKING SPACES		•	
	CAR PARKING SUFFICIENCY		•	
	TRAFFIC CALMING MEASURES			•
	PEDESTRIAN SAFETY			•
	BIKE CYCYLING PATH	•		
	DISABLED ACCESS	•		
LAND USE	MIX USE FOR OWN CONVEINENCE (HOUSING/COMMERCIAL)			•
	MIX USE RATIO		•	
	DIVERSITY OF HOUSING UNITS			•
	PUBLIC-PRIVATE INTERFACE		•	
	SETTLEMENT DENSITY IN TWO-DIMENSION			•
	SETTLEMENT DENSITY IN THREE DIMENSION			•
CLIMATIC DESIGN	BUILDING ORIENTATION AND MASSING		•	
	EXPOSURE TO UNWANTED SUN		•	
	CROSS VENTILATION IN OUTDOOR SPACES		•	
	CROSS VENTILATION IN INDOOR UNITS		•	
LAND DESIGN	ACCESS TO NATURE	•		
	ACCESS TO EDIBLE LANDSCAPE		•	
	PROVISION AND USE OF COMMON OUTDOOR SPACE			•
	USE OF EXTERIOR SPACE		•	
	HIERARCHY OF OPEN SPACES	•		
	TREE PLANTING		•	
COMMUNITY ISSUES	GROUP IDENTITY AND SENSE OF BELONGINGNESS		•	
	PLAY AREAS		•	
	AVAILABILITY OF COMMUNITY FACILITIES		•	
	AVAILABILITY OF SEMI-PRIVATE SPACES FOR NEIGHBOURLY CONTACTS	•		
	AVAILABILITY OF SPORTS AND CHILDCARE FACILITIES		•	
	HOUSING AFFORDABILITY			•
	PERCEPTION OF SAFETY		•	
	SOCIAL NETWORK		•	

4. CONCLUSION

As shown based on the analysis the area started on an organized plan back in 1963, then after the rapid urbanization and rise of the settlements caused a rapid deformation and change in the character of the urban settlements, however, it's very well integrated with the neighboring areas. According to this neighborhood, the areas with 2 story created a better sense of unity than higher story and the main issue is the lack of areas like semi-private spaces, backyards, or even some shared green spaces in close proximity and this is the fault of the authorities for focusing on creating living spaces without considering meeting spaces. When it comes to accessibility the area is very accessible from all direction, which makes it a good link between different areas with each other, and because of this and the presence of 4 different schools, the authority was forced to provide necessary public transportation link on the main street in an effort to reduce the car dependency in the area.

The land use arrangement is pretty good following the linear arrangement created a strip full of commercial shops that supply all the needs for the residents in the area, without the headache of traffic congestion or noise pollution, Besides that climatically older buildings showed better concern with the climatic sustainable settlements, however it still didn't show the best climatic solution as it was built on economical budget for the immigrants for the absolute minimum requirements was the aim, when on the other hand nor did the new settlements was able to create a good solution for the climatic design problem that existed in the older settlements in fact it was worse with less concern to vegetation and sun orientation and shading, Across from the neighborhood lies two of the biggest public gathering spots, the club and the fairground, Other than that doesn't have a big enough neighborhood park to gather the neighborhoods together, the areas surrounding the older settlements has more vegetation than the newer settlements which make it more pleasing to live there. Finally, we would like to conclude that Göçmenköy area is a good neighborhood area with good affordable and variable houses, However, I think it could be better if a set of elements are employed, starting from the creation of semi-private areas, More climatically / environmental sustainable housing designs and orientation when it comes to newer developments, Moreover more measures should be taken for pedestrian safety to encourage walking, sometimes by means of adding trees for shades and protection and bicycle path instead of the main street which hurdles traffic at some points, and Finally a proper hierarchy of spaces is very much advised for a better provision of spaces.

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