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GECE AKADEMİ

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web: www.gecekitapligi.com —www.gecekitap.com
e-mail: geceakademi@gmail.com

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CHAPTER 1

VITICULTURE IN TURKEY

Ruhan İlknur GAZIOĞLU ŞENSOY,[1] Ethem Ömer BAŞ[2], Yağmur YILMAZ[3]

INTRODUCTION

Grape, as well as all over the world, is one of the plant products received in the first culture in the border with Turkey. With its phenolic and antioxidant value, taste and aroma, adaptation to many ecologies, visuality and the ability to be converted into different products, it has emerged as a culture for thousands of years. In Turkey, as in the world, although the species *Vitis vinifera*, being grown on their own roots, is a widespread species, American species as rootstock is widespread because they are resistant to some soilborne diseases, nematodes and phylloxera, emerged in 1900s, , Grape, which is more than a fruit within the borders of Turkey, has been a part of Turkish culture.

It has also become an important resource for the country's economy by moving the country to the foremost position in raisin export and the second position in raisin production in the world (Table 4, 5). Turkey, in 2017, with 2 109 000 metric tons of table grape production, and with 1 603 000 metric tons and 488 000 metric tons of raisin and dry grape wine productions, total of 4.2 million metric ton at 4.169 million hectares, (Table 2) is ranked 4th in the world (Table 3).

History of Grape and Viticulture Culture in Turkey

Situated on a fairly favorable climate for viticulture, Turkey also has an old and deep-rooted viticulture because Anatolia is one of the most important grapevine centers. It has been determined that the viticulture in Anatolia dates back to 3500 BC. There are lots of figures and reliefs associated with grapes on the decorations located in large parts of the historical artifacts from archaeological excavations in Turkey's various regions (Anonymous, 2018a).

1 Van Yüzüncü Yıl University, Faculty of Agriculture, Department of Horticulture, Van, Turkey
2 Van Yüzüncü Yıl University Institute of Natural and Applied Sciences Van, Turkey
3 Van Yüzüncü Yıl University Institute of Natural and Applied Sciences Van, Turkey

Figure 1. Ivriz rock monument (Konya). Warpalawa, King of Hittites, worshiped arhunza, god of thunder, with a bunch of grapes in his hand (Anonymous, 2018a).

When the history of viticulture and wine-making in Anatolia was mentioned, the civilization that came to mind was Hittite civilization from 1900 BC onwards; It is known that the Hittites learned viniculture from the people who lived in Anatolia before. The Assyrians, an important civilization of Lower Mesopotamia and Anatolia, have advanced in trade as well as wine. In the excavations carried out in Diyarbakır province, the existence of tools and equipment related to grape fossils and wine-making belonging to 1300s BC shows that this civilization is much older. According to the results of the excavations, Assyrians were found to carry dried grapes and wine from one place to another, and they concluded that they made trade in raisins and wine (Gürkan, 2014).

Figure 2. Museum of Anatolian Civilizations (Hittite, 3000 BC) made of solid gold, wine jug and wine glass with feet (Deliorman Orhan et al., 1999).

When we look at other mysterious beauties of Anatolian history, as a result of the excavations in Van, there are outstanding samples such as the remains of the Early Iron Age found in Yedikilise Village, the grape seed that is left behind from the grapes presented as gifts to the dead; the Menua (900-3000 BC) remaining from the Urartu (Semiramis, Şamran) the irrigation canal and the vineyards around it; the inscriptions mentioned grapes and the established vineyards in the Ercis-Van district; and the church Akdamar, with exterior decoration and especially decorated with adorable grapevines frescoes, built by the Vaspurakan King Gagik by the years 915-921. In Hisarlık-Çanakkale, grape seed fossils were found as 3000-4000 years ago. It is seen that the lamp belonging to 1750 BC, which carries many bunches of grapes side by side in Konya Karahöyük, is also used in the wall tiles of mosques and palaces in the Seljuk and Ottoman periods. In line with this information, the role and importance of grapevines in human life has been understood in Anatolia for thousands of years (Deliorman Orhan et al., 1999; Gazioğlu Şensoy and Tutuş, 2017; Anonymous, 2018b).

Grape has been accepted as a sacred fruit in the regions where viticulture develops, especially in the Aegean, Mediterranean, Middle East and Anatolian civilizations, which has been the sign of abundance, fertility and productivity. It was used as a powerful symbol in the mystical and religious systems and literary traditions. In the works of Mevlâna Celaleddin Rumi, who is a well-known Turkish thinker and sufi, there are Turkish viticulture related words such as "üzüm (grape), kuru üzüm (raisin), üzüm salkımı (bunch of grapes), salkım (bunch), üzüm tanesi (a grape), üzüm çubuğu (grapevine stick), üzüm yaprağı (grapevine leaf), asma (grapevine), asma yaprağı (grapevine leaf), asma dalı (grapevine branch), koruk (unripe grape), üzüm suyu (grape juice), üzüm şarabı (wine), şarap (vine), bağ (vineyard) and bağcı (vine grower) (Akarpınar, 2005). Again, the great Turkish traveler Evliya Çelebi also mentions a lot in the places he visited in Anatolia, the magnificent vineyards and the high quality grapes (Temelkuran and Aktaş, 1986).

Anatolia is the cradle of many civilizations to this day and is the homeland of vine culture and winemaking. Because the oldest ruins have come out of the Anatolian soil until now, and it is possible to find remains related to grapes in the ongoing research (Refik, 1926).

Grape Production Values in the World and Turkey

Grape cultivation in the world is generally spread between 20°-52° altitudes in the northern hemisphere and 20°-40° altitudes in the southern hemisphere (Anonymous, 2015). More than half of the world's grape production is realized in the European continent (Duran, M., 2003). It is estimated that there are over 10 000 grapevine varieties in the world. Turkey, which is the fatherland of grapevine, has more than 1 200 grape varieties. However, only about 50-60 of these are considered to be economically significant (Anonymous, 2015, Semerci, 2015).

Table 1. Amount of certified grapevine saplings (pieces).

Years	Grapevine
2005	2 276 862
2006	5 179 290
2007	6 157 120
2008	2 958 185
2009	2 032 860
2010	3 407 915
2011	3 499 880
2012	3 393 588
2013	7 129 690
2014	5 465 230
2015	4 981 436
2016	4 349 560
2017	3 826 412

(Anonymous, 2018c)

Table 2. Grape production areas and production amounts for years in Turkey

Years	Areas (1000 Ha)	Production Amounts (1000 metric tons)			
		Total	Table grape	Raisin	Wine
2005	5 160	3 850	2 000	1 400	450
2006	5 138	4 000	2 060	1 496	444
2007	4 846	3 613	1 913	1 218	482
2008	4 828	3 918	1 971	1 478	470
2009	4 790	4 265	2 257	1 532	476
2010	4 778	4 255	2 250	1 544	462
2011	4 725	4 296	2 269	1 562	465
2012	4 623	4 234	2 220	1 614	401
2013	4 688	4 011	2 133	1 424	455
2014	4 671	4 175	2 167	1 563	445
2015	4 620	3 650	1 892	1 335	424
2016	4 352	4 000	1 991	1 537	473
2017	4 169	4 200	2 109	1 603	488

(Anonymous, 2018d)

Table 3. Grape production in the World (1000 metric tons)

Country	12/13	13/14	14/15	15/16	16/17 (Jun)
China	38,500	39,680	40,920	42,600	43,500
European Union	12,207	11,865	13,636	12,659	12,295
United States	4,049	4,690	5,067	4,502	4,649
Turkey	2,900	2,930	2,289	2,740	2,700
India	1,915	1,900	1,900	1,900	1,900
Iran	1,693	1,693	1,693	1,693	1,693

Chile	1,420	1,310	1,210	1,335	1,410
Russia	1,264	1,417	1,409	1,311	1,335
Ukraine	1,211	1,211	1,211	1,211	1,211
Brazil	1,231	1,377	1,263	1,041	1,045
Other	5,244	5,437	5,526	5,445	5,426
Total	71,635	73,510	76,124	76,437	77,165

Foreign Agricultural Service/USDA Office of Global Analysis (Anonymous, 2017a.)

Table 4. World Raisin Production (1000 metric tons)

Countries	**11/12**	**12/13**	**13/14**	**14/15**	**15/16**	**16/17 (Sept)**
United States	349	314	368	332	348	315
Turkey	250	310	242	320	220	300
China	100	150	165	180	190	185
Iran	150	180	160	130	139	150
Uzbekistan	35	22	18	52	70	73
Chile	74	68	69	65	68	62
South Africa	37	46	46	66,	53	53
Argentina	31	32	21	37	41	40
Afghanistan	30	24	31	370	33	35
Australia	13	13	10	12	15	18
Others	22	21	20	20	20	20
Total	1,092	1,179	1,150	1,250	1,196	1,251

Foreign Agricultural Service/USDA Office of Global Analysis (Anonymous**,** 2017a.)

Table 5. World raisin production (Exports) (1000 metric tons)

Countries	**11/12**	**12/13**	**13/14**	**14/15**	**15/16**	**16/17(Sept.)**
Turkey	216	247	187	260	202	220
United States	133	124	159	127	114	125
Iran	122	150	131	102	113	120
Uzbekistan	33	20	16	49	68	70
Chile	73	67	66	62	67	60
South Africa	25	32	35	53	45	45
Argentina	29	29	16	30	35	35
Other	71	65	79	70	78	74
Total	702	734	689	753	722	749

Foreign Agricultural Service/USDA Office of Global Analysis (Anonymous, 2017a.).

Except very high sections of Eastern Anatolia and Eastern Black Sea coastline having annual rainfall of 1000 mm, viticulture has been done all parts of Turkey, which ranks fourth in the world's vineyard area (Uysal, 2015).

Organic Viticulture in Turkey:

Turkey is in sixth place in organic grape production with 10,645 ha area and follows Spain, Italy, France, China and United States. A significant portion of organic grape production in Turkey is cv. Sultani seedless consumed as raisins. All organically produced raisins are exported (Willer and Lernoud, 2017, Köse and Odabaş, 2005).

Grape Products in Turkey

1-Table Grape Production

In World production of table grapes, Turkey, with an annual production 2.7 million metric tons, is placed in # 4 after China, the European Union and United States (Anonymous, 2017a). A large number of table grape varieties, which belong to the region or are imported outside the country and have been adapted, are produced in the country. Amasya Beyazı, Alphonse Lavalée, Alppehlivan, Cardinal, Çavuş, Değirmendere Siyahı, Erenköy Beyazı, Edincik Karası, Hafızali, Osmancık, Pek, Pembe Gemre, Pembe Çekirdeksiz, Perlette, Sultani Çekirdeksiz, Yuvarlak Çekirdeksiz, Hacıbalbal, Hacıoğlu Siyahı, Hamburg Misketi, Italia, Kozak Beyazı, Kozak Siyahı, Muscat Reine des Vinges, Müşküle, Razakı, Kömüş Memesi, Gül Üzümü, Kadın Parmağı, Parmak, Karaerik, Tahannebi, Hönüsü, Dımışkı and Şilfoni are the standard varieties that are cultivated the most in different regions of the country (Çelik at al., 2005).

Figure 1. Table Grape (Photo: Elver AKCAN)

2-Use of Grapes as Raisin

In World production of raisins, Turkey, with an annual production 300 000 metric tons, is located in # 2 after United States. In raisin export, Turkey, with 220 000 metric tons, is a world leader (Anonymous, 2017a). The country is home to a large number of grape varieties for raisin, which belong to the region or have been adapted outside the country. Besides the Sultani Seedless variety, which is the most important cultivar of the country, Yuvarlak Çekirdeksiz, Akdimrit, Karadimrit and Besni are the standard varieties which are cultivated most in different regions of the country (Çelik at al.,1998).

Figure 2. Raisin production

Figure 3. Raisin grapes

(Photo: Hicran AKAALP)

3-Use of Grapes as Wine

The Anatolian lands have thousands of years of history about wine making. However, despite being one of the most suitable countries for the world's wine production, only 2 percent of the grapes grown in Anatolia have been used in wine production.

Figure 4. Wine grapes

4- Use of Grapes as Pekmez (Molasses)

Although the production of pekmez in Turkey has been very long and in large quantities, the production technique has not changed and the necessary standardized technology has not been obtained nationwide. For pekmez, grape juice extracted in various forms is heated after the addition of soil special for pekmez production, and then filtered and to darken on the open flame in the boilers. The

pekmez obtained by this method is very clear and its color is very dark. The dark color in pekmez is due to caramelization of sugars and acids in the composition to the reaction with other substances as a result of boiling the syrup at high temperature in the open air (Birer, 1983, Şimşek at al., 2002, Kaya at al., 2005, Batu, 2006, Gazioğlu Şensoy and Akcan 2014, Akaalp, 2007), Zile's Pekmez: White Zile's pekmez belong to Zile town of Tokat province is a laborious traditional food which must be beaten to the whiteness as the last step made by adding egg white and soil for pekmez in the grape syrup (Batu, 2006).

Figure . 5. and, 6. Molases production

5- Confectionery products made of grape syrup

Sucuk with walnut

It is made with pekmez and walnuts and produced in many parts of Turkey. Fresh walnuts (it might be also made with almonds, peanuts or hazelnuts) lined in a string are dipped into a mixture of pekmez, starch/flour, and water mixed thoroughly and cooked in a pudding consistency, then hanged and dried (Sürücüoğlu and Çelik, 2013, Gazioğlu Şensoy and Akcan**,** 2014).

Figure 7. and 8. Sucuk with walnut production (Photo: Hicran AKAALP)

Figure 9.Sucuk with walnut

Pestil

Nearly 5-12% of starch crushed with warm grape juice was added to the boiling grape juice almost becoming pekmez and cooked and then spread on clean cloth and dried. The back of the cloth is wetted and separated (Sürücüoğlu and Çelik, 2013). The split pestil is cut into pieces in the size of the book page. These pestil leaves are folded in half and folded into smaller pieces and starched to prevent sticking (Birer, 1983).

Kofter

Pekmez, starch and water are mixed first, then cooked in the consistency of the pudding. Then the prepared mixture poured in thin layer on a tray spread with starch. When dried, it is cut in the shape of a baklava slice, stored in soil troughs. It can be consumed fresh or dry (Baysal, 2007, Gazioğlu Şensoy and Akcan 2014)

Figure 10. Kofter

Bastık

The syrup, which is prepared as if is in pestil, is poured thicker, then dried and sliced (Gazioğlu Şensoy and Akcan 2014).

Muska

The fresh pestil, which is peeled from the cloths, is cut into strips 4-5 cm wide and 20-25 cm long. Walnut, pistachio or almonds, cloves, cinnamon, are powdered. This mixture is put into the pestle strips. It is folded in equilateral triangles. The ends of the wrapped muskets are glued together with water (Birer, 1983).

Figure 11. Muska

Brined Leaf Production

The grapevine leaf which has an important place in the culinary culture of Turkey is an important flavor that embellishes Turkish cuisine. Brined leaf production is being done in many places where vine is produced in the country. Production of brined leaf is economically produced in Tokat in the first place in Turkey. Selection of varieties is very important in grapevine leaves to be used as food. Grapevine varieties show different characteristics in terms of traits such as shape, thickness, hairiness, and slices of the leaves. Though the leaves in the edible property are thin, low haired and unsliced as possible are desired by consumers, but thick, hairy and sliced ones are not liked by consumers. Today, in Turkey, the most preferred grapevine cultivars for the production of brined and canned grapevine leaves are cv. Sultani Seedless in Aegean region, cv. Narince in Tokat province and cv. Yapıncak in the region of Thrace (Çelik at al., 2005, Göktürk at al., 1997, Gülcü at al., 2011, Gülcü and Torcuk 2016, Cangi at al., 2005).

6-Soap Production from Grape Seeds

The soap with antioxidant properties and skin clearing is produced using grape seeds in different regions of Turkey (Gazioğlu Şensoy and Akcan 2014)

Figure 12. Soap production from grape seeds

7-Vinegar Production

Vinegar; is a product obtained by fermentation of alcohol and then acetic acid by fermentation of fresh or dried grape with sugar in its structure. Vinegard production can be carried out in modern facilities or in home conditions in Turkey and it can be used for different purposes such as in pickles, or in salads (Gazioğlu Şensoy and Akcan 2014).

Figure 13. Vinegar

8-Production of Floury Products from Grape Seeds

In recent years, grape seed and pulp have been transformed into flour products with different grinding techniques by a study carried out by Dicle Development Agency (DIKA) (Anonymous, 2014).

9- Use of Grapevine as Ornamental Plant

In Turkey and in the world, grapevines as ornamental plants and shadows in pergolas are widely used in front of the house, in parks and gardens (Gazioğlu Şensoy and Akcan 2014).

Figure 14. and 15. Pergolas with grapevines

10-Viticulture and Tourism

Turkey is a potential tourist paradise with its cultural and natural beauty. However, it is mostly based on foreign visitor profile, sightseeing and cultural tourism. For people who are longing for nature and natural life, there are a variety of agro tourism options. (Ak, 2006). Vineyard tourism, which is located in agro tourism, is of great importance in terms of being environmentally, ecologically sustainable, economically practical and socially acceptable. Compared to most countries, Turkey has a rich geography, culture and nature; although it has great potential, it does not receive adequate share of agricultural tourism. In this context, as a contribution to the development of vineyard tourism in our country, the promotion of our cultural values, touristic initiatives in the region, paving the way for the agricultural industry will help the development of the labor force and therefore will help to solve the social problems (Türkben at al., 2012).

According to the Mayan civilization, the legend, as well as the world's one of the most mysterious places Sirince village of Foca, and Cesme (Alacati) in Izmir province, is one of Turkey's best example in terms of rural tourism. Şirince Village is an important place of viticulture tourism with its wine houses and local wine sales shops and grape-themed souvenirs. The Urla Vineyard Road, which is also developed in Urla (Izmir), is home to many local and foreign visitors with its "Agro-tourism-Vineyard Tourism Project" and its vineyards and wineries.

Thrace vineyard-wine route is one of the centers of tourism activities in viticulture tourism. Bozcaada, the second largest island of the Aegean Sea, provides winemaking training for its visitors with its extensive vineyards, 4 wine factories and numerous small factories. Avşa Island, which has a special micro air conditioner, is one of the most important centers in the area of aquaculture and agro-tourism, especially in the province of Balıkesir with the grape variety Adakarası and in recent years the cultivation of grape varieties such as Syrah, Cabernet Sauvignon and Merlot.

Located in Turkey's Anatolian region of Cappadocia Region, in areas with volcanic tuff soil dominates the intensive viticulture potential, and significant touristic importance of, in the wine and viticulture, tourism stands out as one of the major centers. In the same region, Kalecik district is one of the important centers

with its Kalecik Karası variety. In the South Anatolian Region, Diyarbakır and Elazığ, Öküzgözü and Boğazkere are important vineyards with wine grapes. In 1937 for the opening of the railway line that will extend to Iran and Iraq, Atatürk came to Elazığ and ordered the establishment of a wine factory in the region; it was the basis for the revival of vineyard tourism. Moreover, in Turkey's Eastern and Southeastern Anatolia, Mardin, Kahramanmaraş, Şanlıurfa, Elazığ, Diyarbakır, Gaziantep and Kilis provinces with intensive viticulture, and the widespread production of traditional products derived from grapes of this region's history and had the cultural fabric; grape-derived products such as pekmez, köfter, and sucuk wih walnut add value to the region in terms of tourism. Furthermore, there are all high potential for agro-tourism for Şarköy and Mürefte in Tekirdağ province, Pamukkale in Denizli province, and İznik in Bursa province; and it might contribute to the development of tourism in Turkey (Soykan, 2003; Yıldız, 2009; Türkben at al., 2012, Yücel ve Kasmelieva, 2014; Karataş al al 2015; Anonymous, 2017b; Anonymous, 2017c Anonymous 2018d).

11-Use of grape in food

Current is produced especially in Gülnar (Mersin province) and Senirkent (Isparta province) in Turkey. In Turkish cuisine, grape is mostly used in pilafs, stuffed vegetables, compote, cakes, desserts and Noah's pudding.

Grape seed also is a grapevine product whose consumption has increased rapidly in recent years. Due to its high level of antioxidant, it is very important for health. As a result, it is increasingly used both in medicine and as a spice (Akın and Altındişli, 2010).

12- Grape Juice

Grape juice production in Turkey is lower than other fruit juices. Grape juice's foreign trade income is also lower than the World and EU rates (Kiracı and Şenol, 2010).

As as a result grape is very important for Turkey. İn the World these common usage areas in the world, grape is consumed in different forms such as molasses, vinegar, sucuk, bastik, muska etc. in the geography of Turkey; brined grape leaves are consumed; and also its vine can be used for shade and landscape purposes.

Regions Where Intensive Viticulture Done in Turkey

Marmara Region

Papazkarası, Gamay, Yapıncak, Cinsault and Semillon are among the most produced cultivars of grapes in Tekirdağ province (Anonymous, 2018a). Çanakkale and Bozcaada, excels with the cultivars Vasilaki (Altıntaş) and Kuntra (Karasakız). In Bozcaada, especially in recent years, wine production has been increasing with the establishment of new vineyards and the opening of new factories. Moreover, the production of Merlot is also common in near Saros. In Avsa and Marmara islands, the wines made with cv Adakarası are important and unique to these islands (Anonymous, 2018d, Çavuşoğlu, 2012).

Central Anatolia and Inner Black Sea Region

Nevşehir province, having significant portion of the large wine production plants in Turkey, produces mainly cultivars Emir, Kayseri Karası, Dimrit and Şıradar. There are many wine production facilities in Ankara province. Among the significant other grape varieties grown in the region are Kalecik Karası and Hasandede (low-acid and fairly sweet white grape cultivar having its name from a town of Kırıkkale province). The cv. Narince (with old white wine in wooden barrels) is found in Tokat province (Altıncı at al., 2017, Anonymous, 2017b).

Aegean Region

Among the grapevine cultivars for wine grown in İzmir province, there are Cabernet Sauvignon, Carignan, Alicante Bouchet,. Shiraz, Bornova Muscat and Foca Karası. In recent years, Urla and Çeşme districts outside the province center of İzmir have come out with wine and grape production. Denizli, another province famous for the wine of the Aegean Region, is known for cv. Sultaniye and cv. Çal Karası which are used in the production of Rose wine and named for Çal town (Anonymous, 2017b).

Eastern and Southeastern Anatolia Region

Anatolia's most valuable red wine grape is obtained from cv. Öküzgözü grown in vineyards in Elazığ and Malatya provinces. The cv. Boğazkere grown in Diyarbakır stands out with the acrid taste for wine enthusiasts due to its high tannin content. The wine resulting from the mixture of Öküzgözü and Boğazkere grapes are among the most famous and preferred wine brands of Turkey. The wine produced in Midyat and Mardin provinces of Southeastern Anatolia, is produced from Mazruna and Kerküş varieties of local grapes by the dwindling numbers of Syrian Othodoxies known for its wine-making tradition. Moreover, Van Province and its vicinity still have a very old and deep-rooted viticulture practices that continue throughout civilizations, even though it has lost a large part of the vineyard areas for various reasons. (Anonymous, 2017b, Gazioğlu Şensoy and Akcan 2014, Akaalp, 2007, Gazioğlu Şensoy at al., 2018,, Gazioğlu Şensoy and Tutuş, 2017).

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CHAPTER 2

A RESEARCH ON OUTDOOR BORDER DESIGN IN PRESCHOOL EDUCATION ENVIRONMENTS

B. Ece ŞAHİN[1]

Introduction: Importance and General Characteristics of Garden in Preschool Education Environment

In terms of preschool education, the garden is one of the main learning resources that provide mental, physical, social and emotional experiences for children. It has an important place in the practices and approaches that constitute the basis of preschool education programs in an outdoor historical process with its effects on children's health, happiness, and learning. In the 1840s, Froebel's Kindergarten conception was seen as part of the education of children in the garden. Froebel aimed at bringing the learning environment into an ideal society image and argued that the environment should be designed as a whole with gardens and buildings (Herrington, 2008). In 1840, the first kindergarten opened in London according to Froebel principles was perceived more of a garden rather than a building (Dudek, 2013). Influenced by Froebel's ideas at the end of the 19th century and the beginning of the 20th century, Margaret McMillan considered the kindergarten garden as a happy learning environment for children as well as for families. With positive achievements in the open-air camp for girls in the deprived area of Deptford that was opened by Margaret McMillan and her sister Rachel, this initiative was continued with the opening of an open-air kindergarten for children under 5 years of age. The kindergarten, Rachel MacMillan Open Air Nursery School opened in 1914 included a garden enriched with various trees, rock gardens, plants that diversify sensory experiences, vegetable gardens grown in crops for children's nutrition, natural elements such as flowers, as well as sand-pool and climbing equipment for children to experience produced objects (Bilton, 2010; Garrick, 2009).

The Malting House School, opened by Susan Isaacs in 1924, is another example of the importance of this understanding. With the variety provided in the kindergarten garden, children are given an extraordinary freedom to explore their surroundings. By offering a variety of resources, Isaacs aimed to enable the garden to stimulate thinking in different ways, and to support it, it included different sections in the outside as part of the learning environment. In the kindergarten garden, special areas were created for different activities such as building a fire or constructing. A different natural environment has been created by including different animals, plants and fruit trees that children will not encounter (Garrick, 2009). In the face of adverse conditions in industrial cities, it was aimed to provide the ideal living environment for the children in kindergarten gardens.

1 Bursa Uludağ University, Faculty of Architecture, Department of Architecture, Bursa, Turkey.

These achievements were lost in the following years due to the perspective that a limited area is sufficient in primary schools for preschool education in general. Today, in the face of the problems created by urban life, there is still a great need for kindergarten gardens to contribute to the lives of children. Due to intensive urbanization, traffic and security problems in the cities, children are now losing their ability to move freely in the outside space and do not get to have sufficient natural environmental experiences (Bilton 2010; Garrick, 2009; Dudek, 2013). In recent years, it has been emphasized that a significant number of children live in poverty and this situation has a negative effect on their health and well-being, and therefore, it should be possible to use outdoor in kindergartens both for children and for families and the community (Garrick, 2009).

The urban population is increasing every year. It is estimated that 68% of the world's population will live in cities in 2050.[2] In this respect, it is argued that nowadays, in all schools, the outdoor space should not only be considered as a playground but should be designed as gardens providing different learning experiences for the children and the community. School gardens are expected to be seen as a potential to provide healthier living opportunities in cities and to support urban life with social usage opportunities. It is noted that schools have a great responsibility for the problem caused by urban living which creates alienation from outdoor space.[1] All school areas, preschool education, healthy development of students in the primary and secondary education process, supporting the learning opportunities and society is seen as a potential. In this respect, it is criticized that school gardens are generally considered as necessary areas for primary education and that the importance of secondary schools is ignored. It is stated that small age groups are more likely to use public green spaces or playgrounds such as parks than children in the 12-19 age range, thereby, this neglect should be eliminated by a creative vision in secondary education (Evans, 2015).

Various design guides are developed to design gardens as a learning and teaching resource in terms of preschool education and to design them as a qualified use area for children and society. One of these studies is the "Landscape and Child Development, A Design Guide for Early Years-Kindergarten Play-Learning Environments", which was prepared with aim of providing guidance for designers, educators, construction workers and the school community in Canada. In the guide, basic principles of outdoor design in preschool education environments are defined as meeting the developmental needs of the child physically, socially, cognitively and emotionally, establishing relations with the senses, safe and accessible spaces, supporting the questioning and game-based learning, meeting the requirements of the staff, planning for maintenance and adoption of participatory approach.[3]

In another design guide, "Design Guidelines for K-12 Outdoor Play and Learning Environments", it is stated that school spaces are valuable places that should be used by everyone. It is emphasized that the study consists of a set of design principles that keep children's physical, cognitive, social and emotional developmental needs at the center. In order to create a vision that will provide natural play and learning opportunities for school areas, participatory activities were carried out with a group of school administrators, teachers, school responsible people, parents, professional

2 https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html; 2018

3 https://www.evergreen.ca/downloads/pdfs/Landscape-Child-Development.pdf, 2018

designers, facility managers and community groups. In the study, it is stated that in an outdoor design, it is necessary to aim to establish relations with children's senses, to increase their perceptual awareness, to encourage curiosity and to create spaces that allow expression. The kindergarten garden is defined as an environment that is child-centered, allows question-based learning and provides opportunities for adventure, entertainment, and imagination. It is stated that in order to provide such an environment, it is necessary to allow relations with animals in the outdoors, to create different paths and maps for children's desire to discover, to have special spaces where children can stay calm in the crowded school environment and allow children to build these environments themselves. It is recommended that in the garden, options for role-playing games are offered for the development of creativity. In an environment where rich learning experiences can be achieved, it is important to provide children with the opportunity to find and find things, to collect and build, and to present various creativity materials. These qualities make the gardens an important resource for children's development in preschool education spaces.

Successful outdoor designs are important in terms of creating the first positive impressions of the educational environment in addition to the contributions that children make to their development. In this context, it is stated that the image of preschool education environment is holistic and that the environment, playgrounds, fences and signs are part of this image. It is emphasized that these components should be designed with the aim of creating a perception of environment for children (Olds, 2000).

In this study, it is aimed to draw attention to the importance of borders design as one of the components affecting the quality of the garden. Within the scope of the research, the issues that should be taken into consideration in the garden border design in a space of education and to provide a small scale assessment, the quality of garden border elements was investigated in independent kindergartens located in Nilufer district of Bursa province.

Basic Principles for Garden Border Design

Within the scope of literature evaluation, in the identification of the main issues of the garden border design are defined as security, welcoming impression, sensory experiences, opportunities for play and privacy requirements and visual interaction.

Safety

Security is the basic and most important requirement in the design of preschool education environments. In the design of the elements limiting the garden, firstly the compliance with the safety criteria must be taken into consideration. There is a need to control the entrance to the outdoor space. It is suitable to have automatic as well as designing the door handles so that they cannot be opened by children. It should be noted that the fence height should be at least 120 cm and higher fences in the case of high-risk areas such as highways, swimming pools or rivers. (Olds, 2000; Kotnik, 2011, 2014). It is expected that the height of the fences will not be an obstacle in children supervision and that it can prevent the passage of animals from outside and will not be suitable for climbing. If there is a danger zone near the playground, it is recommended that the top of the fences be designed inward (Kotnik, 2011, 2014).

It is stated climbing over to another side can be prevented by placing horizontal connections on the fences at the head level of the children. Consideration should be given to the risk of getting stuck in the gaps of border surfaces. The distance from the ground below the fence should not be greater than 8.9 cm (3.5 inches); gaps should have spaces of less than 8.9 cm (3.5 inches) or greater than 22.9 cm (9 inches) to prevent being trapped (Olds, 2000; Ruth, 1999; Grillmeier, 2015). There are some differences between design standards. For example, in the design guideline "Early Childhood Facilities (Birth to Age 8)" any gaps between the vertical bars in fences should be 10 cm or less.[4]However, the dimensions of 8.9 cm and 22.9 cm are generally stated as suitable dimensions in the study. Errors in gap dimensions are an important problem that threatens the safety of children. For example, in the US building standards 1988, it was stated that the gap size which is safe for children can be up to 15 cm. However, in light of the findings that this standard is risky for safety this measure is no longer accepted. An error in these dimensions has been revealed based on the information that all children under the age of 6 years can fit through 15 cm gap and half of the 10-year-old children can fit through 15 cm (Pauls, 2008). The gaps in the borders should be designed taking into account the current data for a safe environment for children.

The gap dimensions are one of the important issues in creating a safe garden for children. In this study, in order to evaluate the quality of the borders by observation, the health effects of the materials used in the border elements that require detailed analyzes are not considered. Another potential safety risk issue in the garden for children is that trees and fences are close poximity. It should be impossible for the children to climb the trees to pass on the other side of the fences.[5]

The closure of the outdoors is generally a prerequisite for safety in preschool education environments. However, it is seen that a public garden design that provides unlimited interaction is also realized with the aim of supporting children's social experiences. In the example of the Ecopolis Plaza, the community was allowed to use the public space created for the kindergarten (Figure 1). Kindergarten garden in a sense is described as a square. The boundaries of the garden are designed as an artificial, sloping topography to create a filter effect against the industrial environment and to avoid the negative effects of the context (Kotnik, 2014). This practice can be regarded as an unusual approach that does not require closure for security in line with the importance given to community use and interaction.

Figure1. Ecopolis Plaza: Unlimited interaction in the kindergarten garden (http://rushiwork.oss-cn-beijing.aliyuncs.com/works/201006/bf4622b2.jpg; 2018)

4 In the design guideline "Early Childhood Facilities (Birth to Age 8)" any gaps between the vertical bars in fences should be 10 cm or less (https://www.education.sa.gov.au/sites/g/files/net691/f/early-childhood-facilities-birth-to-age-8-design-standards-and-guidelines.pdf?v=1459296603; 2018)

5 https://www.evergreen.ca/downloads/pdfs/Landscape-Child-Development.pdf; 2018

Welcoming impression

The garden, where the first impression of the kindergarten children towards the educational environment is created, should be of inviting, welcoming nature for the children. This topic is actually important for all school areas. It is emphasized that school areas should be seen as an important potential to support the impact of design to create an identity (Evans, 2015). In this respect, it is stated that in kindergartens, it is necessary to avoid solutions that create a barrier effect against children at the entrance and exit of play areas. In order to have a positive effect, it is recommended to develop details at entry points or other points through colors, various textures, gaps, or with details to make the border more interesting with changes in the fence line.[6]Restrictiveness should not be of intimidating nature for children. In order to obtain avoid the hostile effect of long concrete walls, it is stated that design solutions such as fences, planting, elevation changes, integration of seating elements integrated with low walls can be utilized (Olds, 2000). It is found beneficial to design boundaries in a structure that allows children to exhibit their work of art. [7] It is also emphasized that the fences designed by relating to children's imagination and creativity can provide opportunities to create a sense of place and in this respect, compliance with the basic objectives of the garden design should be taken into account.[8]

Sensory experiences

Outside learning is of great importance because of the rich opportunities for enriching sensory experiences in children. In this respect, the outer space is seen as the continuation of the game room and is expected to be as diverse as possible (Kotnik, 2014). In order to diversify sensory experiences in the outdoors, it is indicated that different details such as rough/flat surfaces, heavy/light, wet/dry, hot/cold, glossy/matte, large/small objects can be used for border elements. It is also important to think about methods to discover sounds as part of the outdoor play, to develop sound-producing materials or sound-producing details independently. In this respect, suggestions are made such as creating a music wall and giving the sound to the instruments along the fence (Olds, 2000).

Opportunities for play and privacy requirements

One of the important requirements that should be provided in the physical environment for children is the possibility of socialization and the need for privacy (David and Weinstein, 1987; Olds, 1987). In the Early Childhood Environment Rating Scale: In ECERS-3, one of the evaluation criteria for the venue is to provide special usage areas for privacy. In preschool education environments, in order to relax away from the pressure brought by the group life, it is necessary to place special places indoors or outdoors where one or two children can play games without being affected by others (Harms et al., 2015). It is stated that children prefer to come together at the edges of a place in a preschool education environment for privacy, imagination and social interaction. In this respect, the quality of the borders is of great importance. Restrictors should be able to support children's expectations for their use by offering

6 https://www.evergreen.ca/downloads/pdfs/Landscape-Child-Development.pdf; 2018

7 Whttps://www.education.sa.gov.au/sites/g/files/net691/f/early-childhood-facilities-birth-to-age-8-design-standards-and-guidelines.pdf?v=1459296603; 2018

8 https://www.evergreen.ca/downloads/pdfs/Landscape-Child-Development.pdf; 2018

special places such as sitting, climbing and hiding. It is expected that the edges should become part of the playground and offer children different options for play and recreation purposes. A matter of importance here is that while some parts of the border elements give children a sense of privacy, an obstacle where the standing adult is unable to see the children should be avoided (Olds, 1987; Olds, 2000). Some of the proposals that can be used in this context are to create corners by drawing zigzags or creating protected areas.[9]

Visual interaction

In preschool education environments, the design of boundaries in a way that allows a visual relationship in a permeable structure promotes learning in terms of increasing the opportunities for children to interact with other children and their physical environment is supported. In this respect, Zane (2015) identifies the visual relationship to be established with the street in educational places as an important wealth for children in terms of learning and communication. It can be said that interactions between the indoor environment and the outside environment are important as well as indoor and outdoor correlations. In preschool education environments, it is indicated that the separation activity zones such as outdoor closeness, cycling in the garden, playing in the sand is appropriate but all children should be allowed to observe each other as young children are more mobile, more ready and support their ability to go beyond their existing skills. In cases where it is desirable to look at the outside of the playground, it is appropriate to keep the visibility at the highest level and to have a visual impact on the garden borders. In this respect, the quality of the boundary element is expected to be appropriate for this purpose. It is stated that plants can be used on the inner and outer surfaces of the permeable borders. In cases where the view of the environment is not desired, it is recommended that wood can be preferred for the use of filled surfaces, and in this layout, planting or shrubs can be used for softening the closeness (Olds, 2000; Kotnik 2011, 2014). It can be stated that permeable boundaries, the quality of the garden and the livelihoods of children can be felt in the immediate surroundings, and that the kindergarten also adds value to the physical environment.

The Jardin El Porvenir Kindergarten in Bogotá can be shown as an example of the main purpose of border design is to provide visual interaction. Most of the areas where the kindergarten is located, which is defined as the slum area of the city, were opened to the use of community to provide a breathing space the dense urban structure. The approach that guided the project is expressed as the improvement of the boundaries. The circle-shaped border consists of a structurally white column sequence and a helical surface. The lower walls of the border and the sitting elements are integrated. With this sculptural effect, it has been emphasized that the negative associations were removed in the boundary arrangements that are commonly used to provide security in the school environment (Figures 2, 3). With this method, it is stated that the relationship between the society and school is not completely broken, a secure area is provided and the outdoor space that can be built on the walls of the building can become a part of the society (Evans, 2015). In this example, the impact of the original, permeable boundary design both on the kindergarten and as an interaction area for the children and society and on the contribution to the urban environment is observed.

9 https://www.evergreen.ca/downloads/pdfs/Landscape-Child-Development.pdf; 2018

Figure 2. Jardin El Porvenir Kindergarten, permeable boundary design and context relation (https://images.adsttc.com/media/images/5612/f601/e58e/ce44/9e00/001a/large_jpg/14-RODRIGO-DAVILA-MAZ-ZANTI-EL-PORVENIR.jpg?1444083167; 2018)

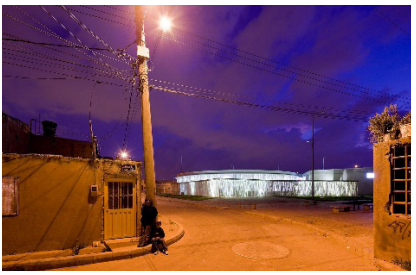


Figure 3. Border design and impact on urban environment (https://i1.wp.com/iwan.com/wp-content/uploads-iwan/2013/07/Kindergarten-GMA-6304.jpg?w=1840&ssl=1; 2018)

Another example of a border designed to allow visual interaction is the Forfatterhuset Kindergarten garden. The fence of the garden is intended to provide privacy and to create an open and safe environment.[10] Also in this example, it is seen that the border is considered as a component of the architectural design. It is intended that the brick facades used in the building and fences are compatible with the character of the buildings with brick surfaces. In this design, it is seen that the use of vegetation in the permeable boundaries has different effects on the perimeter perception of the fence (Figures 4, 5).

Figure 4.Fence and visual interaction [1]

Figure 5. Fence and green effect (https://parentsimon.files.wordpress.com/2016/07/copenhagen-forfatterhuset-kindergarten.jpg; 2018)

The Quality of Border Designs in Independent Kindergarten Gardens

In this study, the issues that should be evaluated in the border design in terms of improving the quality of the garden in preschool education environments are defined as security, welcoming impression, support of sensory experiences, provision of opportunities for play and privacy requirements and visual interaction. Borders with specified qualifications have a significant impact on the development of children's learning experiences, support their healthy development and on the increase in the contribution of the preschool education environment. In this context, a small scale,

10 https://architizer.com/projects/forfatterhuset-kindergarten-1/; 2018

observational research was conducted and the nature of the garden border elements of 13 independent preschools belonging to Nilüfer, one of the three central districts of Bursa city, was investigated within the scope of the mentioned subjects. In kindergartens, information describing the nature of the outdoor boundary is presented by numbering the kindergartens (Table 1).

Table 1. The structural feature of the boundary, perceived visual character and the relationship with the environment

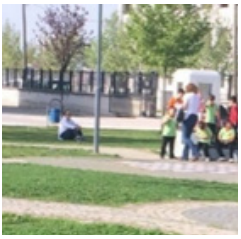
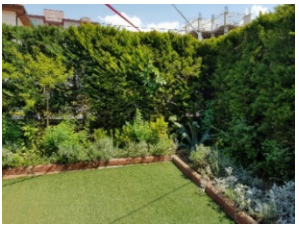
Kindergarten 1	• Structural quality: wall + wire mesh fence • Perceived general character: the nature of the structure itself + green effect (medium level) • Relationship with the environment: medium level
  	
Kindergarten 2	• Structural quality: wall + metal railing • Perceived general character: green effect (very intense) • Relationship with the environment: -
  	
Kindergarten 3	• Structural quality: wall + wire mesh fence • Perceived general character: green effect (intense) • Relationship with the environment: very little level
  	

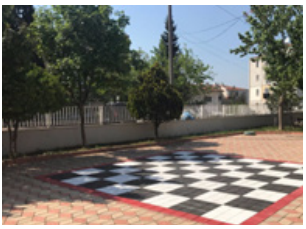
Table 1 (Continued). Structural characteristics of boundary, perceived visual character and relationship with environment

Kindergarten 4	• Structural quality: wall + metal railing • Perceived general character: the nature of the structure itself + green effect (low level) • Relationship with the environment: very little level
  	
Kindergarten 5	• Structural quality: wall + wire mesh fence + metal railing • Perceived general character: the nature of the structure itself + green effect (low level) • Relationship with the environment: very little level
  	
Kindergarten 6	• Structural quality: wall + wire mesh fence • Perceived general character: green effect (intense) • Relationship with the environment: Very little level
  	
Kindergarten 7	• Structural quality: wall + wire mesh fence • Perceived general character: the nature of the structure itself + green effect • Relationship with the environment: +
  	

Table 1 (Continued). Structural characteristics of boundary, perceived visual character and relationship with environment

Kindergarten 8	• Structural quality: wall + metal railing • Perceived general character: the nature of the structure itself • Relationship with the environment: medium level
  	
Kindergarten 9	• Structural quality: wall + metal railing + artificial green wall • Perceived general character: wall + artificial green effect • Relationship with the environment: -
  	
Kindergarten 10	• Structural quality: wall + metal railing + glass railing + artificial green wall • Perceived general character: wall + artificial green effect • Relationship with the environment: -
  	
Kindergarten 11	• Structural quality: wall + wire mesh fence + artificial green wall • Perceived general character: wall + artificial green effect • Relationship with the environment: -
  	

Table 1 (Continued). Structural characteristics of boundary, perceived visual character and relationship with environment

Kindergarten 12	• Structural quality: wall + metal railing • Perceived general character: wall + artificial green effect • Relationship with the environment: very little level
  	
Kindergarten 13	• Structural quality: wall + metal railing • Perceived general character: the nature of the structure itself + green effect • Relationship with the environment: medium level
  	

In the kindergartens examined in terms of safety criteria, the height of the boundary element generally corresponds to the minimum specified value of 120 cm. There are details exceeding 8,9 cm in the gap dimensions of the border elements. In the kindergarten garden, it is considered that there are few risky sections in several kindergartens in terms of creating the danger that the trees planted on the edge of the fences can allow children to climb to the other side. Although the automatic gates are necessary for safety, it has been observed that this type of solution is not included in the samples examined.

It is seen that there are no differentiated details on the borders of kindergartens in terms of creating a welcoming effect, and it is not designed with the aim of creating a special effect within the context of the structures that constitute the boundaries. In order to create a green effect in border design in kindergartens, a positive effect is created through plantation and afforestation, both indoors and outdoors. In some examples, it can be said that the use of natural elements has created an effect on the borders to create a corresponding effect for the kindergarten (Figure 6). Afforestation, usually within the garden and the presence of parapet walls at the boundaries of the garden and outside of the garden leads to the different perception (Figure 7). It is also seen that in a small number of kindergartens, it is aimed to create a green surface effect through artificial coatings.

Figure 6. Specialization of boundary character with green effect

Figure 7. Internal-external: perceptual difference with the use of parapet wall

In terms of supporting the sensory experiences, it is observed that the borders in kindergartens do not contain regulations that can produce visual, auditory, tactile experiences in order to provide different sensory experiences. It can be said that the use of boardsin the kindergarten garden, where the student studies are displayed, is an area that can be effective in this respect. However, this solution is not provided with a border design as an integrated assessment.

Considering the need to provide opportunities for play and privacy requirements, it is seen that solutions are not designed for the purposes specified. Visual interaction is generally provided in partly between the garden and the surrounding environment. In order to create a more introverted effect in the kindergarten gardens, planting and afforestation are carried out and artificial green coating wall surfaces are used in this respect. In addition, a visual interaction is prevented with the urban environment due to reasons such as the presence of high retaining walls in the kindergarten gardens where parapet walls are at the height limiting the visual relation with the environment for the kindergarten children.

Evaluation

In preschool education environments, the boundaries of the outer space should be designed in a matter which it will provide support for the development of children. In the study, the main issues of the garden border design are defined as security, welcoming impression, sensory experiences, opportunities for play and privacy requirements and visual interaction. In order to present a small-scale assessment of the situation in our country, the nature of the borders in the publicly independent kindergarten gardens in Bursa, Nilüfer district was examined observationally. In general, it has been observed that the boundaries in the preschools examined were not designed to contribute to the use of the mentioned subjects.

In terms of safety, in the fences and railings on the wall, the measurement of the gap dimensions that are not in compliance with the standards should be regarded as a warning for all preschool educational spaces. The border elements, such as fences or wire fences, being positioned on the wall as well as trees that are not suitable for climbing should not be considered a method to prevent children from accessing inappropriate spaces. The possibility of the child to reach these problematic surfaces should be taken into account such the child an moving object to use for access. In the samples examined, a solution should be developed for the inadequate gaps between the railings and the wire mesh seen in as seen in a small number of examples (Figure 8).

Figure 8. 15 cm of gap on wire mesh surface

In terms of creating a welcoming impression, various opportunities can be created in kindergarten border designs by developing special architectural approaches other than green effect. It should be considered that the borders should be inviting to both the kindergarten approach and the use of the garden. In this respect, it should be considered that it is important to design buildings, gardens, and borders in the perspective examined as per the literature review of preschool education spaces. It is aimed to develop a positive effect in the garden with the natural landscape elements in the independent kindergartens examined. If this objective is targeted, it will be useful to ensure that the green effect of the urban environment is felt in a similar way with the permeable boundary design.

Green artificial materials are used in the garden walls of kindergartens in order to provide green effect and closure. Instead of artificial solutions, natural landscape elements in the borders will provide greater returns for the children. In this way, it will be possible for the border to acquire a quality that appeals to the other senses of the child. Different sensory stimuli can be acquired with border design from various angles, such as the different odors of plants and trees, hearing the sound of leaves in the wind, discovering the natural structure of the plant and seeing the different living things. In addition, it is possible to create different shadow effects on the natural borders by the different light filters. In terms of supporting sensory experiences, the designs of the borders should be included so that children during their play processes are able to achieve visual, auditory, tactile and odorous differences.

Creating different spatial arrangements that provide opportunities for children's play and privacy requirements at the borders should be aimed for. In the choice of land for kindergartens, it is stated that an area with a little slope towards the south is suitable (Kotnik, 2011; 2014). In the independent kindergartens examined, unfortunately, very high retaining walls were found to create a flat area of use in a sloping area. If such a situation is unavoidable, it may be considered that special spaces can be created for various purposes on these filled surfaces in order to improve the structure of the retaining walls which are monotonous and incompatible with scales of a child. The use of platforms that can be used at different elevations compatible with the child's scale on the surface of the wall, the arrangement of sections such as stairs or sub-platform in such a way that one or two children can use them, can provide full quality of the wall surfaces to contribute to the garden.

It is deemed useful to provide visual interaction at the borders in situations where relationship with the environment is problematic. The independent kindergartens are located within the housing texture. However, it is generally seen that the aim is to create an inward-facing boundary effect at the borders. It should be noted that in this texture, the boundaries that allow for interaction with the context can provide an inviting image that shows the vivid life of the kindergarten for both children and the close community. Consideration should be given to the gaps in the borders that provide visual interaction which strengthens the sense of belonging of children with the environment. Through plantation and afforestation in kindergarten gardens, it is also seen that in the kindergartens that aim to create inward borders, there is the possibility of visual relation in the borders shared with the schoolyard. This approach should be considered as a matter of importance in terms of designing the relationship with the context. In applications where a green effect is desired by planting and afforestation, a visual interaction can be promoted by providing permeability in green texture, especially in areas where pedestrian circulation is intense around kindergarten.

In the examples examined in terms of border design as one of the issues affecting the quality of outdoor for preschool education spaces, it is seen that the requirements stated in the literature cannot be achieved. Within the scope of the subjects mentioned in the study, it is necessary to develop surfaces that limit the kindergarten gardens. In order for the borders to contribute to the quality of the garden, the suitability of the gap dimensions, developing different details for the diversification of the welcoming impression, to create special spaces for privacy and game requirements in the design of full wall surfaces or other boundary elements and to support visual interaction opportunities should be considered. Preschool educational spaces should be designed with an integrated view of indoor and outdoor characteristics.

In recent years, different designs aimed at supporting the use of open space in the design of educational spaces have been realized with this idea structure. The Forfatterhuset Kindergarten, where the building is used on the ground to reclaim the terraces for the children on the roof, or the Farming Kindergarten, a green roof surface designed for horticultural activities, are some of these designs (Figure 9, 10). Evelyn Grace Academy is an important example of the development of outdoor use in secondary schools. In the design, it is aimed to bring the outdoor potential of the school to the highest level in a limited area within the dense urban texture. The orientation of the building and the walking paths according to the sporting areas is ensured, as well as a running track, terraces, playgrounds arranged at the roof level and a small-scale area for horticulture in the south section (Evans, 2015).

Figure 9. Farming Kindergarten general view (https://archello.com/story/47438/attachments/photos-videos/2; 2018)

Figure 10. Farming Kindergarten roof garden (https://archello.com/story/47438/attachments/photos-videos/11; 2018)

In the applications realized with the aim of enriching the outdoor use possibilities in the design of the learning spaces, an integrated approach in the design of the outdoor space with the building is observed. In our country, efforts should be made to make the outdoor space a learning environment for students and society in all schools serving pre-school education and different levels of education. In this context, innovative experiments should be created in existing schools and the projects being developed. In terms of achieving successful design solutions, architectural design competitions are used as a method in Finland. In order to create a vision by recognizing the needs of the training process, participatory working processes are carried out in countries such as England and Denmark and these studies are given great importance (Chiles, 2015). In order to achieve truly successful solutions, it is important to utilize from participatory work processes with different stakeholders, educators, students and designers. These approaches can be adopted as a method to support the quality of educational environments in our country. The fact that preschool education spaces are small in terms of scope and scale compared to other educational environments, trying to implement the mentioned approaches can be considered as a more suitable qualification. In this context, the development of new proposals for designing independent preschools can be viewed as the first step.

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CHAPTER 3

INTELLIGENT BUILDINGS – INTELLIGENT SYSTEMS

Begüm ERÇEVİK SÖNMEZ[1]

INTRODUCTION

With the recognition of the connection between living and working space and user efficiency, many designers have turned towards design of smart spaces that are energy efficient and cost efficient by means of renewable energy sources and that can maximize the efficiency of users. The scientific and technological developments in materials, electronics, computer, communication, artificial intelligence and robotics have supported the generation of the smart spaces. The wish to eliminate the design challenges faced by the architectural designer team has been important in the emergence of intelligent buildings. First of them is the elimination of the sick building syndrome, which is caused by insufficient ventilation conditions, improper thermal insulation, improper layout, chemical and microbial contamination; accordingly, it has been accepted that the main purpose of environmental air conditioning systems is user's health, comfort and efficiency. In addition, the inefficiency of the internal renewal of the buildings in every few years has been observed. Thus, the concepts of spatial flexibility, modular design and sustainability have taken place in the intelligent building design. On the other hand, the awareness that the environment is polluted by waste products has increased; intelligent buildings that produce some of their own resources and process their own waste have gained importance (Wong, Li & Lai, 2008; Kroner, 1997; Clements-Croome, 1997).

Intelligent buildings integrate and optimize building structures, systems, services and management to generate productive, cost-effective and environmentally conscious spaces for users. Intelligent buildings can vary depending on individual, organizational and environmental requirements; in addition, it can learn the stimuli coming from the user and the environment; and transform in accordance with these stimuli (Wong, Li & Wang, 2005).

Vernacular architecture often shows great intelligence without the use of smart technologies. The igloo of Eskimos, for instance, reflects a high level of intelligence with its shape, details and use. Therefore, smart design should not be defined as the use of intelligent equipment in high-tech buildings (Kroner, 1997).

When the intelligent building is mentioned, it is understood especially in Turkey that energy management is carried out with automatic control of the mechanical and electrical systems of the building. It is ignored that the design and construction of the building should also be energy efficient and intelligent. However, the building is a whole of subsystems such as architectural design, construction system, conveyor system, mechanical system, and electrical system. If

1 Assistant Professor (PhD), Istanbul Gedik University, Faculty of Fine Arts and Architecture, Istanbul, Turkey

each of these subsystems is not suitable for the concept of intelligent building, it is not possible to refer to the building as an intelligent building.

This text aims to introduce the major design parameters affecting the energy performance of the building as a passive system and to explain the active intelligent systems. In addition, it aims to offer some suggestions for intelligent building applications in which passive systems and mechanical, electronic and automation systems work in harmony. Other objectives of the text are as follows:

- To ensure that designers focus on the concept of intelligent building in the intellectual stages of designing;
- To create a theoretical composition for future studies.

In the text, initially, intelligent building definitions made by different organizations are defined; the advantages and disadvantages of intelligent buildings are listed. Location, direction, form, building envelope, natural ventilation of places, utilization of and protection from the sun, that are architectural design parameters required to be considered in the first stages of architectural design process, are explained. Smart facade systems are summarized; smart facade items are presented as tables. Active smart systems are grouped into eight subtitles and explained; and intelligent building technologies and systems are summarized in table. Finally, some suggestions for intelligent building design are presented as items.

CONCEPT OF INTELLIGENT BUILDING AND DEFINITIONS

As the lexical meaning; the act of intelligence, seen as being above a certain level or the ability to adapt to changing situations; has begun to reflect to the places we live within the framework of the opportunities provided by the developing technology (Günaydın & Zağpus, 2003).

Intelligent buildings were supported by UTBS Corporation (United Technology Building Systems Corporation) in 1981 in America; and the first intelligent building was brought to life with the opening of the City Place Building in Connecticut Hartford in July, 1983. UTBS Corporation was responsible for the control and operation of equipments such as air conditioners, elevators and disaster prevention devices. In addition, the company provided services to all tenants such as office automation services, local area networks (LAN), digital private automatic branch exchange (PABX) and computers. The Hartford Building was recognized as the world's first intelligent building (So, Wong & Wong, 1999).

In America, an intelligent building is classified into four basic elements: structure, system, service and management. In Europe, information technology and the unique need of users are emphasized. In Singapore and China, the term of "automation", which emphasizes the high technology, is dominant (So, Wong & Wong, 1999). The concepts of "smart", "high-tech", "integrated" and "advanced technology" are all included in the existing intelligent building definitions; but no standard official definition for intelligent building has been proposed in the world yet (Kroner, 1997).

The Intelligent Building Institute, located in Washington, has defined intelli-

gent buildings as follows: An intelligent building is one which integrates various systems that effectively manage resources to maximize: occupant performance, flexibility; and investment and operating cost savings (Kroner, 1997; Clements-Croome, 1997).

The National Research Council, Washington, entitles intelligent buildings as electronically developed office buildings and defines them as: "buildings with electronic and physical infrastructure that support the use of advanced communication, data processing and control technologies by its occupants and operating personnel. Such a building is equipped with the necessary cables, channels, power supply, heating, ventilation, cooling, lighting, noise suppression and security systems that meet all requirements of today's office environment" (Kroner, 1997).

The Essex Smart Buildings Community defines intelligent buildings as buildings that manage the building environment autonomously by using computer technologies in order to optimize occupant's comfort, energy consumption, security, and labor productivity (Günaydın & Zağpus, 2003).

The CIB Working Group in Intelligent and Responsive Buildings has defined intelligent buildings as follows (Clements-Croome, 1997; Wong, Li & Lai, 2008): "An intelligent building is a dynamic and responsive architecture that provides each occupant with, productive, cost-effective and environmentally approved conditions, through a continuous interaction between its four major elements: Places (fabric, structure, facilities); Processes (automation, control, systems), People (services, users); and Management (maintenance, performance) and interrelation between them."

According to *Intelligent Building Institute (IBI) of USA,* an intelligent building is a structure that provides a productive and cost-effective environment by optimizing the four basic elements, namely, structure, systems, services and management and the interrelationships between them. The UK based *European Intelligent Building Group* defined an intelligent building as a structure that maximizes the effectiveness of building occupants and also creates an environment that enables efficient management of resources with minimum life-time cost (So, Wong & Wong, 1999, Wong, Li & Wang, 2005). It is seen that while the definition of UK focuses on user' requirements, the definition of US focuses on technologies.

So, Wong & Wong (1999) proposes a two-level strategy for identifying intelligent buildings. The eight quality environment modules described in the proposal are as follows: environment friendly-health and energy conservation (M1); space utilization and flexibility (M2); life cycle cost - operation and maintenance (M3); human comfort (M4); working efficiency (M5); safety - fire, earthquake, disaster and structure etc. (M6); culture (M7); image of high-tech (M8). These eight quality environment modules have been assigned some facilities or basic elements in the appropriate priority order; and a new definition has been given for intelligent buildings: "An intelligent building is designed and generated according to an appropriate selection of quality environment modules in order to meet user's requirements by providing appropriate building facilities". So, Wong

& Wong (1999) stated that this new definition includes two dimensions as providing technology and fulfilling the user needs.

As conveyed by Wong, Li & Lai, Armstrong et al. stated that an intelligent system would show its intelligence by responding effectively to the changing needs of its users; and Smith (2002) argued that there are two views on the intelligence of a modern structure. The first view is about how the building reacted to change; another view is closely related to the ability to adapt. A system is an intelligent one if it can meet and adapt to user requirements. On the other hand, Himanen (2004) stated that "a building is an intelligent if it is implemented with environmentally friendliness, flexibility of space, movable space elements and equipment, life cycle costing, convenience, comfort, safety, working efficiency, culture, construction process and structure, long term flexibility and marketability, information intensity, interaction, service orientation, ability of promoting health, adaptability, reliability and productivity" (Wong, Li & Lai, 2008).

Clements-Croome (1997) defined the intelligent building as "a structure that provides a whole set of innovative and adaptable technologies in appropriate physical, environmental and organizational environments to increase employee productivity, communication and overall satisfaction". Intelligent buildings can cope with social and technological changes and they can adapt to the needs of the users in the short and long term (Clements-Croome, 1997).

The potential benefits of an intelligent building to users and investors increase the interest in intelligent buildings. These benefits can be listed as follows (Wong, Li & Wang, 2005):

- Reducing operating and occupancy costs;
- Improving operational effectiveness, efficiency and marketability;
- Providing a flexible, convenient and comfortable environment for occupants;
- Reducing maintenance costs;
- Reducing the measurable energy consumption of the building;
- Providing advanced technological facilities.

On the other hand, intelligent buildings also have some disadvantages. These are (Günaydın and Zağpus, 2003):

- The problems caused by the failure to make the necessary maintenance and controls of the systems on time which make the buildings intelligent; or when the system is not designed sanitarily and economically (for instance; sick building syndrome);
- Problems arising from computer-aided systems (for instance; accessibility problems as problems in terms of privacy and security);
- Problems arising from additional comfort or differentiation efforts that people constantly seek (for instance; additional costs, distancing from

nature, and artificialness).

Later in this text, passive design principles that need to be addressed in the intellectual stages of intelligent building designs, and advanced technologies and systems that provide the occupant efficiency with minimal energy are discussed.

ENERGY-EFFICIENT PASSIVE DESIGN

Passive design is a set of architectural design strategies used by the designer to design structures that can adequately respond to the climate and contextual requirements. The importance of architectural design parameters such as the location, the relative location to other buildings, the direction, the form and the building envelope of the building in the design of intelligent buildings cannot be denied. Otherwise, the building cannot be more than just a classical building with mechanical and electronic systems that are controlled by automation. Intelligent buildings are structures that combine active systems and passive design parameters to ensure maximum user comfort using minimum energy (Ochoa & Capeluto, 2008; Yılmaz, 2005).

The main design parameters affecting the energy performance of the building as a passive system are;

- Location of the building,
- Distance and relative location of the building to other buildings,
- The direction of the building,
- Form of the building,
- Physical properties of the envelope elements surrounding the building that affect the heat transfer,
- Solar control and natural ventilation systems (Yılmaz, 2005).

Unless the correct values of these parameters are determined in terms of energy conservation, sufficient energy efficiency of the automation of mechanical and electrical systems in the building cannot be obtained.

Location of the building: In the positioning of the building, it is important to determine the most appropriate position in terms of noise, daylight, and natural or artificial lighting factors as well as solar radiation, air temperature, air movement, humidity, and wind effects (Yılmaz, 2005; Zozer, 1992).

Relative location of the building to other buildings: The distance of a building with other buildings and obstacles is one of the most important design variables that determine the amount of solar radiation; and the type and speed of air flow around the building. Therefore, the locations of the buildings on land should be determined in order to benefit from renewable energy sources such as sun and wind; and protect from their negative effects (Yılmaz, 2005).

Direction of the building: The direction of the building is one of the most important design parameters affecting the direct utilization rate of solar radia-

tion; and thus the total solar energy gain. The direction affects the indoor thermal comfort depending on the effects of wind and sun. The main principle in directing a building in terms of solar radiation should be to take advantage of the solar radiation as far as possible in winter and to protect the building from the excessive heating effect in summer.

In general, the most appropriate direction for buildings with different functions is to extend in east-west direction; in other words, long facades facing southward and northward; and narrow facades facing eastward and westward. The spaces related to the main functions, such as the living rooms, should be directed to the south and south west directions. The dimensions of the glass surfaces in the south-south west directions should be kept larger than the other surfaces of the building. So that, it can be possible to benefit from the heating effect of the sun in winter, while for this undesirable effect in summer, the south-south west directions are more favorable than the western surfaces. The openings on the western and northwestern surfaces should be of minimum sizes due to the undesired heating effect of the sun (Yılmaz, 2005; Zozer, 1992).

Form of the building: The form of the building is an important factor in energy consumption. If the surface area of a building is more than the floor area, then heat abductions will be more. In regions with different climatic characteristics, vernacular architecture is energy efficient. For instance; in cold climates, compact designs are preferred to minimize the surface areas that cause energy loss. In hot dry climates, courtyards are designed to minimize heat gains, and to obtain shady and cool living areas. In the hot humid climate regions, long and narrow designs directed towards the dominant wind direction are preferred in order to increase the mutual ventilation (Yılmaz, 2005; Zozer, 1992).

Building envelope: The building envelope is composed of two components that are opaque and transparent, of which physical properties and behaviors towards heat transfer are different from each other. The ratio of the transparent areas to the whole, and the properties of the envelope regarding the heat and moisture transfer are important features affecting the design. When designing the most appropriate building envelope, it will be accurate to decide the type of the woodwork and glazing initially; and the highest possible value of the total heat transfer coefficient of the opaque areas of the building envelope will be determined depending on the characteristics of the chosen items, the ratio of the transparent area to whole, and the direction of the building (Yılmaz, 2005; Zozer, 1992).

Solar control and natural ventilation: Solar control systems and natural ventilation systems on the building envelope may be required to benefit from environmental factors such as solar radiation and wind, and also to be protected if necessary. In order to keep the energy costs of the building in minimum levels, these systems should be designed in appropriate shapes and sizes in appropriate directions (Yılmaz, 2005).

For natural ventilation, the geometry and dimensions of the space and the position of the openings on a façade are important. The first aspect to be consid-

ered in the design for ventilation is the dominant wind direction. The location of the openings should be determined by considering the prevailing wind direction. The main principle for proper natural ventilation is to position the openings in the prevailing wind direction and in a direction other than the prevailing wind in order to create airflow (Zozer, 1992).

In cold climates, the accumulation and storage of heat is essential; and the ventilation of the interiors should be limited. Short days of winter and low levels of radiation provide the desired natural light with maximum penetration into the interiors. On the other hand, in hot climates, heat should be prevented; and the relative humidity rate must be checked; and the thermal mass generally must be cooled through natural ventilation overnight. The access of daylight into the interiors should carefully be managed by using various sun shading elements (Ochoa & Capeluto, 2008).

INTELLIGENT FACADE (ENVELOPE) SYSTEMS

One of the most important elements of an intelligent building is the intelligent facade (envelope) systems that control the changes between indoor and outdoor spaces. Intelligent facades control how to change external factors to create comfortable interiors (Ochoa & Capeluto, 2008).

Intelligent facades, in the simplest form, are natural envelopes that minimize the ventilation, air conditioning and illumination energy loads of the building through the automatic movement of natural ventilation elements and solar control elements; and provide user comfort as naturally as possible (Yılmaz, 2005). Intelligent facades transport daylight deep into a building's the interior and allow the occupant to determine the degree of luminous, acoustical, thermal comfort along with the degree of visual and acoustic privacy in the interior. Intelligent facades can modify their interior and exterior colors and/or textures; in addition, they can be functioned as media facades that communicate with occupant through video and voice capabilities. With new glazing assemblies, a transparent surface will become opaque with the flick of a switch. Intelligent facades, although centrally controlled, still provide the occupant to manually override the system (Kroner, 1997).

Double facades

Double facades consist of two glass facades located at a distance from each other, designed to form a buffer zone between the interior and the exterior spaces. This gap between the two glass facades facilitates the control of energy consumption. On double facades, sunshades can be used to prevent overheating of the place or glare; solar control and natural ventilation systems can be activated automatically according to the requirements of the users. The air between the double facades can be used for heat recovery during the cold season. An example of this type of intelligent double facade is the Debis Tower and its facade, located in Berlin (Figure 1, Figure 2).

Figure 1. Berlin Debis Tower (Left-hand side) (URL-1)
Figure 2. Double facade of the building with operable window inside, and an outer glazed skin (Right-hand side) (URL-2)

In this building, glazed shading elements that can be moved by automatic control system reduce the wind load on the interior wall and keep the rain out. In this way, the windows in the interior facade can be used for natural ventilation. These transparent shading elements eliminate the glare problem of the users by preventing direct transport of daylight deep into interiors; and contribute to the energy saving of the building through natural lighting (Yılmaz, 2005).

Active facades

In active facades, thermal and optical features of the windows and shading elements can be modified automatically according to the climate, occupant preferences, and requirements of building energy management systems. The shading elements whose position can be controlled automatically, the coated glass elements whose optical features vary depending on the solar radiation, and photovoltaic panels are used as cladding or shading elements to generate electrical energy. Example of such facades is The Building Research Establishment (BRE) Office Building that has both double facade and photo-voltaic cladding (Figure 3, Figure 4).

Figure 3. The Building Research Establishment (BRE) Office Building (Left-hand side) (URL-3)
Figure 4. A building-integrated photovoltaic array (BIPV) that generate power for the lights and other systems (Right-hand side) (URL-4)

The most distinguishing feature of the building is its five cooling stacks towering over the south side of the building. The cooling stacks allow for further ventilation on hot, stagnant summer days so the building can always remain well within reasonable temperature levels like that of an air-conditioned building. The building's glazing is optimized by a louvered exterior shading system that is designed to allow maximum day lighting while minimizing glare. The 47 m^2 area on the south facade is covered with photovoltaic panels that can generate electricity up to 1.5kW (Yılmaz, 2005).

ACTIVE INTELLIGENT SYSTEMS

Active features are the elements which buildings to self-adjust to changes initiated by their interior or exterior environment, while minimizing energy consumption and achieving necessary comfort conditions. They can be both automatic and manual and do not need to include complex electronics (Ochoa & Capeluto, 2008).

The first conception of the intelligent system is related to the ability to perform autonomy. An intelligent system is designed to allow minimum user intervention as much as possible during executing a task. Self-calibration, self-diagnostics, self-tuning and fault tolerance are considered to be key autonomous features of intelligent systems.

The benefits of installing intelligent system components can be listed as, (1) improved operational effectiveness and energy efficiency; (2) improved cost effectiveness; (3) increase of user comfort and productivity; (4) improved safety and trust (Wong, Li & Lai, 2008).

The main building control systems in a typical intelligent building are classified into eight subtitles (Wong, Li & Lai, 2008):

- Integrated building management system (BIMS) for general monitoring and building management functions;

- Heating, ventilation and air conditioning (HVAC) control system for indoor air quality and comfort control;
- Addressable fire detection and alarm system for fire prevention and reporting;
- Telecom and data system for communication network;
- Security monitoring and access system for surveillance and access control;
- Smart / energy efficient elevator system for multi-storey movement;
- Digital lighting control system for light design and control;
- Computerized maintenance management system for inventory control and service works;

Integrated building management system: The main function is the integration of all building services systems to provide a general strategic management with the capacity to systematically analyze and report the building performance and connect with multiple sites / locations. It aims to provide automatic functional control and maintain the daily operation of the building. In addition, it carries out power quality monitoring and analysis; and distribution analysis of electricity, gas and water consumption in the intelligent building.

Telecom and data system: It is the basic communication network designed to provide effective and efficient information transfer or exchange inside and outside of the building.

Air conditioning control systems (HVAC): The main objective of the HVAC control system is to enhance thermal comfort in buildings; to provide humidity control and adequate ventilation inside the buildings. The performance of HVAC system in intelligent buildings is determined by the features of internal temperature and humidity detection, and automatic adjustment. Relevant sensors are the temperature sensors of fresh air, return air and supply air; humidity sensors of fresh air and return air; and the static pressure sensor of supply air. These sensors are essential in monitoring and automatic control of the air handling process.

Addressable fire detection and alarm system: The main function of the system is to provide effective fire detection, control and fighting in the building.

Security monitoring and access control system: The system is developed to provide surveillance and access control to detect unauthorized entry and enhance security within the building.

Smart/energy efficient elevator system: The system aims to deliver the users to the desired floor in a fast, safe and comfortable way. The intelligent elevators can be monitored remotely by the control centers of the maintenance companies and thus the performance of the elevator can be analyzed.

Digital lighting control system: It is expected to provide acceptable lighting levels and to enhance energy conservation by using efficient lighting in intelligent buildings. The lighting control system includes the luminaries, a presence detector and a photocell which measures the level of illumination. If a presence is detected by any of the detector, a group of luminaries is switched on.

Computerized maintenance management system: The system is designed to provide efficient and effective inventory control and service works management of the building.

Intelligent buildings allow interaction and integration between subsystem services. System integration is the process of connecting systems, devices and programs together in a common architecture to share and exchange data. The key to the efficient operation of intelligent buildings is the integration of various systems. Some examples of intelligent building systems integration are given below (Wong, Li & Wang, 2005):

- The fire alarm system must be integrated with other control systems such as HVAC, lighting and security through the building management system. In the event of fire on any floor of the building, HVAC systems can be used by opening the exhaust damper and closing the outdoor air intake dampers in order to prevent the diffusion of smoke.
- Intelligent elevator systems can interact with fire alarm or security systems to define the number of elevators required in an emergency, the mode of operation, and in some cases the accessible floors.
- The fire alarm system can be integrated with the security monitoring and access system to open certain locked doors in case of emergency.
- The security system can be integrated with lighting control systems to enable illuminated roads where necessary.

In their research on the effects of active features and passive design strategies through an office space, Ochoa and Capeluto (2008) revealed that passive design strategies provide between 20% and 60% energy saving. However, combining active features with correct passive design strategies give consistent savings about 50-55% when compared to conventional solutions. Such sensibly planned intelligent buildings offer flexibility and convenience that the ones built with only passive design strategies cannot offer, such as adapting to rapid temporary changes, options to open / close individual windows or operate certain jalousies (Ochoa & Capeluto, 2008).

SUGGESTIONS FOR INTELLIGENT BUILDING DESIGN

Suggestions for the intelligent building designs and improvements to the existing situations are presented below.

Suggestions for illumination system

Some suggestions for illumination system and energy efficiency in the intelligent buildings are as follows (Özüpak, Çetintaş & Kaygusuz, 2017):

- Direct access to daylight should be provided (Paevere & Foliente, 2003).
- The openings of the building envelope should be determined depending on the direction and location of the building.
- Glazing with low radiation and light transmittance should be favored (Yılmaz, 2005).
- The exterior shading systems whose position can be controlled automatically must be designed (Yılmaz, 2005).
- Renewable energy integrated illumination system should be used in interior and exterior illumination.
- Outdoor illumination should be carried out with renewable energy system by using daylight sensors for night use.
- A group of luminaries that are left open in unused indoor areas should be detected by motion sensors; and automatically switched off by the system.
- In the office environments, illuminations should be adjusted automatically depending on the amount of daylight and usage of that space (Yılmaz, 2005).
- Ambient light degree with dimmable must be user configurable (Paevere & Foliente, 2003).
- High efficiency, relocatable task lights with daylight spectrum should be favored.
- An individual ballast/controller for each fixture and continuous dimming is recommended to maximize user control and minimize energy use (Paevere & Foliente, 2003).
- A group of luminaries must individually be manageable by authorized users on the telephone system or computer (Wong, Li & Wang, 2005).

Suggestions for heat and energy efficiency

Some suggestions for maximize energy and heat efficiency in the intelligent buildings are as follows:

- It is recommended to situate solar panels on the roof in order to reduce the electricity consumption values used in the building and to benefit from solar energy. In their research, Aydar, Çubuk & Kürekci (2018) analyzed that there could be 68030 kWh of electricity production per a year by designing a solar panel system with 50 kWh of electricity production for a dormitory with an annual electricity consumption of 72558 kWh (Aydar, Çubuk & Kürekci, 2018).
- The building envelope should be well insulated (Özüpak, Çetintaş & Kaygusuz, 2017; Yılmaz, 2005). Large amounts of the heat abduction in buildings take place in windows, walls, roofs and floors. In their research, Aydar, Çubuk & Kürekci (2018) revealed that optimum insulation thickness of a fiberglass was 0,076 m to prevent heat losses from walls

and with this insulation, 8.26 TL / m^2 would be economized; and also revealed that optimum insulation thickness of a fiberglass was 0,075 m for the roof and with this insulation, 7.56 TL / m^2 would be economized (Aydar, Çubuk & Kürekci, 2018). Building insulation thicknesses vary depending on the climatic differences.

- Natural ventilation system should be taken as a basis. For natural ventilation, double facades or winter gardens and inner courtyards are recommended (Yılmaz, 2005). For natural cooling, the roof top ventilators should be used (Paevere & Foliente, 2003).
- The temperature degree should automatically be adjusted through sensors attached to the radiators to prevent overheating of the interiors (Özüpak, Çetintaş & Kaygusuz, 2017).
- The heating system of the building must be controlled automatically; after a certain period of time, the heating and cooling systems of the unused interiors should be switched off automatically.
- The cold water, extracted during drilling, should be used in cooling of the building.
- Energy consumption should be monitored from all over the building via smart meters to be placed in buildings.

Suggestions for water utilization

Some suggestions for water conservation throughout the intelligent buildings are as follows:

- Gray water must be re-used to reduce existing water consumption values of the building. Gray water includes all wastewaters such as kitchen water, bathroom, wash basin and washing water except toilet waters. Gray waters can be re-used in reservoirs and garden irrigation systems after purification. In their research, Aydar, Çubuk & Kürekci (2018) revealed that after the introduction of membrane bioreactor gray water treatment system, the existing water consumption values decreased by 40% (Aydar, Çubuk & Kürekci, 2018).
- Rain-water should be collected with advanced rain-water collection systems in buildings and then passed through filtration processes and reused in buildings or irrigation systems. In their research, Aydar, Çubuk & Kürekci (2018) computed that by the use of the rain-water collected in roofs in dishwashers and garden irrigation systems, 7% reduction in water consumption would be occurred (Aydar, Çubuk & Kürekci, 2018).
- Faucets with photocells should be used to prevent unnecessary water flow and to ensure water savings.
- Parks, gardens and green areas should be irrigated sufficiently at the accurate time by the help of sensors that detect the amount of moisture in the air and soil.

Suggestions for security systems

Some suggestions for the security systems of the intelligent buildings are as follows (Özüpak, Çetintaş & Kaygusuz, 2017):

- High level of security is ensured with the utilization of biometric identification system in entrances and exits, system rooms, and personnel rooms.
- Intelligent security systems should prevent unauthorized access to the building; and the operator should be warned immediately in case of abnormal mobility; thus the hazards that may occur are noticed in time; and precaution can be taken.
- The fires in the building should be detected at the very early stages by the fire detection and alarm systems; and security units should inform the occupants and fire department. In case of fire, automatic extinguishing systems should be activated.

Suggestions for structures

Some suggestions for the structures of the intelligent buildings are as follows (Paevere & Foliente, 2003):

- The usage of recycled materials and low waste manufacturing optimize design/engineering to reduce material use.
- Prefabricated and increased modularity should be preferred to reduce construction waste.
- Truss and column prefabrication and modularity should be preferred instead of bolted and welded connections to maximize speed of constructability and no-waste construction processes.

Suggestions for interior systems

Some suggestions for interiors of the intelligent building are as follows (Paevere & Foliente, 2003):

- To provide spatially flexible environments: (1) Complete reconfigurability with full infrastructure support; (2) Use the modular, stackable, storage wall systems; (3) Provide acoustic control for diverse indoor configurations; (4) Select ergonomic chairs and furniture.
- To provide individually conditioned environments: (1) Generate relocateable air diffusers for interior reconfiguration; (2) Generate modular cooling for changing user densities and functions.
- To provide social environment for the occupants; interior and exterior spaces with shared technology and amenities for teaming should be designed.
- To provide healthy environment for the occupants; (1) Generate individual control of light, air and ergonomics; (2) Provide direct access to the natural environment; (3) Prefer environmentally responsible and maintain materials;

- User control should be provided for environmental infrastructures such as air quantity and quality, air temperature, ambient light level, light direction, diffusion and shading; and also technical infrastructures such as power, voice, and data density.
- A central intelligence for environmental and technological resources management such as energy conservation, thermal comfort measurements, air quality measurements, power quality measurements, remote maintenance of sensors/controls should be established.
- An intelligent architecture incorporates indigenous building materials and local craftspeople (Kroner, 1997).
- Intelligent buildings respond to the inherent cultural preferences of the occupants. For instance; in areas where the occupants place great importance on operable windows and conservation electricity, then the most accurate and efficient conditioning system may be the use of thermal mass and night-time flush cooling instead of high-tech air conditioning system (Kroner, 1997).

CONCLUSIONS

Intelligent buildings are the structures that can effectively respond to the changing requirements of their occupants; provide efficient, comfortable and environment-friendly living conditions; produce their own energy; and manage the building autonomously by the usage of advanced technologies and systems. The actual intelligent buildings in which all solutions for energy management were considered in the early stages of the architectural design process, are the ones where passive design parameters function in harmony with the advanced technological systems used to control energy management automatically. Thus, the designing process of an intelligent building commence with the decisions taken in the intellectual phases such as the location and direction of the building, its relation to neighboring structures, and openings in the building envelope. The use of natural resources in intelligent buildings is essential. In order to provide natural ventilation, it is recommended to generate openings in the prevailing wind direction and in a direction other than the prevailing wind. In winter, daylight is utilized at its highest level and in summer, sun shading systems are generated in order to protect from the undesirable effects of the sun. Intelligent facade (envelope) systems control outdoor conditions with the automatic movement of various facade elements to create comfortable and efficient interiors; and determine the degree of luminous, acoustical, thermal comfort and visual comfort depending on the changing occupant requirements.

After all the energy efficient passive design decisions that will define the structure as intelligent are applied; active intelligent systems are used to enhance user comfort and productivity, and improve cost effectiveness. These systems are HVAC control system, fire detection and alarm system, telecom and data system, security system, energy intelligent elevator system, digital addressable lighting control system, computerized maintenance management system, and integrated building management system where all these systems are integrated to provide overall strategic management. Besides, the systems used for the treatment and re-

use of waste water can be included. The integration of such subsystems ensures the efficient operation of intelligent buildings by sharing and exchanging data.

As a result, the structures, in which the passive design parameters are combined with active intelligent systems; that provide nature-friendly, energy-saving, flexible, efficient and healthy living environments; that can transform depending on the user requirements; that are considerate to local cultures; and equipped with high-tech facilities, are the genuine intelligent buildings.

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CHAPTER 4

AN ASSESSMENT ON SUSTAİNABLE RURAL TOURİSM MANAGEMENT: HAMSİKÖY (TRABZON/MAÇKA) EXAMPLE

Beydullah SULAK[1]

1.INTRODUCTION

Rural areas are areas, in which agricultural activities are performed intensely, and which draw attention by their low density and landscape structures. Rural areas are often located in advantageous locations geographically, and they sometimes create an ungovernable attractiveness. Rural areas that are close to city centres are always under pressure due to their accessibility and since they are considered as areas to escape from the depressing cycle of urban life, as well as centres of attraction for those, who are in need of more landscape area. Likewise, rural areas that are accessible in terms of their climate, nature and location, and that are located on main roads are always exposed to pressure due to advantages they present in terms of accessibility. Some rural areas draw attention for their cultural and historical fabrics. Such type of rural areas may relatively be more protected than other rural areas with the concern to protect the same and to stake a claim on culture in accordance with legal legislations.

Rural areas are also affected by certain tendencies that are effective on global scale, as well as effects of their internal dynamics, such as geographical location and natural characteristics etc. Tourism sector may be listed at the top of such effects. Tourism is a sector that makes great contributions in development of regions and that has a high economic input. However, tourism cities, rural areas and coastal zones may be exhausted rapidly, in case they are not managed properly, and they may cause significant social transformations. Negative effects of tourism may be minimized, if they are assessed by political and action clauses, and by an effective tourism management. This article aims to explain how rural tourism management must be based on the example of Hamsiköy (Trabzon/Maçka), which is an important rural settlement, and in which negative effects of tourism have begun to be observed rather than its positive effects. Detailed information on the field of study shall be provided in the following sections of the article. Local residents, who live in rural areas, observe and experience the effects of tourism on rural areas the best. In this context, we made in depth interviews with local residents and local operators living in the study area, and their assessments are categorized. Obtained findings shall be discussed within the context of rural tourism management in consideration of the literature, and suggestions shall be made.

1 Res. Assist, Karadeniz Technical University, Deparment of Urban and Regional Planning

2. TOURİSM, TOURİSM MANAGEMENT, RURAL TOURİSM

2.1. Tourism

Tourism refers to touristic activities that are performed in coastal areas, urban areas, historical and archaeological sites, rural areas and mountainsides (Kuntay, 2012). Tourism activities may be required to be presented by domestic social activities, and they may also develop on demand basis. In this context, it is extremely critical to ensure supply-demand equilibrium in terms of sustainable development.

2.2. Tourism Management

Tourism sector is a sector that makes critical effects on development of countries growing rapidly across the world and on economic development of regions. Developments that occur in the sector may be affected from incidents that may take place at national and international scale. There may be economic booms, as well as rapid collapses. Such effects do not occur only at economic scale, and they may also be observed at social, spatial and cultural scale. As a requirement of the dynamism of the sector, it is required to assess changes and exposures within the framework of a plan in terms of sustainability. Inskeep (1991) defines tourism planning as implementation of general planning concepts and approaches by adapting the same to certain characteristics of the tourism system, and he explains it under seven main stages.

The basic steps of tourism planning (Inskeep, 1991)

1. Study Preparation
2. Determination of objectives
3.Surveys
4.Analysis and synthesis
5.Policy and plan formulation
6.Recommendations
7.İmplementation and monitoring

Uyeno (2007) defines it as a multi disciplinary organization that includes objectives, which are required to be achieved in the tourism sector and strategies, actions and road maps that are created in the direction of such objectives. According to definitions, tourism affects general planning in terms of land use, economic structure, presentation of social services and spatial structure. Facilitation of mobility is a critical factor in the rapid development of tourism sector. Also, widespread impact of tourism is increased by conducting promotion activities for many people simultaneously thanks to mobilization. In other words, it creates the effect of supply-demand.

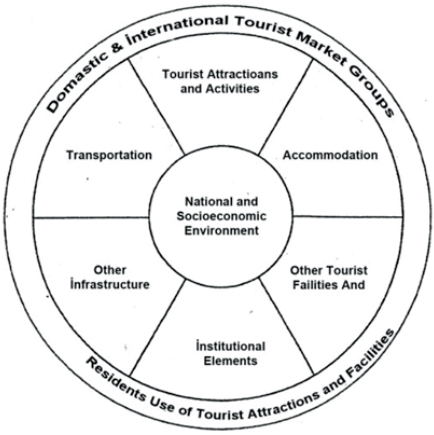

Fig. 1. Components of a Tourism Planning (Inskeep, 1991)

According to Inskeep (1991), there is a need for several components as a result of the effect of the supply-demand created by tourism, such as accommodation, recreational areas, dining areas, social reinforcement requirements (education, health and cultural activities etc.), infrastructural investments, such as transportation, electricity, water, sewage and solid wastes etc., and various institutional components related with management and marketing (Fig. 1).

2.2. Sustainable Tourism Management

Tourism is in the position of an important factor in social, economic and politic development of countries. This effect may be positive, but it may also cause various negative issues, such as social, cultural, identity and environmental negative issues etc. Tourism must be sustainable in consideration of its effects in order to increase the life quality of the societies of today and future (Kuntay, 2004). Effective use of resources is a requirement of sustainable planning.

Fig. 2. The relationship between sustainable tourism and other terms. (Swarbrooke, 2000)

Sustainable tourism was defined firstly by the United Nations World Tourism Organization in 1996: tourism which leads to management of all areas, in such a way, that the economic, social and environmental needs are being fulfilled with the cultural integration, ecological processes, biodiversity and supporting the development of societies. It has three dimensions, i.e. environmental, economic and social (Fig. 3 and 4. Table 1). World Tourism Organization (2006) defines sustainable tourism multi dimensionally in consideration of all of its economic, social and environmental effects that may occur now and in the future in accordance with the requirements of the industry, environment and host communities (Navarro et. al., 2015).

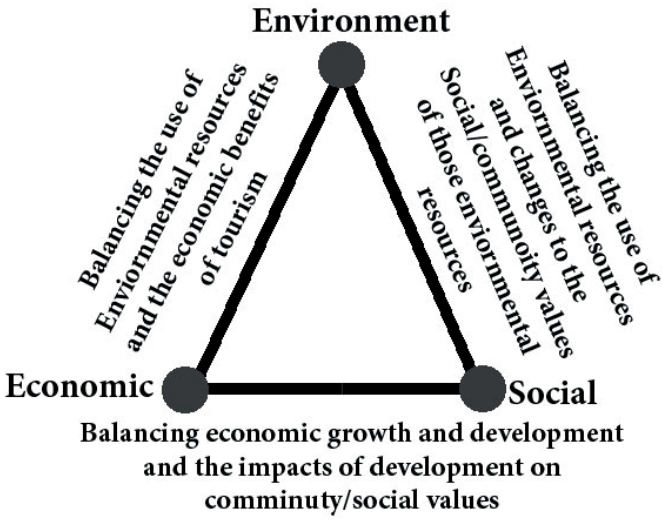

Fig. 3. Dimensions of Sustainable Tourism (Url,1)

Sustainable tourism concept is a term that comes from sustainable development and that aims to adapt it to tourism (Inskeep, 1991). Sustainability aims to achieve social and economic development in the tourism industry, and it also aims to integrate issues that are related with tourism (Kernel, 2005).

Buckley (2009) describes sustainable tourism activities as below: 1) Optimal use of natural resources, proper environmental management processes and efforts to preserve biodiversity, 2) Respect for socio-cultural attitudes of the local community, the preservation of cultural and traditional values, 3) Taking action to intercultural understanding and tolerance, 4) Ensuring real and lasting economic processes enabling to benefit society by all actors involved, including stable employment and income-earning opportunities.

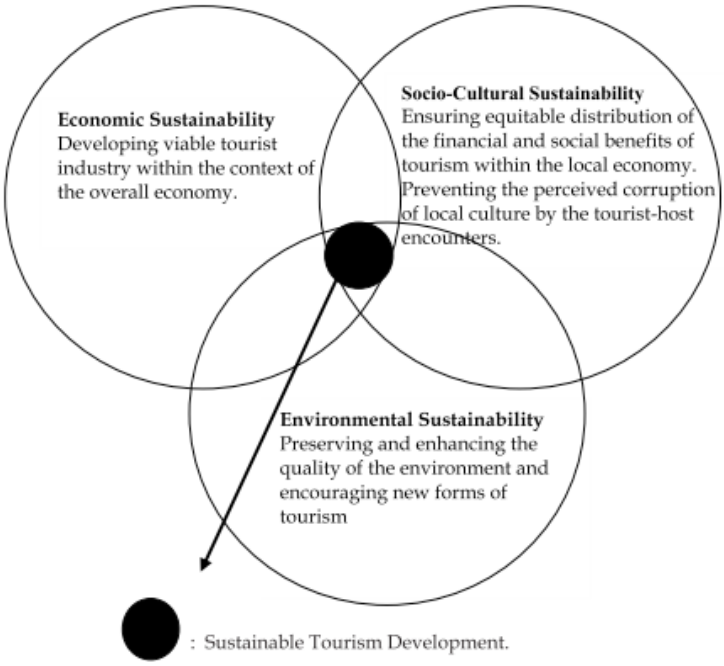

Fig. 4. Three Dimensions of Sustainable Tourism Development (Brigiglio et al, 1996).

Swarbrooke (2000) describes important issues in sustainable tourism debate as below: -private versus public transport,-lack of performance ,-indicators,- value judgements and lack of factual evidence,- foreign influence in developing countries,- eco- tourism,- tourist education,-emphasis on the physical environment,-the ethics and practicalities of conservation,-tourist taxes and fair pricing,-principle of partnership,-community involment and local control,-technocraticthinking,-de-marketing: places, times, people,-role of public sector planning,-visitor management,-power without responsibility,-concept of carrying capacity,- self-contained resort complexes (Table 1).

A suitable environment must be presented to understand occurrence and transition of sustainable tourism (Fig. 4).

Each stage is related with the previous section(s) according to the framework (Jafari, 2001). These stages are defined as 'advocacy', 'cautionary', 'adaptancy' and 'knowledge-based platforms or perspectives".

Fig. 4. The emergence and development of sustainable tourism:'Jafari platform'(Jafari, 2001).

Swarbrooke (2000) defines the scope of sustainable tourism within the framework of below terms: 1) Pollution: air, water, noise, visual; 2) Conservation Policies and Practices: landscapes, townscapes, wildlife; 3) Resource Use: water, land, food, 4) Wildlife; safaris, hunting, zoos, habitats; 5) Public Sector Policy: funding, legislation, planning; 6) Operational Practices of Tourism Organizations: recycling, purchasing, waste disposal, energy conservation; 7) The Industry: self-regulation, codes of practice, relations with the the host community, sustainable tourism-related initiatives, employment policies; 8)The Host Community: distribution of the benefits of tourism, degree of control over local tourism, 9)The Tourist: concerns, behaviour.

In addition to economy and environment, sustainable tourism is also focused on various cultural and social activities, such as recreation. Focus dimensions are assessed in Table 1 (Nilnoppakun and Ampavat, 2015). Furthermore, the definitions of sustainable tourism emphasize the following important features (Tao 2005); 1) Quality (provides a quality experience for visitors while increasing the quality of life), 2) Continuity (ensures the continuity of the natural resources upon which it is based), 3) Balance (balances the needs of the tourism industry, supporters of the environment, and local community) (Tao, 2005).

Table 1: The Dimensions of Sustainable tourism (Nilnoppakun and Ampavat, 2015)

Dimensions	**Focuses**	
Economy	- economic structure - public budget - regional aspects	- consumption - labor - pricing.
Environment	- environmental protection - biodiversity - resources	- energy - air - waste
Social/Social Equity	- settlement structure - income and assets - security	- public health - mobility
Culture - local culture	- national culture	
Recreation	- recreation areas - recreation activities	

2.3. Sustainable Rural Tourism Management

Rural tourism occurs in relation with eco-tourism and agriculture-tourism, in which nature and rural areas are the focus point (Barke, 2004). By definition, rural tourism is a type of tourism that is consistent with natural environment and other types of tourism. It is the set of activities that are performed in small settlements, which include small enterprises that provide accommodation, dining and other services while guests are engaged in agricultural activities and local values (Karakaş, 2012).

European Commission (2003) defines rural tourism as an activity that takes place by seeing rural heritage and by applying the rural life style in rural areas at holidays. Rural tourism provides assistance to its visitors on testing the atmosphere of visited area and trying rural products by providing information on rural life opportunities (Veer and Tuunter, 2005).

General features of rural tourism are defined as below (Soykan, 2003): 1) It is a type of tourism that may be made in any season, 2) It maintains the balance in geographical distribution of tourism, 3) It may be integrated to several types of tourism, 4) Recreational activities are very diversified and unique in rural tourism, 5) Tourist profile may vary, 6) It makes contribution to preservation of natural environment and cultural heritage.

Rural tourism is considered as an assumption provides benefits to local communities in terms of economic growth, social cultural effects, development of service sector and life standard (Nunkoo and Gursoy, 2012). It makes positive effects on rural development from social and economic perspective when it is managed by a sustainable approach (Pina and Delfa, 2005), and if it is not managed properly, it may make many negative effects.

While social and economic opportunities occur with the development of tourism activities in rural areas, immigration from rural areas decrease as well. In this context, main benefits of rural tourism are defined as below (Irshad, 2010; Sharpley, 2002): 1) It creates income sources for the agriculture sector and in parallel with this sector, 2) It creates opportunities to introduce and market local agricultural and animal products, 3) It provides income for various issues from social and cultural perspective, such as education and public health etc., and it creates a background environment, 4) It ensures that local handicrafts and cultural identity are revitalized and kept alive, 5) It provides assistance to decrease rural immigration, 6) It ensures that the service sector is developed in the rural area, 7) It ensures that innovative technologies are used in agricultural activities, and that renewable energy resources are benefited.

SWOT Analysis is a good method for understanding positive and negative effects of rural tourism (Dinis, A., 2001; Fig. 5). In addition to aforementioned positive effects, several social and cultural problems may occur based on excessive use of natural resources, such as ecological problems. In this context, risks and disadvantages that may be caused by rural tourism are defined as below (Rifai, 2011; Morgül, 2006): 1) Increase of social tensions between societies, 2) Damages in cultural heritage, 3) Changes in the dietary habits of local community, 4) Changes in social values and social traditions, 5) Exploitation of human labour and child labour, 6) Damages in soil and water resources due to excessive consumption or contamination, and decrease in biological diversity, 7) Increase in carbon emission and air pollution since touristic activities are performed by vehicles that do have a green design, 9) Speculative increase in the prices of lands and other real properties, and 10) Attractiveness of rural areas decrease and they lose their authenticity when rural areas are extremely crowded.

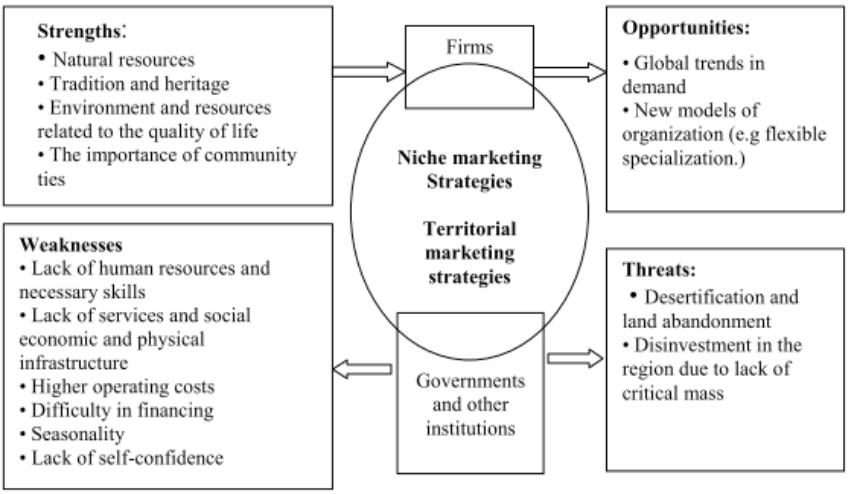

Fig.5. SWOT Analysis, strategies and stakeholders of sustainable tourism development in rural areas and peripheral (Dinis, A.,2001).

Activities that are performed within the scope of rural tourism indicate diversity. In this scope, below activities are the activities that may be included to the scope of rural tourism or that may be integrated to it; nature holidays, shopping, skiing, horse riding tours in the nature, venture, rafting, tracking, climbing, thermal tourism, and activities related with hunting, fishing, arts, history and ethnicity (Bramwell and Lane, 1994, Fig.6.).

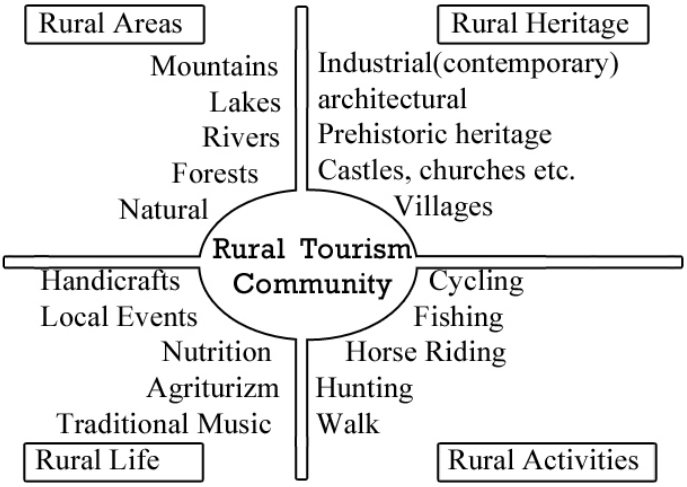

Fig.6. Concept of Rural Tourism (Halbway and Taylor, 2006)

In Turkey, Agriculture and Rural Development Support Institution (ARDSI) aims to support establishment of any pensions that shall be established by micro entrepreneurs or farmers within the scope of providing support to rural tourism, development of accommodation services, including "bed and breakfast", and restaurant services, establishment and development of farm tourism facilities, and development of facilities that are established for touristic recreational activities (such as sports activities, nature tours and historical tours etc.) (ARDSI, 2014).

Also, in Turkish development plans, we come across to policies that may be correlated with rural tourism from the Fifth Five-Year Development Plan, such as preservation of natural, historical, archaeological and cultural assets, and improvement of seasonal and geographical distribution of tourism etc. (Özkan, 2007). In this context, below policies are developed in relation with rural tourism in the Ninth Five-Year Development Plan (DPT, 2006): 1) To initiate occupational training and counselling services for rural tourism, and to establish rural tourism network, 2) To determine the power of rural tourism in suitable regions, and to select pilot regions and settlements, in which rural tourism shall be performed primarily, 3) To prepare action plans for rural tourism under the leadership of local governments, and to support activities of non-governmental organizations within the framework of this area.

3. Case Study

Rural tourism plays a significant role in development of rural area economically, socially and culturally. However, it is an extremely inaccurate approach to observe rural tourism as the most critical component of development. In this context, sustainable tourism management must be adapted and applied from country based development plans created by political platforms to regional plans and implementary development plan. Otherwise, as emphasized by Morgül (2006), excessive and intensive use of rural areas would cause natural and cultural protected areas to be damaged, and threats that may deteriorate the ecological balance may be brought to the agenda. Hamsiköy (Maçka/Trabzon), which is determined as example study area, appears as a residential area that made quite a development in terms of rural tourism in recent years (Fig. 7).

Fig.7. Case Study Area (Hamsiköy)

Hamsiköy is an ancient stopover destination that is located at the northern skirts of Zigana Mountain at the attitude of 1200-1300 m., and 19 km from Maçka District on the northern route of the Silk Road that extends from China and India to Europe. In history, camel trains used to stop in Hamsiköy as their last stop point while they were crossing from Trabzon, and they were trying to cross this compelling pass after resting in Hamsiköy. Its name actually derived from the word "Hamse" village (Five village) in Arabic, and it is comprised of five different residential areas. In addition to its natural, cultural and historical values, Hamsiköy makes contribution to the economy of Trabzon and our country by producing tasty milk, which sources from the rich flower flora of the region, as well as vacuum-sealed cheese, butter, string cheese and whey cheese. Also, Hamsiköy has a reputation for its rice pudding (Anonymous, 2016).

First of all, potentials that are available, areas of development, and problems and threats that affect development negatively were determined by making SWOT Analysis on Hamsiköy rural tourism area within the scope of the study (Table 2).

Table 2. SWOT Analysis for Hamsiköy Rural Tourism Development

❖ Strengths	❖ Weaknesses
• Natural resources • Tradition and heritage • Environment and resources Related to the quality of life • Historical significance	• Lack of human resources and necessary skills • Lack of services and social economic and physical infrastructure • Lack of trained staff and qualified work force Higher Operating costs • Seasonality
❖ Opportunities	**❖ Threats**
• Global trends in demand • Transportation possibilities • İncrease in the number of visitors • İncreased interest in rural tourism	• Corruption of ecosystem • Cultural effects • İncreasing construction • Foreign investor

3.1. Performed Studies and Method

This article aims to explain how rural tourism management should be based on the example of Hamsiköy (Trabzon/Maçka), which is an important rural settlement, and in which negative effects of tourism have begun to be observed rather than its positive effects. Critical negative effects of rural tourism on Hamsiköy may be listed as biological effects, effects made on diversity, economic consistency, Cultural values, effective use of resources and environment.

Local residents, who live in rural areas, observe and experience the effects of tourism on rural areas the best. In this context, we made in depth interviews with local residents and local operators living in the study area, and their assessments are categorized.

Pic. 1. Hamsiköy (23.08.2018)

Pic. 2. Hamsiköy Satellite View

As a result of analyses made in the study area, we determined 26 offices and business offices. This is quite a high figure for a rural settlement, and most of these places are comprised of dining venues, and also, there are considerable amount of structures for accommodation and pension purposes. During field survey, we also determined accommodation facilities that were at the stage of being constructed.

We observed that there are quite a limited number of facilities for dining and accommodation purposes (2 and 3) at the centre of Hamsiköy, which has been on a critical transportation road throughout the history. Only one of them is still active. Except for that, we observed that there are plenty of structures that are being constructed recently. "Rice pudding", for which Hamsiköy has a reputation, used to be cooked and served by a single facility, and today, we observed that it began to lose its importance since every facility in Hamsiköy was trying to cook it.

In the past, Hamsiköy used to be an important stop point located on Trabzon-Erzurum road, and it lost its importance rapidly after the route of the road changed. However, revitalisation process of Hamsiköy is accelerated with increasing interest in nature and rural tourism. Hamsiköy, whose importance is increasing rapidly as a result of the interest shown in rural tourism, has become the focus of interest of foreign tourists (Arab tourists in particular). In this scope, Hamsiköy Rice Pudding Festival is organized in August 20 annually.

3.2. Results

In this study, we made in depth interviews with local residents and local operators living in the study area, and their assessments are categorized. Positive and negative effects of rural tourism on Hamsiköy are assessed under the categories of economic effects, social-cultural effects and environmental effects.

Positive Effects of Rural Tourism on Hamsiköy:

In the light of information obtained as a result of the interviews we made, we observed that there are only economic benefits. According to local residents and operators, negative effects of rural tourism are more than its social-cultural and environmental benefits.

Main positive effects of rural tourism on Hamsiköy are defined as below: 1) New employment opportunities are created after the regress of stockbreeding, which used to be critical for the region, 2) New investments are made with the development of rural tourism (hotels, motels and restaurants), 3) Women are being employed by new entities for various purposes, particularly for production of handicrafts and for marketing local souvenirs etc., as a result of development of tourism in the rural area, 4) Alternative markets occurred for some of the families that continue to breed livestock, and 5) Those, who immigrated from the village, are being motivate to remigrate to Hamsiköy after the village became a tourist attraction.

Negative Effects of Rural Tourism on Hamsiköy:

In the light of information obtained as a result of the interviews we made, although there are only economic benefits, we observed quite a lot of negative social-cultural and environmental effects.

Main negative effects of rural tourism on Hamsiköy are defined as below: Social-cultural effects: 1) Limitation of hanging freely in the rural area with the popularity of rural tourism, 2) Interfering in the private life of rural residents, who are at the focus of interest of visitors, without considering their values, 3) Various cultural values are damaged for foreign visitors, such as language, 4) Signs that are written in foreign languages for foreign visitors make a negative effect on culture, 5) Rural residents feel like an outsider in periods when tourism is at its peak season, and thus, alienation occurs, 6) An imbalance occurs between development speed and speed of population increase as a result of development of tourism, 7) Constant movement of people from cities to rural areas, due to their touristic attractiveness, makes negative effects on rural life behaviours, 8) Traditions and customs that are specific to agricultural areas from social and cultural perspective are being lost, and 9) Culture is turning into a commercial touristic activity.

Environmental effects: 1) The pressure of intensive construction threatens ecological areas, 2) Accommodation facilities and villas that are begun to be constructed in agricultural areas are destroying such areas rapidly, 3) Air, water and environmental pollution caused by incoming tourists, 4) Rural appearance and natural beauties are being lost as a result of entities that are being constructed throughout Hamsiköy, and 5) The number of visitors and structures exceeds the capacity of rural area.

4. CONCLUDİNG

In addition to tourism's being a social event, it is also a psychological tool for satisfaction, it is a multi-directional economic field, it is a cultural phenomenon and it has a character of creating activity in many fields. Natural areas that preserve their characters are the most important resources that ensure an income increase to be observed in the tourism sector.

We may emphasize the important of rural tourism, in which nature and cultural values are prioritized, as below from the perspective of economy and general tourism (Torres, 2003): 1) Demand for rural products increase by rural tourism, 2) Touristic goods and service sector and sub-sectors of the same develop thanks to rural tourism, 3) Employment, additional income, personal income, quality of life, rural immigration and public income are affected positively with the development of rural tourism.

Sustainable tourism adopts the principle of meeting the requirements of tourists and hosting regions by protecting and developing future opportunities. Thus, it shall be ensured that all of the resources are managed by meeting economic, social and aesthetic requirements while ensuring sustainability of cultural integrity, mandatory ecological processes, biological diversity and life support systems. Sustainable tourism products are products that are processed in harmony with local environments, societies and cultures, rather than being damaged as a result of touristic development (Anonymous, (2012).

UNEP (2009), objectives of sustainable tourism are defined as below: 1) Economic Sustainability, 2) Local Welfare, 3) Employment Quality, 4) Social Equality, 5) Visitor Satisfaction, 6) Local Control, 7) Social Welfare, 8) Cultural Richness, 9) Biological diversity, and 10) Environmental purity.

Rural tourism is quite important for rural development, and the success may only be achieved in rural development by using a sustainable management model. Most of all, rural tourism constitutes an opportunity for employment and income for rural areas. However, it may also become a factor that threatens rural areas, and that may damage cultural, ecologic and natural values.

It is accepted as an assumption that rural tourism provides benefits to local communities in terms of economic growth, social cultural effects, and development of the service sector and life standards (Nunkoo and Gursoy, 2012). It makes positive effects on rural development from social and economic perspective when it is managed based on a sustainable approach (Pina and Delfa, 2005), and if it is not managed properly, then it may make as many negative effects as well.

Hamsiköy is in the position of a critical rural tourism centre, but in consideration of its current inclinations, it develops out of the scope of the definition of sustainable tourism. Rural tourism management, which increases positive effects of tourism and which minimizes its negative effects, must be implemented in this field immediately. Unless actions and measures are taken on the basis of country policies by implementing sustainable rural tourism management, Ham-

siköy shall lose its characteristics and importance rapidly, just like many other rural tourism centres. In this context, more emphasis must be put on social, cultural and environmental values, rather than economic development.

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CHAPTER 5

EVALUATION OF GENTRIFICATION IN TERMS OF LANDSCAPE ARCHITECTURE

Demet Ülkü GÜLPINAR SEKBAN[1], Makbulenur BEKAR[2]

Today, the awareness that preserving historical and cultural values as well as the natural resources is necessary for the sustenance of the life of future generations has emerged. The preservation of historic sites is a very deep issue, which should be addressed in particular within the social dimension. However, the focus of many conservation studies is the building. This kind of preservation work led to several social, economic and cultural problems, and supported the creation of problematic spaces that could not integrate with the environment, serving only a small portion of the society without sustainability. One of these problems is gentrification. The present study addressed the concept of gentrification, its reasons, the planning and studies that would prevent gentrification.

1. INTRODUCTION

While urban population was around 3% of the global population at the beginning of the 19th century, this ratio is around 60% -75% today (Çubuk, 1999) . The rapid and use/consumption-based global urbanization led to several problems. In order to ensure the sustainability of the environment as a habitable space without losing its character, preservation of the natural resources such as forests, agricultural fields, wetlands, as well as the historical and cultural heritage, which constitutes our identity, is inevitable. Today, despite the improvement of the awareness on the preservation of natural resources, our historical/cultural heritage, transferred from past to the present, crating urban identity with archaeological, cultural, social, economic and aesthetic values is being destroyed and unfortunately, our heritage gradually disappears. Yet, our historical-cultural heritage include values that ensure the identities of both the occupants and spaces by connecting the past and future generations, creating a sense of belonging to a culture, and these are the resources that need to be preserved. The historical urban areas constitute the live archive of the past and present, however the preservation of these areas constitutes the reflection of the experienced processes from the past to the present. This increases the perceptibility and readability of the city, as well as the formation of the urban image, and ensures the establishment and strengthening of connections between the urban occupants.

The measures for a healthy urban development, where the human habitats are concentrated today, is only possible through preservation of historical areas, cultural values and development of these values consistent with the con-

1 Res. Assist, Karadeniz Technical University, Faculty of Forestry, Department of Landscape Architecture, Trabzon, Turkey

2 Res. Assist, Karadeniz Technical University, Faculty of Forestry, Department of Landscape Architecture, Trabzon, Turkey

temporary living conditions. The studies conducted on these topics transformed the issue of preservation of urban identity into a different dimension. Globalist policies were among the main factors behind this development. Limited number of studies that were sensitive to historical texture in preservation of historical areas mostly scrutinized the preservation of the physical appearance of the buildings and the improvement of their environment. However, the application demonstrated that the functions and occupants of the structures in these spaces have changed and had to change. It was observed that preserved historical areas and structures were transformed into lucrative commercial or touristic centers due to economic concerns, especially in Turkey. In such studies, consciously or unconsciously, present occupants were excluded from the process, leading to gentrification. The concept of gentrification was first introduced by Ruth Glass in 1963 (Smith, 2002; Baydoğan, 2013).

The concept of gentrification was investigated and described by several authors in various studies. Some of these descriptions are as follows: Gentrification is the modernization of old homes in urban center occupied by the poor and the settlement of middle-class and wealthy families in these homes (Çeker ve Belge, 2015). In another study, gentrification; was described as renewal of the restored urban sections for occupation by higher classes (Özgüç, 1992), while in a study titled "Urbanization: An Introduction to Urban," physical, economic, social and cultural dimensions of gentrification were addressed and it was summarized as occupation of the working-class neighborhoods by high-income classes, forcing the local inhabitants to relocate (Knox ve McCarthy, 2012). In several restoration and preservation studies in Turkey, "belvedere spaces" that ignore the social dimension were created, albeit unintentionally.

1.1. Reasons of Gentrification

Today, there is a rapid change and globalization process in all cities including small and large urban centers and urban management systems, urban space formations, urban life, and urban occupancy preferences. In this process of change, it was observed that local identities often disappear, and cities increasingly become consumption spaces rather than production spaces.

In the process of globalization, both municipal administration and local government approaches have started to change. Local administrations began to transfer their duty of improvement of urban development levels to the private sector or to shape these duties based on to economic revenues. In order to attract higher levels domestic and foreign investment to the cities, the administrative units have started to conduct local public services with economic concerns similar to that of a business entity rather than prioritizing the social identity. This, in turn, led to the dominance of economic interests in urban decisions or investments instead of the adequacy of urban structure, occupancy profile and social structure or the interests of local residents.

1.2. Plans and Studies to Prevent Gentrification

Conservation could lead to voluntary or involuntary gentrification. However, analysis of the global and Turkish examples would demonstrate that gentrifica-

tion leads to the loss, destruction or changes in spatial identity. Furthermore, with gentrification, former living spaces could be transformed into observation areas or open-air museums, or gentrification could lead to disappearance of local users and the spaces become consumption-oriented, contradicting the environment. This accompanies both economic inequalities and social problems and endangers the cultural, economic and social sustainability of the preserved area.

In order to prevent gentrification in preserved areas, several steps should be taken during the preservation work. The first is the realization of the fact that the object of the preservation possesses a depth beyond the physical texture such as the buildings, streets, green areas, transportation network and settlements and this depth is what constitutes a space. It should be remembered that there are relationships, actions and connections that are shaped based on different periods of time within this depth that forms the space and the spatial identity, and the space is shaped by these factors, creating the present occupancy. Therefore, it is necessary to consider the conservation area with a holistic approach that includes the environment by analyzing multidimensional relationships, but not only as a space that needs to be preserved. Thus, the area of preservation and its surroundings should be observed from a wide perspective, and its geography, production areas, natural landscape, production relationships, transportation relationships and social layers should be taken into consideration. The requirement of preserving the integrity of the space should not be underestimated in these studies.

Society and social life should be included in all processes, including the planning stage of the preservation in order to prevent gentrification. Different techniques should be utilized to incorporate the society and social life into the conservation efforts. The primary techniques include methods such as observation, survey, and participant-oriented approaches. Prior to the preservation, formal interviews should be conducted in and around the area of preservation using social surveys. Both in the survey and informal interviews, the urban occupants such as local residents, neighborhood representatives, shopkeepers and tradesmen should be consulted about both the present and the past of the space. During the interviews, the approaches of the occupants towards their residency and the phenomenon of preservation. The study would allow for the observation of social processes and the emotional links between the space and the occupants that have not been subjected to previous scientific studies would be determined. This would allow the discovery and comprehension of the presence of the social depth in certain occupancies, problems or acquisitions in the relationships between society, space and occupancy. Both survey and occupant visits should ensure the active participation of occupants in the preservation work.

Within the scope of the preservation work, interdisciplinary studies are required in order to conduct the spatial analysis, to make protection decisions, to solve or prevent the problems that may occur as a result of the interventions. Thus, a team that would include experienced experts in several disciplines should be formed and all planning, decision-making and applications should be decided by teamwork. In particular, the collection of data for the analysis and conceptu-

alization of the space and the space around the conservation area, the analysis of the data by developing adequate techniques and methodologies, and the creation of the synthesis as a result of the analyzes require the coordination of the departments that are coordinated and effective and specialized in their field.

In order to conduct the field study, it is necessary to create work plans for the preservation area and its surroundings. Several analyzes should be conducted for the study area and its surroundings. Geological structure, topography, climate, historical development, population structure, social, demographic and economic structure of the area, land use, transportation relationships and plans and planning decisions at different scales should be examined. Furthermore, physical and social analyzes should be conducted on the study area and its surroundings. Detailed building scale analysis using the inventory (construction year of buildings, building material, roof and facade features, renovations and old-new functions, etc.), ownership structure, texture studies (parcel, street texture, street elements, typologies), building density studies, population structure, social and economic structure should be conducted by experts (Yılmaz Saygın vd., 2004).

The study data, natural, cultural, economic and aesthetic values associated with the area should be transferred to local residents. To this end, universities, municipalities, professional chambers, public committees, non-governmental organizations should organize activities such as symposiums, colloquia, interviews, and exhibitions and local residents (occupants) should be informed about the values associated with the preservation area and the value of the area. The adoption of preservation process by the occupants, who were informed and aware of the value of their habitat, should be ensured on an individual and social basis, and the occupants should be encouraged to participate in the study.

Financial opportunities such as urban protection funds, lower and long-term taxation and low-interest bank loans that would prevent neglect of the registered buildings due to high costs and resale of these buildings due to neglecting the restoration requirements, rent-creation and their transformation into uniform and uncharacteristic commercial spaces should be provided for the local building owners (Özden, 2001).

In order to avoid price increases that would result in rent-creation in the areas that were revalued as a result of preservation studies and lead to the migration of the local population out of the neighborhood, the local government should make decisions to defend the rights of the local occupants. It is necessary to limit hotel, boutique hotel, café, and restaurant occupancies that would allow touristic, hollow and commodified occupancies. On the other hand, plans that would allow the livelihood of the local residents, that would allow for year-round occupancy should be developed. Decisions that would maximize the benefits of public tourism policies and activities for local residents. Local residents should be informed that cultural values could be transformed into capital as a result of regulations and vocational education, and these resources should be opened to the benefit of local in order to ensure the sustainability of their livelihood (Arkaraprasertkul, 2016). Furthermore, local education and employment opportunities should be developed for the young population. Public education centers

should be established. Especially children and young individuals should be educated about the environmental values in their neighborhood and young individual should be provided with the benefits. Furthermore, social activities should be organized to improve the sense of belonging among the children and young individual for their habitat and awareness should be raised among these groups to adopt their living spaces. Thus, the local residents (future generations) should be prevented from selling their living spaces for economic gains, and their migration should be prevented.

2. CONCLUSION

Today, awareness on the protection, development and use of natural and cultural values has increased. Several new approaches, concepts and methods have been introduced and developed for the advance of our values within the protection-use balance. Especially the preservation of historical areas, which are considered as world heritage, planning policies for blending the preservation areas with urban texture has come to the fore. As the scope of the studies expand, they should not only focus on the building or should not only include a zoning plan. It is an inevitable result that developed and discussed preservation policies should be considered in conjunction with social, cultural, aesthetic, ecological and economic policies.

Turkey hosted several significant civilizations in different periods in time. Our position as a host diversified our cultural heritage and provided us with quite rich values. However, there are deficiencies in studies, policies, research and applications required to preserve these values and to transfer them to future generations. The failure to develop comprehensive policies for preservation activities and allocation of required resources lead to the destruction of cultural and historical heritage in Turkey, and even its disappearance. Preservation of cultural and historical heritage is considered only as a preservation area in few previously conducted studies. However, as a result of the studies, it was observed that preservation of historical and cultural heritage could not be achieved only with the decisions about the protection of the physical structure of the area. The implementation of decisions on the protection of the physical structure led to problems of occupancy, inequality in socio-economic structures and cultural conflicts. This led to the comprehension of the fact that the preservation area and its surroundings should be considered as a whole and emphasis that the decisions should not only be based on the buildings. Preservation decisions need to be addressed with a holistic approach that includes natural, social, economic and aesthetic values. In these studies, the analysis and synthesis conducted by the experts in interdisciplinary professional groups should be coordinated and examined within a multidimensional context.

In conclusion, in order to prevent the problems that occur within the scope of the preservation studies, analyzes should be conducted at every scale. Decisions on the upper scale should be supported by the subscale analyses. Preservation decisions should include decisions on area-specific methods, financing and implementation, in particular. Furthermore, preservation decisions should include

social structure and development proposals associated with local residents. In order to ensure correct initiation and sustainability of preservation plans, the participation of local people should be considered as an important stakeholder in planning decisions. Participation of the local community should include all processes of preservation plans.

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CHAPTER 6

ENVIRONMENTAL STRESSORS IN THE BUILT ENVIRONMENT: PART TWO: COHERENCE

Elif GÜNEŞ, Bülent ÜNAL

INTRODUCTION

Stress is defined as any state of affairs in which the environmental demand on individuals transcend their abilities to respond. It is the process in which environmental events or forces called stressors, threaten an organism's existence and well-being (Evans, 1982). It occurs when environmental requirements goes beyond personal coping resources (Wells, Evans, and Cheek, 2016). Both physical and psychosocial characteristics of environments can be stressors. Firstly, the physical environments have the potential to directly increase the demands on the individual; secondly, the physical environments can generate stress by creating anxiety and worry by environmental exposures. Thus, environmental conditions may directly engender negative effects on individual behavior and health. This makes stress an important area of study for a variety of disciplines.

Evans and McCoy (1998) categorized five environmental dimensions which are stimulation, coherence, affordance, control and restoration that may influence stress. Each of these dimensions involves interior design elements. This paper defines and investigates the interior design elements that categorized under the dimension of *coherence* as a potential ground of environmental stressor.

Table 1. Coherence as environmental dimension with interior design elements that may altered stress (Evans and McCoy, 1998).

Environmental Dimension	*Interior Design Elements*
Coherence	Legibility Distinctiveness Exterior vistas Landmark Signage Floor plan complexity Organization Pathway Configuration Predictability Thematic structure Circulation alignment

COHERENCE

Coherence means the clarity or comprehensibility of building elements and form. The major impediments to coherence are ambiguity, disorganization and disorientation. It is in a way related to the complexity and directly related to the clarity of patterns of stimulations. If the disruptions or changes makes the users predictions difficult, in other words if there is incoherent setting, then stress can occur (Evans and McCoy, 1998). People need to know where they actually are especially in disorganized complex environments to feel themselves secure and safe. The incoherent environments are difficult to navigate and causes disorientation.

Disorientation is an example of an environmental stressor. Not knowing where you are means losing control and causes frustration and result in negative physical and psychological effects, such as hyperventilation, high blood pressure etc. To reduce the negative stress effects of disorientation, orientation should be easy. If places are made unique by design differentiation and landmarks in interior spaces example by artwork they are easier to remember and orientate around. The layout of rooms and internal relations between the rooms should be logical (Carpman and Grant, 2002, p.430). For avoiding the reaction of being lost, the planners of both urban and natural settings have to provide well-structured and imaginable settings (Herzog and Leverich, 2003). Thus, to reduce the difficulty of navigating in environments, the need to support navigation by environmental design elements such as layout, landmark and signage arises.

Legibility, distinctiveness, exterior vistas, landmark, signage, floor plan complexity, organization, pathway configuration, predictability, thematic structure, circulation alignment are environmental design elements that influence the coherence of an environment.

Legibility, Distinctiveness, Exterior Vistas

Features of the picture plane that facilitate organizing or understanding the scene means coherence. Features of the larger environment that stimulate the understanding by aiding wayfinding and the building of a useful cognitive map mean legibility. “The need to comprehend the environment and thus the fundamental importance of structure in the picture plane (coherence) and the larger environment (legibility), is so great that the inability to satisfy this need can produce very strong negative emotional reactions” (Herzog and Leverich, 2003, p.460). Stamps (2004, p.2) describes the legibility of a building with this question; “how easy would it be to find your way around the environment depicted… to figure out where you are at any given moment of to find your way back to any given point in the environment” and also he describes coherence with the question of “how well a scene hangs together. How easy is it to organize and structure the scene?”.

Köseoğlu and Önder (2011) defines legibility as the possibility of organizing an environment within an imaginable and coherent pattern. Reading an environment is a process that develops with acquiring the spatial information from the environment and transforming that information into action by using it in a way

proper to the purpose. In the context of navigation and wayfinding, legibility as a term has been used for many years in the discipline of City Planning. Legibility has been concerned with the way in which people are able to 'read' their environment and hence perform wayfinding tasks (Ingram and Benford, 1995).

Legibility that means the degree to which a building or group of buildings facilitate the ability of users to find their way around is one of the most important concepts of environmental psychology. In legible buildings people can effectively maintain their orientation and easily find their way and the understandable paths and landmarks users know where they are. Coherent and legible environments are very important in the lives of the people (Abu-Ghazzeh, 1996). In legible environments by the ease of finding one's way around in a setting allows easy and error free navigation. Providing this contributes people psychological health in positive aspect by reducing stress motivation.

In legibility and orientation, recognition plays an important role. "Recognition of places is not possible unless the environment is somewhat familiar. Maps, signposts, and other media may play an important role for orientation in unfamiliar environments. People rely on numerous types of environmental information to find their way within buildings" (Doğu and Erkip, 2000, p.733).

Legibility in interiors enriched by distinctiveness and also by the views of the exteriors.

Landmark

Landmarks are essential parts of interior and exterior environments. They are seen as points of reference with their distinctiveness and works as wayfinding cues. Giuliani (2001) stated that "a landmark is an object that marks a locality, acts as a mental landmark in the wayfinding process and breaks a complex task into manageable parts" (p.45). Landmarks act as key elements to enhance the ability to orient oneself and to navigate in an environment. Thus, they are significant in one's formation of a cognitive map of physical environment. They are aiding the individual in navigating and understanding the spaces as they are defined in physical space as having key characteristics that make them recognizable and memorable in the environment (Sorrows and Hirtle, 1999). To mark an object as a landmark among the others is done by the individual. It is not only about the quality of the object itself, but also about perception and about its reflection in mind (Weissensteiner and Winter, 2004). Thus, "a landmark is an object within a relation to a subject "(p.317). Communicating landmarks is a process that is the basic relation between the subject and an object and results in a completed orientation. Lawton, Charleston and Zieles (1996) categorized the usage of landmark as being used in making directional decisions, in recognition as something familiar on route identification, and in remarking upon passing. Architects and designers are using landmarks excessive as part of integrated wayfinding systems in diverse building types especially with complex plan layout such as airports, hospitals, and campuses.

Landmarks acts as a visual attraction point by its visual characteristics. Thus, their designs have to be unique in an environment for not losing their effectiveness. Therefore, visibility, shape, color, texture, markings, size and façade area of landmarks can be used as measures in determining their visual attraction (Learmonth, Newcombe and Huttenlocher, 2001; Raubal and Winter, 2002). Especially the location of a landmark is very critical for markers. Landmarks that are located at intersections that may acts as decision points are highly exposed. Decision points are places where users need to make decisions to choose their desired direction. Decision points are important due to being areas that wayfinders pause and take in new information (Haq and Zimring, 2003). It is crucial that landmarks should be perceived from as many directions as possible and should not physically interrupt the path of travel (Pollett and Haskell, 1979). A landmark can be a lighting fixture, a material, a kiosk, an art piece, a building; and can be appeared not only in interior environments but also in exterior environments like a city icon (see Figures 1 and 2 for examples of landmarks from exterior and interior environments).

Figure 1. A Landmark from exterior environment Cloud Gate, in Millennium Park, Chicago

http://www.pbase.com/edboots/image/70532405

Figure 2. A Landmark from interior environment

https://i.pinimg.com/originals/82/19/06/821906bb26c7f0142be753b0910b2743.jpg

Signage

Signs are major elements of information systems; it plays a crucial role within the broader realm of wayfinding. It is used to enhance wayfinding efficiency es-

pecially in settings with complex floor plan configurations where wayfinding is a chronic problem (O'Neill, 1991). The primary objective of a signage is to help people find their way through an environment. Information provided by a sign is the faster process of receiving information. However, signage can be problematic as it shows, not routes and at every decision point a new sign is needed (Richter and Klippel, 2002). Faulty signs can cause problems in unfamiliar environments that may cause anxiety in individuals.

Arthur and Passini (1992) clarified three things that people need in unfamiliar settings:

1. Information to make decisions, that is, information about the setting, the way it is organized, where they are in it, and where their destination lies,

2. Information to execute decisions, that is, information directing them o their destination,

3. Information to conclude the decision-making / executing process, that is, information identifying the destination on their arrival. (p.143)

These three necessities can be obtained from signage system of the environment. Nevertheless, the design of this system is critical and long termed process. Calori and Vanden-Eynden (2015) stated seven phase in the design process of signage: Data collection analysis (pre-design), schematic design, design development, documentation, bidding (post-design), fabrication / installation observation and post installation evaluation. Thus, the location, illumination, color and typography of signs have a crucial role in representing beneficial and functional information systems.

Location should be visible at transitional areas and at intersections, there should not be more than five messages and five lines of text in a single sign, character height, stroke width, font type, surface characteristics should be considered, artificial and natural illumination should be designed to prevent glare on signage, color schemes used should be described easily by names as blue, orange etc (Pollett and Haskell, 1979). When creating environmental signage, it is important to consider the contrast between the color of the typography and the background for ease of reading and also the impact of color on interpretation and understanding of the content (McLean, 1993). If colored text is used on a bright background the contrast will be weak, reading the information will be difficult and may cause complication (see Figure 3). For optimal contrast results the usage of white text against dark colored backgrounds is convenient.

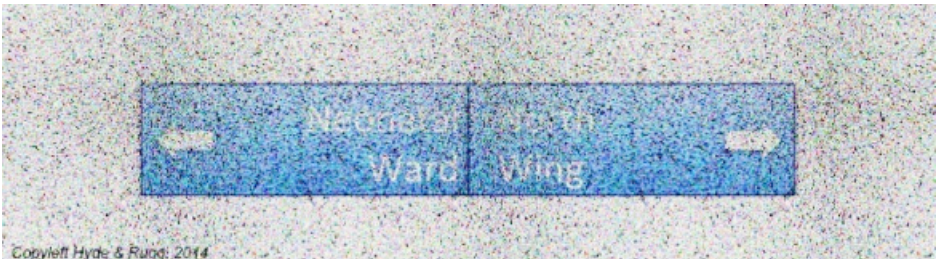

Figure 3.
https://hydeandrugg.wordpress.com/2014/11/20/signage-literacy-and-wayfinding-part-1/

Accessibility of information, ambiguity of messages, and conditions of overload is the factors that affects the information gaining process from signs same as the legibility of place (Passini, 1984). For facilitating to find information on signs, information should be structured according to content, it should be clear to whom the message is directed and the information should be processing in the real setting. McLean (1993) stated that long horizontal lines should be avoided in the signs. A standard formula for line length is 40 to 50 characters per line. More than 50 characters start to distract visitors' attentions, disturb the eye, tend to lose its place and cause vision to jump line to line. One of the commonest confusion occurs in the use of directional and identification signs. Directional signs supplies information that guides people along a designated or pre-selected route to a destination, such as signs with arrows, floor directories in elevator lobbies and colored lines on walls and ceilings leading to destination zones (Arthur and Passini, 1992) (see Figure 4). Identification signs contribute information provided at the destination, such as signs with names or pictographs, signs identifying local hazards (see Figure 5).

Signage is a spatial mode of interactivity. It virtualizes the social relations of individuals into the anonymity of crowd control, reconfiguring territories of geophysical, architectural and cultural space into territories of recognition and action that speak to a productive power of language that exceeds representation. Thus, graphical signage cools down the anxiety of unfamiliar terrains and replaces it with a familiar authority (Fuller, 2002).

Figure 4. Directional Sign

https://i.pinimg.com/originals/10/ab/29/10ab2942941e6c91ff96690323f2cce8.jpg

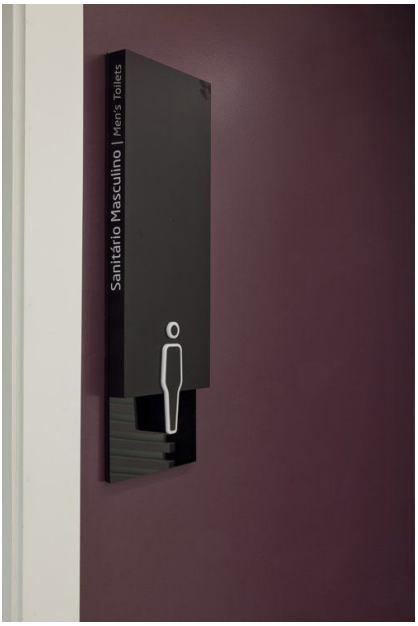

Figure 5. Identification Sign

http://studiomda.com.br/projeto/moinhos-shopping

Floor Plan Complexity, Organization, Pathway Configuration, Predictability, Thematic structure

Incoherence can arise from disorganization. People need small amount of changes in a setting, they do not adapt well to large amount of variations. A high level of complexity paves the wave for an overabundance of stimulation (Evans and McCoy, 1998). Clear and organized settings could reduce wayfinding problems by creating spaces to make easy predictions. In complex settings, people are bombarded with stimulation of the amount of different kinds of elements and information that the scenes contain, and as a result finding relevant information becomes a difficult process (Arthur and Passini, 1992; Stamps, 2004). O'Neill (1991) stated that complexity of floor plan influenced wayfinding performance negatively; when plan complexity was increased, errors were also increased. According to Passini (1984), in complex environments, the first image emerged is composed of an intricate arrangement of space, highlighted by unusual architectural features, executed with a tasteful use of material and color. He also added that environmental complexity is desirable as long as the design of the setting, including the wayfinding support systems, guarantees efficient information processing performances. Thus, it is possible to formulate and create of complex

built environments by make them understandable and used in challenging, satisfying way, without interfering with information processing and decision making.

The layout of the settings and the quality of the environmental information are two important physical factors that affect wayfinding tasks. The spatial content, the form, the organization and the circulation systems define the layout. The plan configuration of a building has some considerable impact on wayfinding behavior (Doğu and Erkip, 2000). Layout, circulation systems and the individual's location in space influence the exposure to visual and acoustic stimulation. Also the orientation of an interior space and the shape of the setting directly influence the stimulation level (Evans and McCoy, 1998). The form and the configuration of the building influence experience and behavior of the users (Franz and Wiener, 1992). The configuration of the plan and the pictorial elements which are shapes, surface qualities, special qualities and entrances influence the wayfinding problems (Abu-Obeid, 1998).

The geometrical properties in the spatial structure of a building are an important factor in wayfinding performance. Buildings that are organized around a simple orthogonal grid with regular angles are less problematic than irregular designs. Başkaya, Wilson and Özcan (2004) found that a regular but asymmetrical floor plan was easier to remember than a regular but symmetrical layout and a simple corridor system allowed for easy orientation.

Circulation Alignment

The circulation system of a building is one of the key elements that help to develop a mental map. Buildings organized around an open core provide an advantage of visual and auditory access to the form of the circulation system (see Figure 6). The well-designed circulation system provides users an easier understanding of the building. If the building well-articulated, it tells people everything about its interior organizations (Arthur and Passini, 1992). The identifiable and obvious circulation system of the building provides an easy understanding from the initial contact and the important adjacent activities should be exposed to the circulation system (Pollett and Haskell, 1979).

Stairs, elevators and ramps as vertical circulation elements should be perceptible to maintain easy communication to the users (Giuliani, 2001). The entries and circulation spaces are the first contact points of people with the building interior. Therefore, a sense of openness should be provided to improve the acquisition of knowledge about the building layout and social organization.

Figure 6. The circulation system organized around an open core. Emquartier, Shopping Center, Bangkok, Thailand http://www.boiffils.com/emquartier-1/

CONCLUSION

Stress is a crucial field of research for various disciplines . In the scientific domain, "stress has been used as a psychological precursor of illness, as a result of any number of conditions, or as a catchall for anxiety reactions, discomfort, and the like " (Evans, 1982, p.15). An important transaction between the person and the environment has been taking place when stress emotions such as anxiety, fear, guilt, anger, sadness-depression and jealousy occur (Lazarus and Cohen, 1977). It effects of a particular environmental stressor on health and physiology, cognition and affect social behavior (Evans, 1982). Thus, stress has been implicated in a wide array of health problems. To eliminate this problems, the built environments should be taken into consideration attentively by building scientists, architects, interior architects and designers.

This study examines the *coherence* as an environmental dimension and investigates the influence of interior design elements classified under the dimension in relation with human health. Legibility, distinctiveness, exterior vistas, landmark, signage, floor plan complexity, organization, pathway configuration, predictability, thematic structure, circulation alignment are demonstrated as environmental design elements that influence the coherence of an environment.

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CHAPTER 7

THE ROLE OF INFORMATION IN PLANNING DISPUTES: CASE STUDIES IN IZMIR, TURKEY

İlgi ATAY KAYA[1] , Senem TEZCAN[2]

INTRODUCTION

Information is used in several forms in several stages of planning processes. Either in traditional comprehensive urban planning or in recent strategic or collaborative planning processes, planning authorities need to collect information about the settlements such as economic, environmental and social characteristics. Planners need information to understand the reality they are trying to affect (Shmueli et al., 2008). While they use information, they also produce information about the cities or settlements (Innes and Gruber, 2005; Ataöv, 2007; Ökten and Şengezer, 2007; Peltonen and Sairinen, 2010). Moreover, they have the responsibility to inform the public about the plans. As well, planners have role of controlling and managing information (Forester, 1982).

Planners use various ways of controlling and managing information depending on their perspectives – for example, rational comprehensive planners need to collect all data whereas incrementalists use narrower information (Forester, 1982). The collected information is absorbed and evaluated by planners in comprehensive planning while it is absorbed and evaluated by a group in consensus building approach (Innes, 1996). The type of information varies due to the style of planning –for instance, mostly quantitative and objective information is preferred in conventional technical/ bureaucratic approach whereas qualitative information, stories and anecdotes are also considered in collaborative and communicative planning style (Innes, 1998; Innes and Gruber, 2005). Despite the varieties in scope, evaluator, and type of information, it has an important part in planning processes in either style.

In participatory planning processes, the lowest degree of involving people into the decision making is informing them (Rowe and Frewer, 2000; Ertiö, 2015). Arnstein's (1969) typology of citizen participation places 'informing' in the lowest degree of 'tokenism'. Informing seems symbolic part of decision making. One-way flow of information transforms to two-way information exchange between scientists or regulators and the public in the effective practices of participation (Arnstein, 1969; Rowe and Frewer, 2000; Ishizaka and Tanaka, 2003; Palabıyık et al., 2010; Curry, 2012; Yılmaz, 2013; Ertiö, 2015).

Informational mode of development transforms cities and regions through their effects on production, consumption and management processes and the ef-

1 Dokuz Eylül University, Faculty of Architecture, Department of City and Regional Planning, İzmir, Turkey
2 Dokuz Eylül University, Faculty of Architecture, Department of City and Regional Planning, İzmir, Turkey

fects of new technologies creating 'informational city' (Castells, 1989). With the advances of information systems and online opportunities, sharing information and transparency have become crucial issues for public institutions including planning authorities in recent years. Governments try to be more transparent by using several ways such as websites, social media platforms and e-government applications (Beck et al., 2004; Gürler Hazman, 2005; Karakurt Tosun, 2008; Grimmelikhuijsen, 2010; Pektaş, 2011; Licht, 2014). These ways support the public management and decision making processes and at the same time strengths the communication opportunities between public institutions and people (Rowe and Frewer, 2000; Pektaş, 2011).

The collection, usage, disclosure, protection, manipulation and misunderstanding of information have been under debate for several years. As well as the other disciplines using and sharing information, planning also deals with these problems, especially in practice. Information has a role of both causing and resolving planning disputes. This situation calls for researches focusing on ways to understand the effect of information in these disputes.

It is important that the academy learn the function of information in planning practice both for normative and analytical purposes (Innes, 1998). Many studies underline the importance of information in planning processes (such as Forester, 1982; Innes and Gruber, 2005; Peltonen and Sairinen, 2010). Besides, some researchers report planning practices facing conflicts because of the information related issues such as inequalities in information and parties exaggerating, manipulating, misrepresenting and hiding information (such as Forester, 1982, 1987, 2006; Wehrenfennig, 2008). Moreover, some scholars report the need for information in conflict resolution processes (such as Ökten and Şengezer, 2007; Peltonen and Sairinen, 2010). However, such attention has not transformed to researches directly focusing on the role of information in planning disputes and investigating this role in practices yet. Therefore, this article tries to fill this gap by compiling related literature and searching this role in disputes of case studies.

This study aims to demonstrate the effect of information on planning disputes focusing on İzmir cases. The research design has two parts in this article: literature review and case study. The methods in the case study include observation, media search, taking part in a conflict related meeting, data collection from the İzmir Metropolitan Municipality (IMM), comparison and evaluation. The data collection techniques from IMM are the analysis of online tools for requests and complaints and two face-to-face interviews with practitioners working in this municipality. The media search include keyword based search from the webpages of local newspapers, online search from media browsers and social media applications such as the twitter accounts of IMM.

INFORMATION AS A REASON OF PLANNING DISPUTES

There are four types of information related reasons of planning disputes (Figure 1). First, its absence and shortage cause conflicts in planning processes. In second type, information is existing but unequally available by all parties. The third reason is about trust issues and inaccuracy of information. Finally, stake-

holders' perception of the information also becomes a reason of planning disputes in many situations.

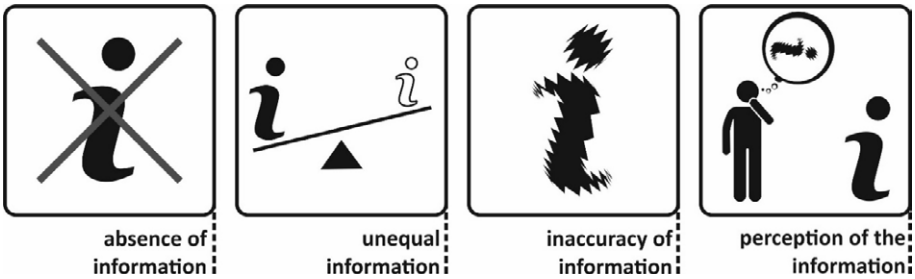

FIGURE 1. Schematic representation of information as a reason of planning disputes

Information may be absent in some situations. For instance, some technical measurements could not be finalized and the information on some local issues could not be produced yet. Besides, planners could not reach full and perfect information because of difficulties in data collection, time constraints and confusing procedures in some situations. In either situation, lack of information in planning processes appears as a reason of planning disputes. Many scholars agree that conflict situations arise when information is missing, inadequate or incomplete (Forester, 1982; Ishizaka and Tanaka, 2003; Wehrenfennig, 2008; Rogge et al., 2011).

Information may be unavailable for some parties in planning processes. This situation of inequalities in information also causes planning conflicts (Forester, 1987; Innes and Booher, 2004; Wehrenfennig, 2008). Stakeholders' level of knowledge is one of the factors affecting their acceptance level of unwanted land uses such as nuclear facilities (Schively, 2007; Palabıyık et al., 2010). Some approaches assert that local people's lack of knowledge about the technologies of the proposed facilities increase the oppositions, especially in NIMBY (Not In My Back Yard) situations about these land uses (Palabıyık et al., 2010; Atay Kaya, 2014). Their lack of knowledge makes them perceive the risks bigger and increase their anxiety (Ishizaka and Tanaka, 2003; Greenberg et al., 2007; Schively, 2007; Palabıyık et al., 2010). On the other hand, for some other approaches local people actively take part in collecting information skipped by technical experts and authorities when they see practical gains (Burningham, 2000; Palabıyık et al., 2010). Indeed, problems occur in processes involving deficiencies in sharing information with those all interested (Rowe and Frewer, 2000; Herrman et al., 2001; Innes and Booher, 2004; Putnam, 2004; Whetten and Cameron, 2011). Besides, trying to implement unpopular policies may result in protests (Rowe and Frewer, 2000).

Information is also a reason of planning disputes when it is wrong, inaccurate and misguided (Burningham, 2000; Innes and Gruber, 2005; Wehrenfennig, 2008; Atay Kaya, 2014). This is strongly related with trust issues. Undoubtedly lack of trust causes conflicts (Schively, 2007; Switzer et al., 2013; Atay Kaya, 2014). There are conflict practices in which parties blame counter parties for

giving wrong information intentionally (Palabıyık et al., 2010). Indeed, there are situations in which some parties exaggerate, manipulate, misrepresent, hide (Forester, 1982, 2006), and distort information (Watkins, 2001) and use classic techniques of interpersonal persuasion such as withholding information and selectively using 'facts' (Watkins, 1999). Misinformation may be in a variety of forms from false advertising at the beginning of the decision making processes to false promising at the end of the processes (Forester, 1982). Besides, information meetings can be turned into devices of providing superficial information and end with intimidation of citizens (Arnstein, 1969). Even decision makers use information to reflect the power into space by using ways such as creating uncertainty with hidden information, changing the agenda to technical discussions, and directing the perceptions of stakeholders (Forester, 1982; Ökten and Şengezer, 2007). Similarly, political planners need and use information to sell the programs to the public and get support for the decisions (Innes and Gruber, 2005). The political system itself may misinform the participants in the planning process and the affected citizens (Forester, 1982).

"If information and communication in the planning process are not (1) clear and comprehensible, (2) sincere and trustworthy, (3) appropriate and legitimate, and (4) accurate and true, then to that extent may the participants in the planning process be misinformed, or, possibly, manipulated. Just as these conditions are never guaranteed to be satisfied, there is no guarantee against the presence of manipulation in planning" (Forester, 1982).

Information may be perceived differently by stakeholders. Thus, the wrong perceived information and misunderstanding has potential of creating conflicts (Wehrenfennig, 2008; Whetten and Cameron, 2011). Planners generate conflicts when they ignore perceptions of other stakeholders (Domingo and Beunen, 2013). In practice, being technically right is not enough for actions in planning processes, understandings of the actors in the community varies (Innes, 1998) and how the technical information is perceived may increase conflicts. Low quality information usually causes misperception of opponent parties. All these problems depending on information related reasons can possibly be solved by information related solution proposals.

INFORMATION AS A SOLUTION FOR PLANNING DISPUTES

There are many ways to solve planning disputes such as participatory approaches, consensus building techniques, mediators and negotiators (Figure 2). Many conflict resolution strategies in planning are strongly related with information. Scholars have emphasized the role of information in the success of planning processes for many years (Johnson and Ward, 1972; Forester, 1982; Shmueli et al., 2008; Curry, 2012; Yılmaz, 2013).

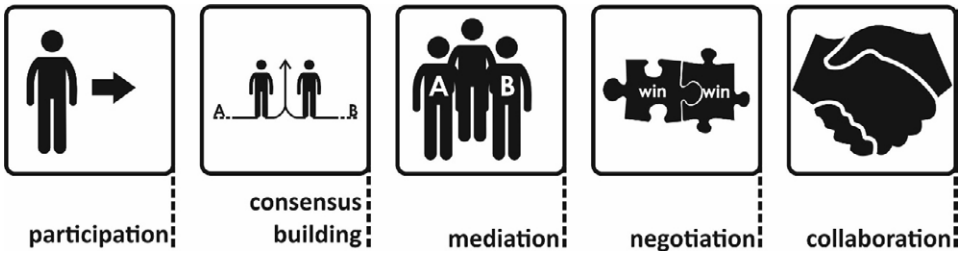

FIGURE 2. Schematic representation of main ways to solve planning disputes

Information is often limited, incomplete, misunderstood, contradictory and distorted through communication (Shmueli et al., 2008). As pointed in the previous part, there are various ways that information increases the possibility of conflicts. Therefore, not only planning experts but also scholars from other disciplines (such as Herrman et al., 2001; Cook et al., 2010) underlined that information related solutions and skills are needed in resolving these conflicts. There are both positive and negative strategies for information related solutions to planning disputes (Figure 3). Flow of information and transparency are examples of the former; and manipulation and deception are examples of the latter.

One of the main strategies of preventing or solving planning disputes is providing accurate information to citizens and/ or stakeholders (Shmueli et al., 2008; Palabıyık et al., 2010; Curry, 2012). There is a need for better informed public for a more trustable decision making process (Cook et al., 2010). Besides, better information processes can reduce uncertainties (Johnson and Ward, 1972; Shmueli et al., 2008). Moreover, information can increase implementation possibility of public decisions (Shmueli et al., 2008; Özkök and Gümüş, 2009), especially while dealing with NIMBY approaches about unwanted land uses (Kikuchi and Gerardo, 2009; Palabıyık et al., 2010; Atay Kaya, 2014). Information can be reached to mass audiences with the help of media engagement of planning practitioners and experts and this can be used for de-politicization of implementation conflicts of such projects (Schweitzer and Stephenson, 2016).

There are studies showing the positive effect of information disclosure and transparency on the public perspectives on decisions and their acceptance (Bingham et al., 2005; Palabıyık et al., 2010; Licht, 2014). Besides, another study demonstrated that there is no effect of actual transparency on public acceptance of decisions; but the perceived transparency affects them (Licht, 2014). On the other hand, there are research results showing the negative effect of transparency to the perceived competence and honesty of the governmental organizations (Grimmelikhuijsen, 2010).

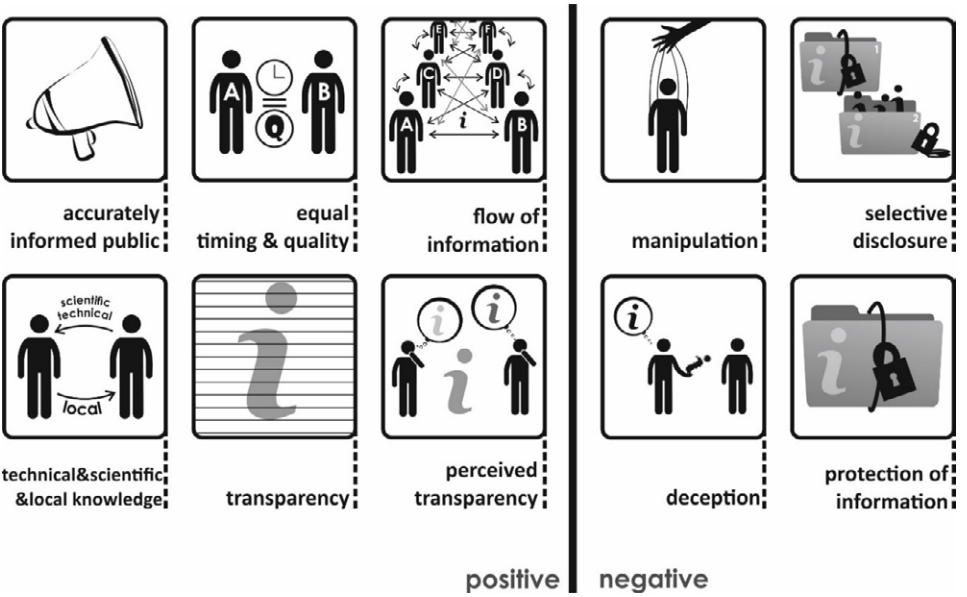

FIGURE 3. Schematic representation of main positive and negative strategies for information related solutions to planning disputes

One-way transfer of information from decision makers to the public has a limited effect for successful decision making processes; rather, a flow of information from both sides improves the processes (Arnstein, 1969; Rowe and Frewer, 2000; Ishizaka and Tanaka, 2003; Palabıyık et al., 2010; Curry, 2012; Yılmaz, 2013; Ertiö, 2015). As planning no longer contented with purely technical and scientific knowledge, there is a need for making use of local knowledge and community involvement for better quality outcomes of the planning decisions (Curry, 2012). The shared and better information for collaboration efforts reduce conflicts in planning processes (Mandarano, 2009; Cullen et al., 2010). Also, scope, types and distribution of information about interests, value, trade-offs, and alternatives is a part of negotiations and has a role of shaping perceptions of parties (Watkins, 1999; Ökten and Şengezer, 2007).

Information should be accessible to the public or participants in processes on equal timing and quality (Johnson and Ward, 1972; Innes, 2004; Innes and Booher, 2004; Bingham et al., 2005; Winkler, 2006; Nawaz and Sattar, 2008). The effect of information on dispute resolution processes is not only related with the access but also with the people perceiving the information (Johnson and Ward, 1972; Cook et al., 2010; Licht, 2014). When the performance of citizens on acquiring and processing the information is weak, the process possibly faces political distrust. In other words, the effect of information is stronger when the citizens actually read and retain the materials sent to them by government institutions (Cook et al., 2010). Decision makers should develop the awareness of the need for information and encourage citizens to develop their capacity to understand and use information (Johnson and Ward, 1972; Cook et al., 2010). Communities should be open to innovations and have willingness to make use of information

resources for better decision making processes (Özkök and Gümüş, 2009).

Full information is not more than an expected part of a normally functioning government; therefore, not only sharing information with the public but also the quality and accuracy of the information have effect on solution of planning disputes (Grimmelikhuijsen, 2010). Missing or low quality information decreases the possibility of successful planning processes. However, there are practices in which decision makers use the misrepresentation, manipulation, selective disclosure, protection of information and deception as strategies of conflict resolution (Shmueli et al., 2008; Olekalns and Smith, 2009; Craver, 2010; Sheppard et al., 2015). In some circumstances regarding sensitive information such as commercial, personal and military matters that should not be publicly released, planning authorities act as 'gatekeepers' to limit the public accessibility of the information and publish edited or partial version of them (Sheppard et al., 2015). Besides the situations about sensitive information, negotiators also used the selective disclosure strategy by withholding or misrepresenting information that are not helpful to increase their bargaining power and outcomes (Olekalns and Smith, 2009; Craver, 2010).

Joint fact-finding is a tool for collection and interpretation of information, especially used in resolving planning disputes. It increases the agreement about technical issues and ensures to consider the best available information (Ehrmann and Stinson, 1999; Susskind et al., 1999; Innes and Booher, 2004 Shmueli et al., 2008; Atay Kaya, 2014). Although it takes longer time than expert based information handling, it increases the possibility of successful results by minimizing problems about biases and strategically manipulated information (Shmueli et al., 2008).

Tools to inform public (Figure 4) include news media, pamphlets, posters, responses to inquiries, and public information meetings (Arnstein, 1969). In addition to these ways having been used since 1960s, it is possible to inform public via mail lists, focus group meetings, video techniques, telephones, and billboards (Yılmaz, 2013). There are also recent technological ways to improve the information collection and sharing processes including e-government (Beck et al., 2004; Karakurt Tosun, 2008; Pektaş, 2011), information systems (Worrall, 1986; Johnson and Ward, 1972), information and communication technologies (Apostol et al., 2012; Beck et al., 2004; Bingham et al., 2005), apps delivering real-time information about urban issues such as bus locations and public utility violations (Ertiö, 2015), government websites, computer-mediated government transparency (Beck et al., 2004; Grimmelikhuijsen, 2010), online questionnaires, online voting, opportunities for feedbacks by email (Ozawa, 1999). Although internet based technologies are used as planning support systems, they can not be utilized to resolve spatial planning conflicts (Sutriadi and Wulandari, 2014). However, they create advantages for communicating with geographically remote or less mobile participants (Ozawa, 1999).

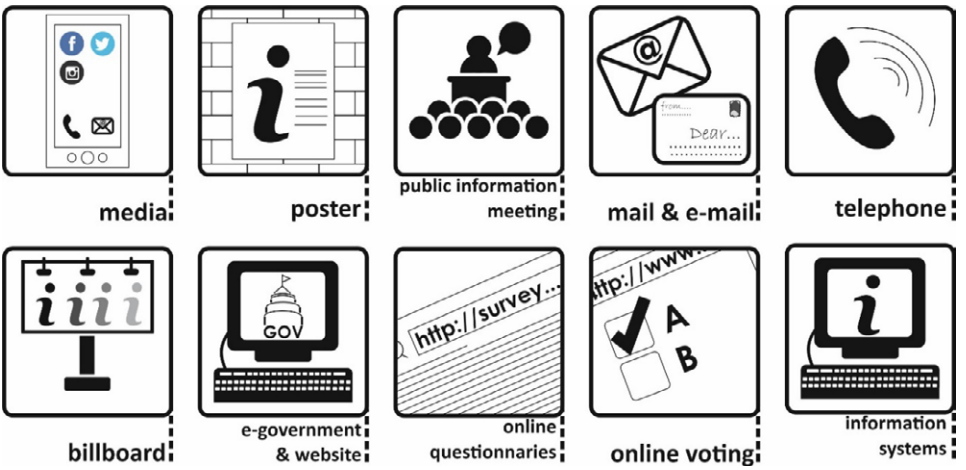

FIGURE 4. Schematic representation of main tools to inform public

CASE STUDY: ROLE OF INFORMATION IN PLANNING DISPUTES OF IZMIR

İzmir is the third largest city in Turkey with a population of 4,223,545 (Turkish Statistical Institute (TURKSTAT), 2016). Such a big city faces many planning disputes. Therefore, planning is a difficult process in the city. Besides, information management is a crucial task in the city's planning processes, especially while dealing with disputes.

The case study includes two parts: general information about the planning practices with regard to the role of information and a detailed analysis of three cases facing planning disputes: prison in Şakran, communication stations at a public university campus, and Light Rail System (LRT) between Aliağa and Tepeköy. The criteria for selecting these three cases include the variety of the type of planning decisions (decisions about land use, transportation and infrastructure) and the strong relation with information as a reason of or a solution for the planning disputes. The locations of cases and the parties in their disputes are also various.

The Role of Information in Planning Practice of İzmir

Planning practice of İzmir is based on the regulations in Turkey. These regulations require informing public in spatial planning. The requirements include declaration of plans for a month to collect oppositions and informing public in participation meetings for the decisions requiring Environmental Impact Assessment (EIA) such as airports, solid waste facilities and stadiums. In addition to legal requirements, there are also several ways of public informing used by decision makers. These are seminars, online platforms, publications. Examples used by IMM include 2D and 3D City Guide, journals published and distributed to users of public transportation, request and complaint lines, press releases, posters, websites, and so on.

The legislation related to spatial plans includes information related tools. It requires collection of information from various sources including public author-

ities and research institutions. The most used public information tool is the plan declaration process. This is a process of one month when it is possible to oppose to the decisions of the approved plan. The responsible institution has to declare the plan by showing it in boards of their buildings and in their official web pages (Spatial Plans Regulation, 33rd Article). There are several points in debate about this requirement: one is the need for informing public in plan preparation process rather than after its approval; another is the need for informing affected citizens by sending written notifications to their addresses; and the importance of the preventing the obscuration of plan documents (Avcı, 2016).

Although planning process in Turkey is not negotiative, communicative or radical, some public information tools are implemented. These tools include information meetings, focus group meetings and questionnaires about existing conditions or future decisions. For example, the public participation strategies used in the preparation process of the Regional Plan of İzmir for the years 2014-2023 are designing webpage, preparing periodical online and hard copy bulletins, information meetings with representatives of media, key actors and selected 800 citizens, and workshops with institutional stakeholders (İzmir Development Agency (İZKA), n.d.). To support decision making, questionnaires are used for Transportation Master Plan of İzmir (IMM, n.d.a). To increase the urban consciousness, online questionnaires asked the ideas for new names for ships used for public transportation (IMM, 2014).

Turkey has been experiencing practices of information society since the beginning of the 2000s. These practices include e-Europe+, e-Transformation Turkey and Vision 2023 Project of the Scientific and Technological Research Council of Turkey (Canlıoğlu, 2008). The need for these practices is based on making efficient decisions and saving money and time. Also they provide active participation and easy public information. For example, e-municipality system facilitates getting information, making requests and complaints, taking permissions and licenses and making applications. It is assumed that information sharing contributes to transparency and tracking the performance of the institutions (Gürler Hazman, 2005). One of the ways of these practices is Citizen Contact Center (HİM) in İzmir. It provides ways to communicate with decision makers on urban issues by phone, direct contact, e-mail, fax, letter, webpage - http://him.izmir.bel.tr/ - (IMM, n.d.b) and social media such as twitter (Ege Haber, 2017). Data from January 2017 shows that Citizen Contact Center of İzmir recorded 54,000 direct face-to-face contacts, 11,700,000 webpage based applications and 12,356,000 social media contacts in a year (Ege Haber, 2017). The distribution of various ways in totally 64,133,718 contacts recorded in 2016 demonstrates that 8 percent of them are face-to-face and phone contacts while 37 percent includes social media communications. Besides, 56 percent of the information gathering ways include webpage whereas 6 percent of them include brochures and journals (IMM, n.d.c). Another application is Izmir City Dashboard (İZUM). Intelligent Traffic Systems (ITS), which is a part of smart city practices carried out in Izmir, aims to constantly update the transportation data of the city, to create data for researchers and to develop new applications for citizens (IMM, n.d.d). It is possible to trace routes from specific points, plan trips by public transportation, calculate

travel time, get information about accidents and road works, view pedestrian zones, learn locations and capacities of designated parking lots and to get information about some other services with the data obtained from more than 10.000 intelligent devices (IMM, n.d.e).

Examples of Planning Disputes and Their Relations to Information

Planning disputes in İzmir include disagreements between various groups such as decision makers, affected residents, private companies and planning experts. Issues in these disputes cover a wide range of topics in planning such as transportation projects including bridges and tunnels, construction investments including mass housing and malls, infrastructure decisions including solid waste facilities and purification stations (Atay Kaya and Kaya Erol, 2016). While every issue and case has its own conflict creating reasons, many of them directly or slightly depend on communication and information based reasons.

The interviews with a planner and a specialist from IMM recorded that there are many people complaining about planning issues because of misinformation. They told that when citizens have problems in cities, they blame municipalities for these without searching the exact responsible institution. The interviewed specialist said that 'the people complaining sometimes blame only "the state", ignoring the institution'. The information based reasons of problems are usually tried to be solved by informing the citizens according to the interviewees. These statements support the finding of newspaper search that information has an obvious role in planning disputes of İzmir.

FINDINGS AND DISCUSSIONS

This part includes results of the case studies examining information deficiencies and solutions in three different disputes related with urban planning issues in İzmir. A summary of the dispute processes in each case study are followed with the description of the role of information in these processes. And then, they are compared with each other in the following parts.

Prison in Şakran

Dispute about the prison in Şakran started in 2005. At that time, the prison was not there, but its location decision caused local people to oppose to this land use. Local people did not want the prison in their district because they thought that it would affect the image of the settlement badly (Haberler.com, 2008; Çarboğa, 2005). Their opposition did not change the decisions and the prison is constructed. The economy of the district is vitalized with the prison's staff living there and prisoners' visitors shopping there (Çarboğa, 2011). This vitalization changed the opposing views. Many local people started to think that the prison was not bad for their district (Çarboğa, 2011). Thus, the dispute is ended.

The lack of information about the effects of prisons to their hosting districts caused dispute in Şakran case. Local people approached to the issue with prejudgment. After they learned the positive effects of the land use, many of them changed their approaches.

Communication Stations at a Public University Campus

The construction of the communication stations in various locations at a public university campus caused disputes in 2015. The opponents include students, university staff and academicians (Atay Kaya, 2017). The rectorship organized information meetings in various departments in various dates from February to March, 2016. The meetings include a presentation of the Information and Communication Technologies Authority which is the public institution controlling the stations. The meeting could not change the opposing views and the conflicts are still remaining.

The majority of the opponents in the communication stations case had the knowledge about technical details and effects of the stations. Most of them collected information from literature and they defenced their arguments with scientific evidences which they read from the printed articles they brought to the meeting. They criticized the presentation to include outdated data. One of the opponent academicians asked the reason of using the data of 2001 in 2016. Besides, another academician studying electromagnetic waves blamed the presenter to mislead the audience and told that comparisons by using magnitude units is not enough and frequency units are needed. Moreover, two opponents told that the information about other countries was wrong in the presentation. The representative of a syndicate asked why the people studying or working at the university are not informed about the communication stations before their construction. He told that the information meeting was symbolic, late and not enough for a collaborative process.

Light Rail System (LRT) between Aliağa and Tepeköy

LRT system has faced disputes and complaints since its usage as a suburban line. The line is used for both suburban transportation managed by IMM and interurban transportation managed by Turkish State Railways. Suburban rail system is complained not to be frequent according to the interviewed city planner from IMM. Another reason of disputes is the changes in the bus lines coordinated with transfer stations. Despite the equal amount of payment for tickets, many people opposing to this change complain about the replacement of transit buses with transfer options.

Lack of information is a reason of complaints to IMM about LRT, because many complaining people do not know that IMM has already done arrangements for the frequencies but could not increase the frequencies anymore because of sharing the lines with the trains of Turkish State Railways. On the other hand, information has a role in conflict management about the processes related with LRT system and transfer buses. IMM uses various ways to inform LRT users. In addition to the standard ways of using billboards, brochures and magazines, problems such as delays and faults are announced by using new information technologies such as websites and social media tools. IMM used a strategy of sharing partial information in bus stops to prevent the possible conflicts. They did not put all changes in information sheets of all bus stops and many people could hardly realize the entire changes in transfer buses.

Comparison of Three Case Studies

The cases are different in terms of planning issues. Land use, infrastructure and transportation issues are dealt in cases of prison, communication stations and LRT respectively (Figure 5). The characteristics and results of conflicts are different in 3 cases. While the prison case includes resolved dispute, the communication station case includes a remaining dispute. On the other hand, the LRT case did not face a certain conflict but includes small disputes full of complaints. Some of them are resolved while some others are remaining.

FIGURE 5. Schematic representation of main information related reasons of and solution strategies for conflicts in case studies

The complaining people in these 3 cases are also different. These are local people in prison case, students, university staff and academicians in communication station case and LRT users in the third case. These general aspects of the 3 case studies are so different that they are hardly comparable. However, they all have conflict facing processes in which information is a reason of or a solution for these conflicts. Thus, this paper compares their relation with information.

Information as a reason: All 3 cases practiced lack of information as a reason of conflicts but they differ in details. In prison case, opponents knew the land use decisions but did not have enough knowledge about its effects. On the other hand, opponents of the communication stations case knew the effects of this infrastructure but they complained about not being informed about the locations

before the construction. In the LRT case, some complaints are related with the lack of knowledge about the capabilities of the responsible institution.

Information as a solution: This research could not find enough data showing whether information is used as a solution in prison case. The other two cases showed that there were different ways of using information as a conflict resolution strategy. There were both positive and negative ways of using information. The positive strategies include organizing an information meeting in communication station case and informing people by using billboards, brochures, magazines, websites and social media tools in LRT case. Negative ways told in information meeting of the communication station case were using outdated data, giving wrong information, deception by hiding relevant units in the presentation of the responsible institution and not informing the hosting people before the construction of the communication stations. In the LRT case, the negative ways were sharing partial information about the changes in the routes and frequencies of the transfer buses. While the negative strategies were not successful in communication station case, they partially succeeded in preventing possible complaints in LRT case.

CONCLUSION AND RECOMMENDATIONS

Information related issues could be both a reason of and a solution for planning disputes in İzmir cases. Three case studies including disputes over land use, transportation and infrastructure issues supported the previous studies underlying the role of information in planning processes. The findings showed that lack of information is a common reason of the disputes in the case areas. Besides, unequal information and information not shared on time with public is a reason of disputes in communication stations and prison cases. Moreover, prejudgment is a reason of conflicts in prison case; this finding supports the view that information perceived differently by stakeholders has possibility to increase the disputes.

The case studies demonstrated that decision makers used various ways to prevent and solve disputes over communication stations and LRT in İzmir. The positive ways are informing citizens by online platforms and organizing seminars. The negative way of using information as a conflict resolution strategy include sharing partial and outdated information. Surprisingly, although information related solution proposals are not found in prison case, it is the only resolved dispute within these three case studies. However, this does not mean that its decision making process were smooth or successful.

Surely, conflicts are not always bad. The conflict free processes in which some parties are intimidated or deceived by using the power of information are worse. Planning processes considering only powerful actors' purposes, skipping disadvantaged groups' interests and preventing conflicts and opposing views by using semi shared information are more problematic and unsuccessful.

Proposed solutions for İzmir cases must include high quality, accurate and equally accessible information shared with all stakeholders. The flow of information rather than one-way should be preferred. Also, the information should

be understandable by all community to prevent the possible misperceptions. The decision makers not only should use new online and technological ways to inform public especially for remote and/ or less mobile people, but also should consider the people who are not able to use and/ or reach these technologies. These proposals can be useful for cases similar to İzmir; however, each case should be handled separately because each conflict has its own dynamics. This study intentionally selected so different cases to show that although the planning issues, the parties, the scales, the locations, the reasons and the results are various, information has a crucial role in planning disputes as both a reason and a solution.

As an implementation tool, information in planning is important in urban management and production of spatial decisions. The usage of information sustains despite the varieties in planning approaches, legal requirements and regulations. The role of information is obvious in planning disputes in theory; however, there are problems in managing information in planning practices. There is a need for further case studies showing better processes and/ or worse examples to take lessons from. In-depth studies on perceptions of stakeholders in these kinds of planning disputes would be complementary.

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CHAPTER 8

REUSE OF A TRADITIONAL ARCHITECTURAL HERITAGE FROM THE 19TH CENTURY: CONVERSION OF "THE ZEYNEP ONBAŞI HOUSE" INTO A "BOUTIQUE HOTEL"

Neslihan YILDIZ[1]

INTRODUCTION

Existing cultural features of a society change and develop with the flow of what is received from outside (Haviland, 1990). In addition to this, cities make progress and change as well based on qualities as changing and dynamic phenomena involving social and cultural features (Adams, 1988). From past to present, cultural identities and living conditions specific to any given period have also undergone a change directly proportional to changes in socio-economic and socio-cultural features within the process of historical development. In this context, traditional houses, the most distinct elements of cultural heritage, may sometimes be involved in the processes of refunctioning and reuse in order to lengthen their lifespan and maintain their status as a testimony without being diminished in the face of daily needs.

Handing down structures under the category of historical and cultural heritage to the future is made possible by ensuring the continuity of the features they possess or putting them to use by granting them new functions. Getting structures that maintain their unique functions to comply with the comfort requirements of the day and enabling structures that are granted new functions to possess structural regulations required by those functions help maintain the continuity of our historical structures and hand them over to the next generations.

Kula district, sharing the long-standing past of Manisa Province, Turkey, is an important district that conveys its traces from ancient history to our day and also possesses numerous examples of architectural, ethnographical, archeological, historical and visual values. Owing to the fact that the traditional lifestyle, nature and unique architectural urban fabric of Kula, known as an outdoor museum, have been worn down, wasted away or deserted, forsaken and lost their function due to various reasons, the prospect of saving and regenerating these historical houses that are each a part of this urban fabric within the scope of preserving cultural heritage have come to the forefront. Consequently, historical houses in Kula have been taken under protection with cultural site area borders by Manisa Metropolitan Municipality in order to honor the culture of the town and introduce the historical houses into tourism.

1 (Asst. Prof. Ph.D.) Istanbul Gedik University, Istanbul Turkey

Before being declared as a cultural site area, Kula, which is a rich town in terms of traditional architecture and socio-culture where the Rum and the Turkish lived together for a long time, comprised of houses that faced the danger of losing their values. Thanks to the restoration activities accelerating after the declaration of the town as a cultural site area, it has become one of the most important touristic attractions in the region.

In this study, physical and functional conversion of "the Zeynep Onbaşı House, a product of the traditional 19th-century house culture and one of the most important immovable cultural heritage constructions in the Aegean Region" into a boutique hotel will be reviewed and related assessments will be carried out. In this regard, the history of the house, its immediate surroundings inside Kula, the use of the lot it is situated on, and its architectural features will be conveyed; and its reuse will be analyzed with the help of its images and required documents within the scope of its restoration. The objective with all these is to put forward the conversion of a traditional architectural heritage structure and pave the way for similar studies to be carried out in the future.

MATERIAL AND METHOD

This study has been carried out with the Zeynep Onbaşı House as its basis, an example of traditional 19th-century architectural heritage, in the neighborhood of Taş within the cultural site area on street no. 41, and the basis of the study is the physical and functional changes that the structure has been exposed to throughout history. Within this context, the study was built with the method of assessing and analyzing the old and new uses of the structure with required documents such as images from past and present and project activities. In this process, because of a lack of a consultant to disclose information about the structure apart from research and documentation activities, project reports belonging to Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects regarding the reuse of the structure were largely consulted.

HISTORY OF THE STRUCTURE

The history of the house is not completely accessible. The first owner of the house was a jeweler Rum. The house was actually built as a whole with the other structures on 7 lots to its west. The house was divided into two following the 1923 population exchange, and the ownership for the part that is the basis for this study was given to Mehmet Ali Köseoğlu, which was later passed on to Abdurrahman Karagöz by inheritance. In 1995, Süleyman Onbaşı bought the house and handed over its ownership to his wife Zeynep Onbaşı in 2000 (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects).

To this day, the house has been subject to fundamental changes. The first change was carried out by dividing it into two during the 1923 exchange period. The second change was made during the 1950s and the 1960s when the house started to be used as a hospital. The latest changes were performed in circa 1975 when the ownership of the house belonged to Abdurrahman Karagöz (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects).

LOCATION OF THE STRUCTURE

Situated in the neighborhood of Taş, on street no. 41, block no. 39, and lot no. 6, the structure is located in an area of approximately 319 square meters. Being situated within the cultural site area, the structure neighbors a registered two-story house to its south, a registered two-story residence - which is actually a continuation of the house - to its west, and street no. 41 to its east, on which two two-story residential buildings are located (Image 1). The structure comprises of a three-story section to the north of the lot, a primary chamber sitting on the pillars to the east of the lot on the first story of the section, and a two-story extension to the west of the lot.

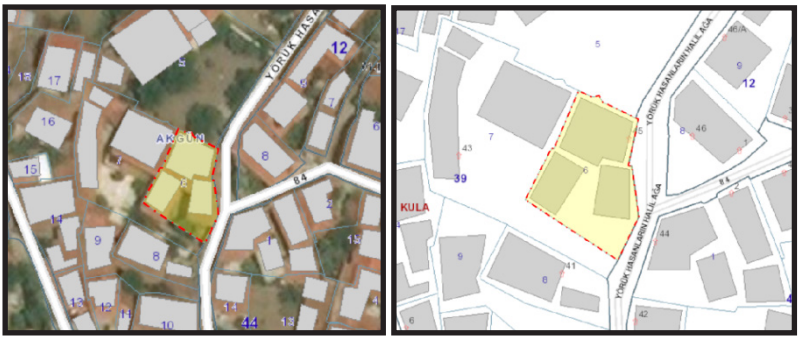

Image 1. Location of the structure within the town (Url-1)

ARCHITECTURAL FEATURES OF THE STRUCTURE

Structures in Kula were built with completely local materials and traditional building techniques specific to the period when they were built. Therefore, having a distinct place among the traditional architecture heritages, these houses bear architectural resemblances. One of them, the Zeynep Onbaşı House, was built with mud-filled wooden-frame construction system, using stone walls on its ground floor and elevating these bonding-timbered walls to the upper floor (Bozer, 1988) (Image 2). On every floor, the floor covering is wooden, while the roof covering is pantile. Every door inside the house is made of wood; while some of the stairs are made of reinforced concrete and others are wooden. The structure is comprised of two storage rooms on the basement floor; an anteroom, two rooms, a kitchen, a corridor, a toilet, and a bathroom on the ground floor; and an anteroom, a hall, three rooms, and a kitchen on the first floor.

Image 2. A general view of the Zeynep Onbaşı House (as a residence) (Url-2)

One can enter the yard through the wooden double-leaf door which is opened from the southeast corner of the lot. Based on the concept of privacy, there is no direct entrance to the structure from the street. Therefore, the entrance from outside is only accessible through the yard. The borders of the yard to the street are also drawn by its relief stone walls.

Basement Floor

Accessed by descending from the slate-covered stairs inside the yard, the basement floor is comprised of a hall and two storage rooms. One can enter these rooms through two doors located on the northern wall of the hall. There is a barred window on the southeastern corner of the floor, which lets the light from the yard in. The wooden window on the southwestern corner of the floor was closed with a tile wall.

Ground Floor

Anteroom (Z01): The ground floor is comprised of an anteroom entered from the yard or the street (Z01), two rooms accessible from this anteroom, a kitchen, a corridor that was built afterward, a toilet and a bathroom. One can enter the anteroom through the wooden double-leaf door from the yard and the iron door built afterward on the eastern wall of the floor from the street. An 80 cm. high wall was built among the pillars on the southern wall of the floor and was closed with wooden windows. There are double-leaf wooden-surfaced doors to two rooms (Z02 and Z03) on the northern wall of the floor and wooden guillotine windows on both sides of these doors. The wooden stairs on the northeastern corner of the floor connect the street and the first floor. On the western corner of the floor, there is a wooden wall which was built afterward and a wooden door granting passage to the corridor. Toilet and bathroom, built with brick masonry and wooden walls and accessible through the corridor, were added on the western part of the floor.

Room (Z02): There is an arched niche in the middle of the eastern wall in this room, and wooden wardrobes in other parts. The wardrobe on the northeastern corner of the room functioned as a bathing cubicle. On the same corner, there

is a wooden barred double-leaf window believed to have been built during the period when the house functioned as a hospital.

Room (Z03): There is a stove covered with a wooden lid on the northern wall of the room, and a wooden barred double-leaf window with a shutter and marble jambs, likewise appearing to have been built during the hospital-functioning period of the house.

Kitchen (Z04): Entrance to the kitchen is accessed through a wooden batten door, which appears to have been installed afterward considering the traces on the ceiling cladding, in the corridor. There is a wooden guillotine window next to the door that opens to the bathroom area (Image 3).

Image 3. A view from the kitchen (Url-3)

There are two wooden windows and a niche with marble jambs on the western wall of the kitchen. A tile wall, an iron window, and a concrete loom were placed in the doorway built afterward with iron shutters and marble jambs on the northern wall.

First Floor

The first floor is comprised of an anteroom (101) accessed through the yard or the street via stairs, three rooms accessible from the anteroom, a kitchen, a toilet, a bathroom and a hall built afterward.

Anteroom (101): This anteroom is accessed through wooden stairs enabling entrance through a wooden door on the ground floor level, on the northwestern corner of the yard. Just like on the ground floor, an 80 cm. high tile wall and wooden windows were placed among the pillars to the south of the anteroom.

The section of the anteroom that faces the street appears to have been elevated by two steps. This section may be likened to the "pavilion" section characteristic of Kula houses, but does not completely correspond to it. One can move on to the primary chamber – supported by marble plated pillars on the ground floor - through the wooden door in this elevated section. There are a wooden wardrobe, an ablution cubicle adorned with plaster profiles, and a wooden box-barred window on the walls of the anteroom facing the street (Tosun, 1969). The rooms are accessed through two wooden doors, one single-leaf, and the other double-leaf, on the northern wall of the anteroom. There are also four windows on the same wall, two next to each other and two on both sides of the double-leaf door.

Image 4. A view from the first-floor anteroom (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects)

Image 5. Passing through the first floor anteroom to the primary chamber (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects)

In addition, there are also toilet and bathroom cabinets on the western part of the anteroom built afterward with tile masonry wall.

Primary Chamber (102): This chamber, which has a rose shaped plaster ceiling, is the most adorned section of the structure. The entrance is through the wooden door on the northern wall. There is a wooden alcove sticking out towards the western facade to the east of the door, and an arched niche adorned with plaster profiles and a wooden wardrobe to the west of the door. There are a total of 7 double-leaf barred wooden windows, two on the eastern and the western walls, and three on the southern wall of the chamber. In addition, there are wooden wardrobes sticking out towards the facade on the western wall. A balcony is accessed through the wooden window on the western wall. The marble balcony has a lancet vaulted roof supported by three columns to the east of the balcony.

Image 6. A view from the primary chamber (Url-4)

Room (103): A kitchen (104) and a hall (105), composed of wooden walls, were later added to this room. The entrance to the room is through the wooden double-leaf door in the hall which is in turn entered through a single-leaf wooden-surfaced door in the anteroom. There are two wooden double-leaf windows next to each other on the southern wall of the room and three double-leaf wooden box-barred windows on the western wall. Traces of closed plaster-profile skylights can be seen on top of two of these windows. There is a wooden wardrobe built afterward on the northern wall of the room. The entrance to the kitchen, which was added afterward, is through the wooden door in the hall. A concrete loom and niches were built in front of the western wall. In addition, a wooden transom window was placed afterward on the western wall.

Room (106): The entrance to this room is through the wooden double-leaf door on the southern wall of the anteroom. There are double-leaf windows on both sides of this door. There is a stove covered with a wooden lid on the western wall and wooden wardrobes on both sides of this stove. There is a wooden four-leaf window, believed to be placed during the period when the house functioned as a hospital, on the northern wall, and wooden wardrobes on both sides of this window. There are plaster skylights above the wooden wardrobes.

Image 7. A view from room 103 (Url-4)

Extension

Situated on the western side of the yard, the extension is composed of two floors. The ground floor of the extension comprises of a hall (Z08) accessed from the yard, and two rooms, a lavatory, a bathroom, and a toilet arrayed throughout the western and southern sections of this hall. The wall of the hall facing the yard is composed of a 110 cm. high tile masonry wall and arrayed windows.

There are a total of four wooden wardrobes; one in the southern and the western walls of the room (Z09) to the southwest of the ground floor, and two on the western wall under the stairs. In addition, there is a rectangle-shaped niche on the southern wall. There is a wooden door enabling passage from the hall and a wooden four-leaf window on the eastern wall. There is a wooden wardrobe on the western wall of the other room (Z10), a wooden door enabling passage to the lavatory section built afterward on its southern wall, and a wooden door enabling passage from the hall and a double-leaf window on its eastern wall. There are a concrete loom and a rectangle-shaped niche on the southwestern corner of the lavatory section accessed through the wooden door in the hall. There are a stove and an arched niche in the bathroom section accessed through the wooden door in this area. Besides, reinforced concrete flooring was performed afterward on the ceiling.

Accessed via the stairs to the northeast of the yard, the second floor of the extension comprises of, just like the ground floor, a hall (109), and two rooms, a kitchen, a bathroom and a toilet arrayed throughout the western and southern sections of this hall. The wall of the hall facing the yard is composed of a 110 cm. high tile masonry wall and arrayed windows.

There is a wooden door enabling passage from the hall and a wooden four-leaf window on the eastern wall of the room (110) to the southwest of the floor. A wooden wardrobe was placed afterward in front of the southern wall. There is a wooden door enabling passage from the hall and a wooden double-leaf window on the eastern wall of the other room (111) and a wooden wardrobe on its southeastern corner.

There is a concrete loom and concrete lavatory placed upon a niche on the wall to the southeast of the kitchen which is accessed via the wooden door in the hall. In addition, there is another rectangle-shaped niche on its northern wall. There is a stove on the northern wall of the lavatory section accessed via the wooden batten door in the kitchen.

Yard

The yard, accessed through the wooden double-leaf door from the southeastern corner of the street the structure is located on, is bordered by an “L” shaped main building to its north and northeast, the two-story extension to its west, and a rubble masonry wall to its south and southeast.

There is a staircase made of concrete and wood connected to the main building and the first floor of the extension on the western corner of the slate-covered yard. There is a ruined section believed to have been a part of the extension in front of the western wall. Fig and plum trees were planted in this area which is filled with earth.

Image 8. A view from the entrance of the yard and the extension (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects)

Roof

The main building has two separate roofs. The roof of the primary chamber (102), supported by pillars, is made of lath and plaster, whose eaves comprise a wooden-covered hipped roof. The other roof is also a wooden hipped roof placed on fascia boards with wooden covered eaves. The cover of these roofs is made of pantile, but a renovation with Marseilles tiles can be observed on the southern section of the northern roof.

The roof of the extension is a wooden hipped roof placed on fascia boards, whose one corner sinks into the main building roof. The roof covering of the extension is made of Marseilles tiles.

Facades

In this section, architectural features of the facades, starting with the north facade and continuing with the east, the west and the south facades, are described.

The North Facade

Seen from the street and the lot no. 5, this facade is wholly covered with plaster. There are two windows and a closed door on the ground level believed to have been placed during the period when the structure functioned as a hospital. One of the windows and the doorway are surrounded by marble columns and moldings. The windows are wooden and barred, and a barred iron window was placed on a tile wall which was put up to close the doorway. In addition, a triangle-shaped bulge on the main rubble masonry wall caused by the stove inside the room 103 on the ground floor brings vividness to the facade.

There is a window in room 106 on the first floor, likewise believed to have been placed during the hospital-functioning period of the structure. Frames of a window, closed afterward but currently used as a wardrobe, can be seen to the west of the aforementioned window. There is a plaster skylight on top of this closed window. The same type of skylight is also found on the other side of the

window, and the room 103 creates a bulge towards the street on the eastern part of the facade. A part of the upper window molding is found in this bulging section, just like on the east facade.

There are also brick chimneys built afterward and a transom window placed afterward in the kitchen on the first floor on the facade (Image 9).

Image 9. The north facade of the structure (Url-5)

The Southern Facade

With a width of approximately 18 m., this facade is perceived with a perspective from the adjacent lot no. 7 and street no. 41. A rubble masonry yard wall can be seen on the ground floor level. The first floor of the extension, built afterward, comprises the western side of the facade. The wooden window of the kitchen is seen on the first floor. The eaves, made of arrayed wood lath, of the Marseilles tile covered roof of the extension can be clearly observed. The anteroom section of the first floor can be seen in the middle part of the facade. The wooden molding, in line with the laying of the bulging section caused by the ground floor entrance of the anteroom, is clearly seen. There are also wooden laced columns whose middle section is covered with a tile wall and windows. Also, the laced bracket support, supporting the eaves of the structure, is highly eye-catching.

The most attention-grabbing section of the facade is the primary chamber (102) supported by wooden pillars on the ground floor, and the balcony section accessed from this chamber. Unlike other windows in the structure, there are three barred wooden double-leaf windows in this section. In addition, the plaster profile molding in line with the laying comes to an end on the yard wall. The western corner of this section ends with a wooden sash, which makes it easier to be recognized more than other sections. Placed on the garden wall and having a roof supported by columns, the balcony is on the eastern part of the section. An iron railing was built in between the columns, where an arched motif starting approximately 205 cm. above the balcony ground and going up to the starting point of the eaves was also built. The majority of the balcony flooring was lost, and the remaining parts of the marble profile molding are recognizable. Another important feature of this section is its eaves molding made of fibered lime plaster and laths.

Image 10. The north facade of the structure (Url-4)

Image 11. The north facade of the structure (Url-6)

The East Facade

With a width of approximately 22 m., this is the most hectic facade of the structure. Due to the lot having a diameter, the sections built on the first floor create a bulge towards the road. These bulges are supported by wooden pillars and plastered with lath covering.

There is a wooden double-leaf door, granting entrance to the yard, to the south of the facade. In the middle of the facade, there are iron and wooden doors, placed afterward, to the stairs connected to the ground floor anteroom and the first floor.

We can divide the first-floor level into the northern section reflecting the characteristics of "Kula Houses" and the southern section laying emphasis on the primary chamber (102) on the facade. Unlike other windows in the structure, there are two barred wooden double-leaf windows with wooden shutters on the primary chamber, the most attention-grabbing section of the facade, and on the balcony sticking out towards the street. A wooden alcove can be seen sticking out on the facade on the northern corner. There are three columns supporting the balcony roof, in between which an iron railing was built, where an arched motif starting approximately 205 cm. above the balcony ground and going up to the starting point of the eaves was also built. Another important feature of this section is its eaves molding made of fibered lime plaster and laths.

In other sections of the first-floor level, a rectangle-shaped lattice window opening to the anteroom and a wooden box-barred double-leaf window with wooden shutters opening to the room 103 can be seen. On top of two of these windows, there are two plaster profile skylights, one of which is closed. A horizontal line was created by placing wooden moldings in line with the laying of the bulges in this section.

Image 12. The east facade of the structure (Url-7)

Image 13. The east facade of the structure (Url-8)

The West Facade

On this facade which can be observed from the adjacent lot no. 7, the western wall – built afterward - and the roof of the two-story extension can be observed. Only the eaves molding and the pantile roof flooring can be seen due to the roof height of the primary chamber.

CONVERSION OF THE ZEYNEP ONBAŞI HOUSE INTO A BOUTIQUE HOTEL

The reuse and therefore the constant maintenance of the structure, registered as a cultural asset whose features and the values that these features grant have been put forward in this study, must be ensured; besides, new functions to hand it over to the future generations must be assigned to it only after taking these values into consideration. Within this framework, taking the accommodation need

in Kula into account, this structure was deemed suitable to be functioned as a "boutique hotel" also at the property owner's request. To that end, the preserving approach assumed during the project involved preserving and displaying the structure by presenting every object and feature that the structure has by nature of its unique function and unique aspects of the phases it has undergone, not just merely renewing the structure completely to make it more suitable for its new function.

Built during the 1800s in accordance with traditional Turkish architecture according to data obtained from Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects, the structure was proposed to be used as a boutique hotel on condition that it be restored in accordance with its original aspects – a condition from Manisa Metropolitan Municipality – with a view to honoring the urban culture of Kula, a monumental town in our day with its history and culture, and introducing its historic houses to tourism.

New Function

In line with the aforementioned condition, a heating system to the east of the basement floor hall was projected. The storage area on the northeastern section was assigned to be a laundry room, and the other sections on the basement floor were decided to maintain their function of personal storage.

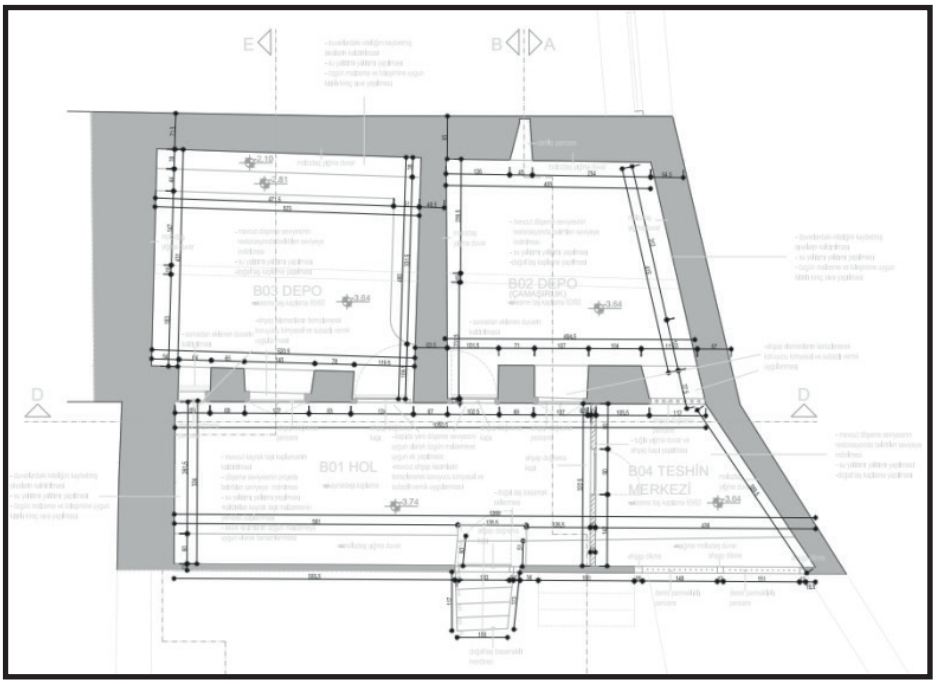

Image 14. The basement floor plan – restoration project (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects)

The additional sections in the anteroom (Z01) on the ground floor were removed, and it was projected to be used as a lobby. The western part of the anteroom was arranged to be the reception area. The kitchen on the ground floor was rearranged as an office. Other rooms were arranged to be bedrooms, and bathrooms were added. A transparent section was created with wooden walls under the primary chamber (102) on the first floor on the northeastern part of the yard, and it was projected to be a multipurpose room.

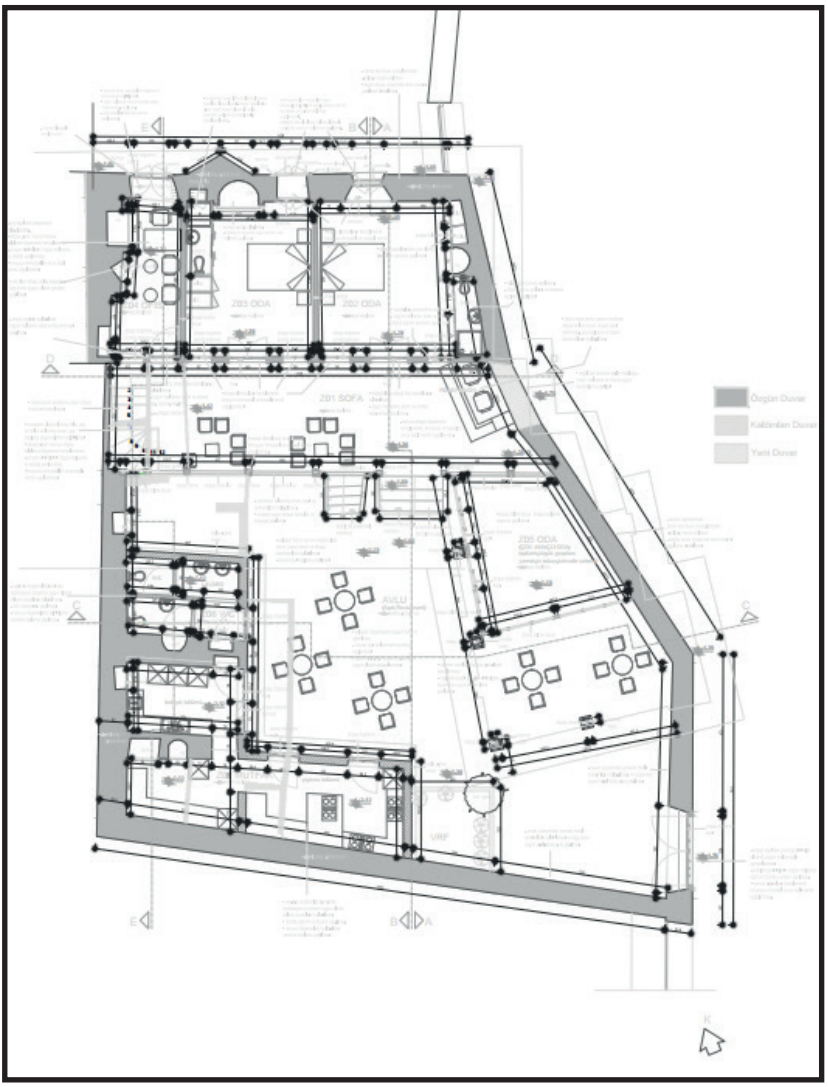

Image 15. The ground floor plan – restoration (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects)

On the first floor of the structure, the additional sections were removed, and the rooms were arranged to be bedrooms, and bathrooms were added.

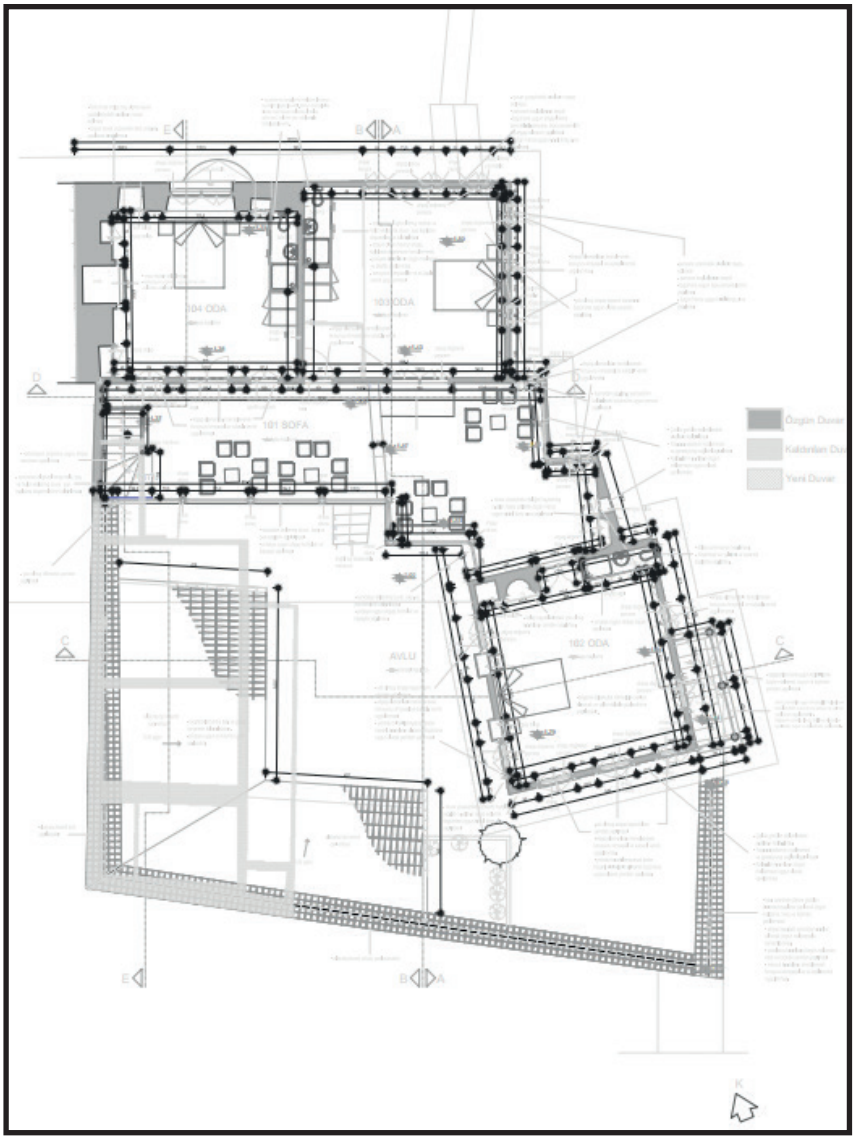

Image 16. The extension ground floor plan – restoration (Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects)

The extension was rearranged to be one-story, and the hall section was removed, thus granting immediate access from the sections to the yard. The rooms which kept their originality were arranged to be kitchens, and the additional kitchen built afterward on the western section of the extension was attached to the cooking zone. WCs and bathrooms were designed on the northern part of the extension for the staff. A variable refrigerant volume (VRF) was projected to be placed on the eastern corner of the extension (Image 15).

ASSESSMENT AND CONCLUSION

The reuse of the Zeynep Onbaşı House, with a new function as a boutique hotel, has been analyzed and commented on in this study, with information obtained following the meetings with the personnel of Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects and required documents.

Societies need to be integrated with today's conditions and lifestyles in order to maintain their historical continuity, preserve their cultural values and reflect their identity.

Performing necessary changes in structures within the scope of traditional architectural heritage in order to hinder the destruction of such possessed values enables these structures to be regained by societies and keep their continuity. There are numerous studies on the reuse of existing historical regions in our day, and the point that needs to be taken into account while performing such studies is the capacity of the new use of a structure to coincide with the old one. The new functions can provide continuity and a healthy preservation can be obtained only when this relationship is properly established.

Acknowledgment

We would like to offer our sincere thanks to the Manisa Metropolitan Municipality Section of Historical, Social and Cultural Projects personnel who shared information on the history of the structure, and the architects Abdurrahman Kibar and Savaş Aziz Bilgin who helped with the sharing of architectural explanation reports regarding survey, restitution and renovation projects of the structure.

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CHAPTER 9

CIVIL ARCHITECTURE OF EXAMPLES IN TARAKLI HOUSE OF HALIM DUZGUN

A.C.APAY[1], Ö.Özkan ÖNÜR[2], A. BİDECİ[1]

1. INTRODUCTION

The geographical features of the region in terms of climatic and vegetation cover have been investigated in order to see the existence of the historical artifacts in Taraklı and the appropriate restoration contents of the structures found there. Population, demographic situation and historical development that determine social structure have been evaluated in terms of understanding the purpose of use of constructions. The architectural and structural features of civilizations designed according to most small families and foremost with their sofa plan for large families have been examined [1].

The architectural civil structures that make up Taraklı have been examined and the features of these structures have been presented supported by photographs. Architectural settlements, interior layouts, construction systems, features of roofs, number of floors and their qualities are specified for civil purposes. The properties of the materials used in the construction of the constructions and the locations of the constructions in the vicinity are discussed. In addition, information on the buildings to be preserved and repaired in Taraklı is given by focusing on the work of previous years.

The architectural and structural analysis of the Halim Düzgün House, one of the architectural examples chosen for the study, was carried out and drawings and restoration projects were drawn up. It is aimed to show how effective the repair techniques are in terms of the work done under light.

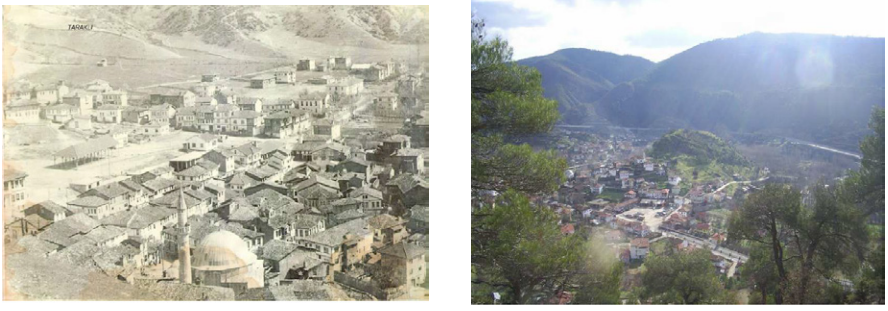


Figure 1. General view from Taraklı (1960-2007) [2]

1 Department of Architecture, Faculty of Arts, Design and Architecture, Düzce University, Düzce, Turkey

2 Department of Interdisciplinary Composite Material Technologies, Institute of Science and Technology, Düzce University, Düzce, Turkey

2. PHYSICAL STRUCTURE AND HISTORICAL DEVELOPMENT OF THE TARAKLI

2.1. Physical Structure of the Taraklı

2.1.1. Geographical structure of the Taraklı

Taraklı is a district of Sakarya in the Marmara Region. The settlement, 65 km from Sakarya is located on the old Istanbul-Ankara highway between Göynük and Geyve districts [3]. The district 450 m high above the sea, Geyve, Sapanca, Pamukova districts from the west, Göynük from the east, surrounded by the lakes of the lake market from the north. Taraklı, which is located on 40.4 latitude and 30.5 longitudes, Tokar and Taşlık Hills, in the west is Tea Side Hill, Hıdırlık in the north and surrounded by the Kara Bayır Hills built into a valley [4].

2.1.2. Climate and flora of the Taraklı

Although the Taraklı is in the Marmara Region, its typical features of the terrestrial climate prevail since it has a mountainous terrain structure. So the climate is not like the climate of the province of Sakarya. Summers in Taraklı is hot and arid, winters are snowy and hard. Falling snow from December until the first months of spring. Autumn and spring are rainy. Average annual temperature is around 14 - 15 degrees. The annual precipitation is 630 mm. Taraklı is very rich in terms of natural vegetation. The mountains are completely covered with forests. There are pine, oak, hornbeam, beech, fir and boxwood varieties in these forests. Other areas include bushes and machines. Less plain are covered with agricultural and fruit products. Fruits are important among the people's livelihoods. But it is difficult to process the land in the district. "If you pain, you pain to Taraklı's ox" promise in district the land processor what is reflects that power is a business [4].

2.1.3. Economic structure of the Taraklı

Due to its location on the Istanbul-Ankara highway which is an important trade route during the Ottoman period the economic situation is pretty good district, during the Republican period the importance of this path is lost and the existing crafts depending on the disappearance of technological development declined. This situation, causing the people to turn to new sources of livelihood. Taraklı's current economic structure is based on fruit-making and the trades formed by a small group of tradesmen. Taraklı's economic structure was based on fruit-making spoon-cutting and combing in the ottoman period. Until 1960 in Taraklı, the mountain villagers in the vicinity to silk looms in order to provide raw material silk bug making is being done, also, construction of wooden field tools, saddler, weaving, shoe making, spoon-cutting and carding crafts such as the economy it was a very important place. But nowadays, against the serial and cheap production of the crafts industry some of them have disappeared. For the revitalization of traditional crafts various studies are being carried out. Until the 1950s, the fruit gardens of the Taraklı area, ties and olive groves, covered with hazelnuts and at that time It is known that Taraklı's apples and pears are famous. Today, there are quite a number of apple, plum and quince trees in the district.

Most of the fruit trees are located in the north, east and west of Göynük Stream. However, with the decrease in income from fruit gardens some of the gardens have been turned into chords. In recent years, many fruit gardens and hills have begun to be used for artichoke planting due to the higher economic turnover [5].

2.1.4. Population and social structure of the Taraklı

According to the results of Taraklı's 2002 census, the total population is 9220. This population is settled at 4169 in the district center and 5051 in the villages. When you look at population structure; 46% of the population lives in the district center and 54% lives in the villages. Taraklı is one of the provinces with the lowest population density at province level. According to the census and the results of the determination, it is seen that the district of Taraklı is in the position of a migrant district. Approximately 28 people per km^2 in the district, which has an area of 334 km^2.According to the 2000 Population Census results, the general population growth rate of the province is 16.88%.The district was separated from Geyve district in 1988 as administrative structure, the first regular population census was conducted in 1990. According to the 1990 Population Census, the population of the district is 10.906 together with the villagers. The administrative units of the province are composed of 4 central districts and 22 villages. Within the scope of the County Population Directorate, there are 36 Population family logs which contain 4 neighborhoods and 22 village population records and events. Registers (Population family register books) are registered in approximately 37,500 people's registers. Directorate Population records were renewed in 1975 [5].

2.1.5. Transportation of the Taraklı

The main axis of district is Ankara Street, which forms part of the old Istanbul-Ankara highway. This axis, which passes through the settlement in northwest and northeast Byzantine and Ottoman periods It has been an important trade route between East and West. Until the Republican period, Istanbul-Ankara highway, which has quite significant and intensive vehicle traffic, During the Republican period Geyve and Taraklı section, especially its importance lost In the 1950s. This road which is not qualified to respond to the increased vehicle potential, despite being a state road at the 1st level, opening of İstanbul-Düzce-Bolu-Ankara highway and İstanbul-Ankara traffic with this route shifted, it has lost its significance and remained a local road. Today from this route only Istanbul-Göynük, Passing Adapazarı-Geyve-Taraklı traffic, from east of Beypazarı until Ankara reached. The Geyve- Taraklı route is very disturbed due to the heavy traffic, insufficient maintenance and landslides. Recently, road construction and maintenance work has been accelerated, geographical and topographical conditions on hand sections road expansion and asphalting work are done. However, some of the highways between Geyve and Taraklı still have difficult conditions due to geographical difficulties [6].

2.2. Historical Development of the Taraklı

The Taraklı region, which is referred to as 'Yenice Tarakçı' in the source, is a miniature Ottoman city and it is connected to the Bursa Tekfurluğu in the Byz-

antine period after the Hittites, Phrygians, Romans and Bitinans themselves [7]. Taraklı, a small settlement within a castle, from time to time, between the Byzantines and the Seljuks. One of the two most important names of Taraklı at the end of the 13th century in the Ottoman administration was Samsa Çavuş and the other was Köse Mihal. Harmankaya Tekfuru who accepted Islam and named Gazi Mikail and Samsa Sergeant have organized the raids on Sorkun, Kölpazarı (Gölpazarı), Tarakli Yenicesi, Köynek (Göynük) and Mudurnu sides at the beginning of the 1190's and have given the region to the Ottoman administration. Already, the region has hosted and hosted rulers such as Alexander the Great and Yavuz Sultan Selim, the greatest jihangirs of history. This route from Istanbul to the east; according to whom Silk Road, according to whom Baghdad Road, according to whom is the Road of Kings. XVI [8]. The second Kocaeli livas of the century belong to the province of Kastamonu Taraklı, in 1867; it was connected to the Hüdavendigar province of Kocaeli Sanjak. XIX. Towards the end of the century, the population of Taraklı, which has a population of around 5000, is busy with spoonbills, silk, honey and cheese. Taraklı, brought to the status of the district governed by Geyve in the structure of the Republic, in 1954, [9] it became a municipal administrative unit. On 27 June 1987 it became a district. According to Adapazarı, Taraklı, who had a very old and rich history, unfortunately could not show the expected development due to the passage of Istanbul-Ankara road from opposite direction. The rumors that the Istanbul-Ankara highway will pass through the Taraklı area have increased hopes for the region but the fact that it is not known that Taraklı was abandoned to fate with the construction of the motorway claimed to be on the fault line. Today tourism has become a new hope for the development of Taraklı and it is a tremendous natural phenomenon that arises from the fact that geography is co-crystallized with combed history [10].

2.2.1. Living manavlar in the Taraklı

Extremely shy, docile, bland and not much more than what is said by someone else the Manavlar that sustain their traditional life have a docile structure. The most important settlement areas where the Manavlar safeguard their traditional structures well are Taraklı towns and villages. This section, which is relatively late in mass media and transportation, has maintained its tradition more than other settlements [11]. To Western Anatolia, especially to the Sakarya region; it is believed that the settlements like Taraklı and Hendek were constructed immediately after the date of the first settlement of the Manavlar in 1291. Ottoman Empire is believed to have settled the lands of Manavlar with these settlements due to their established culture in order to make their home. Because of this established cultural form of the Manavlar, it has been determined that they have lived in the same area for centuries after they have been installed without any enormous enforcement through the immediate area. In addition, these community members who adopted a built-up understanding of life were also prevented from using idle land for agricultural purposes and land use in these areas [12].

2.2.2. Living Abdallar in the Taraklı

Nowadays, Abdallar as the laws are scattered almost everywhere in Turkey. All Abdallar in Taraklı are continuing their existence in Yeni Doğan (İğdelik) Par-

ish. The Taraklı Abdallar express that they have emigrated from Horasan. That tell along with the other seas of Mongolian pressure, came to Anatolia and migrated to Taraklı-İğdelik Village. Recently, Ironworkers came from Düzce and settled village. All of the Abdallar speaks Turkish. The settlements of the Abdallar in this place are in the form of a single village and their houses are made of mud brick, stone and brick. They have a patriarchal family structure and a family-owned father. The very characteristic of children, which is a general feature of Abdallar, is also observed in Abdallar living in Taraklı. The Abdallar do not take care much attention to the clothes in this region. However, they can be distinguished from the Manavlar living in the region. Because they are very fond of music, they are always playing and enjoying themselves. It does not have to be a special day for their fun. Even young children can use instruments in Yeni Doğan. The Abdallar in Taraklı carry both of the built-in and semi-nomadic features together. They are said to be able to adapt to the people of the region since they have a little interaction with other communities [12].

3. CIVIL ARCHITECTURAL STRUCTURES IN TARAKLI

3.1. Fatma Sevim Dönmez House

The building is located in Sakarya province Taraklı district, Ulu Cami Parish, Yunus Paşa Street, 5 sections, 531 parcels. The total building area is 129, 23 m^2 built on and has a total of two floors. As a production system; wood carcass filled with mud brick and as wood floor is made up ground floor and first floor. The original use is the residential building, its current use is housing + trade. Structure of cradle roof is covered with alaturka tiles. The artifact inside the bazaar is uncovered. There is no definite information on the date of construction [13].

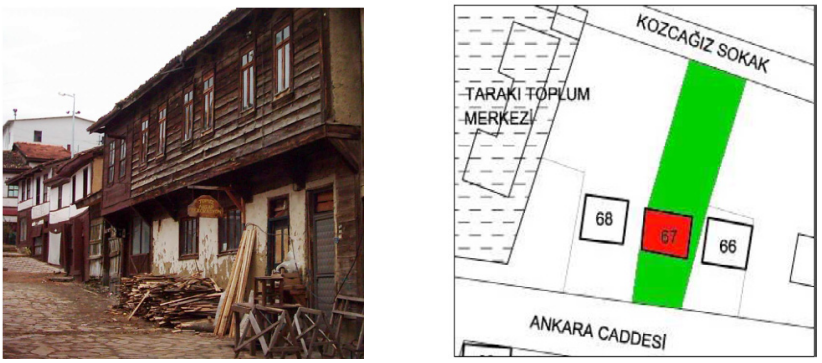


Figure 2. Fatma Sevim Dönmez House's view and plan example

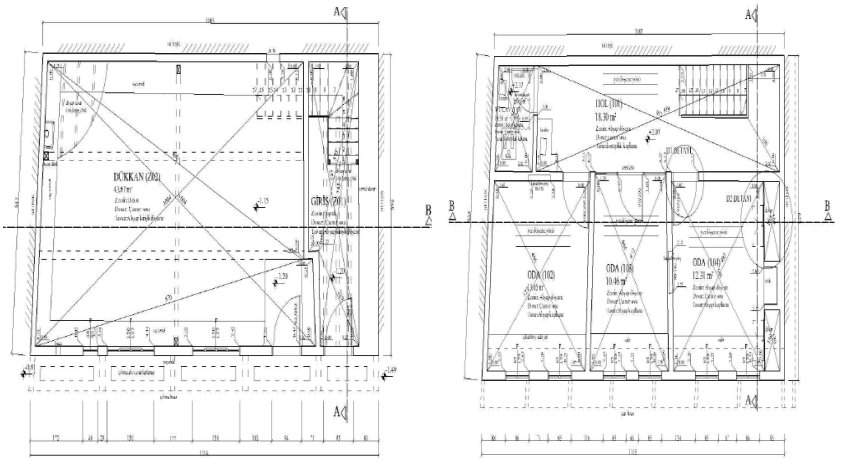


Figure 3. Fatma Sevim Dönmez House's ground floor plan and first floor plan

3.2. Ibrahim Pilavci House

İbrahim Pilavcı House; It is located in Adapazarı Province , Taraklı District, Ulu Cami Parish, Rüştiye Street. The structure is made of wood carcass technique on a sloping ground with stone foundation. It is composed of the ground floor 1st floor and 2nd floor. It is opened to the west of Hamam Street, east to the garden. Cantilever in West of the 2nd floor is a balcony with a triangular pediment on the east. The building, original and now in use, is not well maintained. The main entrance is the ground floor entrance which is used as a workshop on the 1st floor and Hamam Street. On the first floor and the second floor plan there is a room in the front, two rooms in the back and a sofa in the middle. All the windows are rectangles, and the windows of the westward exit are arches. There are also wooden consoles underneath. The building was built in 1900 [13].

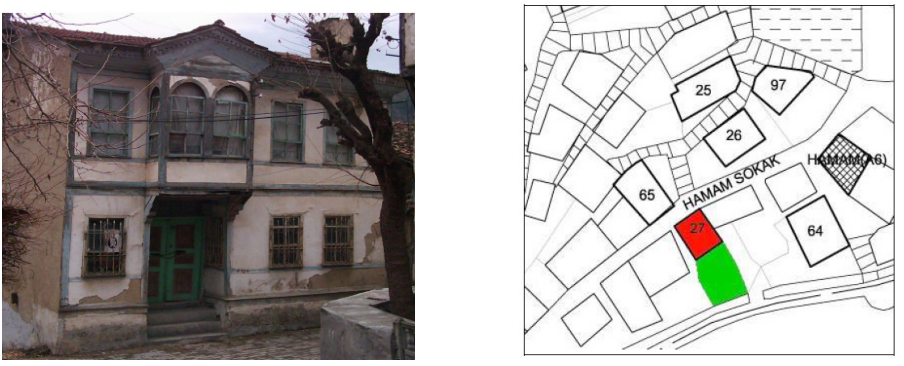


Figure 4. İbrahim Pilavcı House's view and plan example

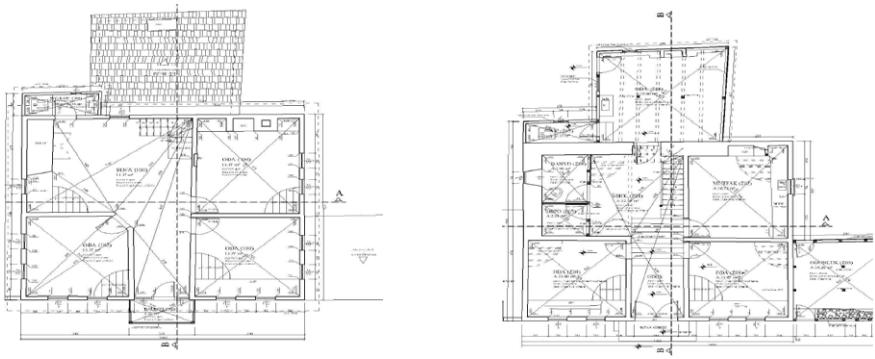


Figure 5. İbrahim Pilavcı House's ground floor plan and first floor plan

3.3. Handan Tekin House

Handan Tekin House; It is located in Adapazarı Province , Taraklı District, Hacı Murat Parish, Şimşek Street. It is made of wooden carcass technique on a stone foundation and is a crushing roof. It is composed of basement, 1st floor and 2nd floor. There is a balcony on the 1st floor and the 2nd floor of the south front of the building and the 2nd floor of the east front. The building, originally used for present use, is separated into two equal sections for the purpose of utilitarian use, and separate families live in both sections. It is not well-maintained. Entrances are provided from the east and west. The windows of the building, which is three storeys together with the boardroom floor, are in the shape of a flat belt and over the cage. On the original plan, both floors have sofa and corner rooms, decorated with geometric motifs made of painted paint on the balcony of the balcony on the south and east side of the balcony on the southern front. The building was built in 1912 [13].

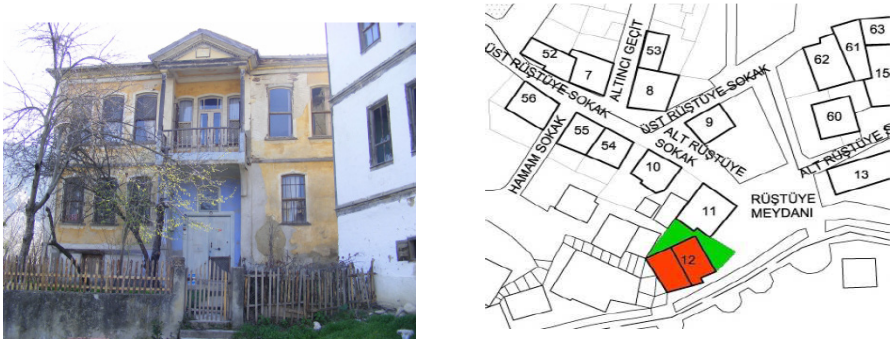


Figure 6. Handan Tekin House's view and plan example

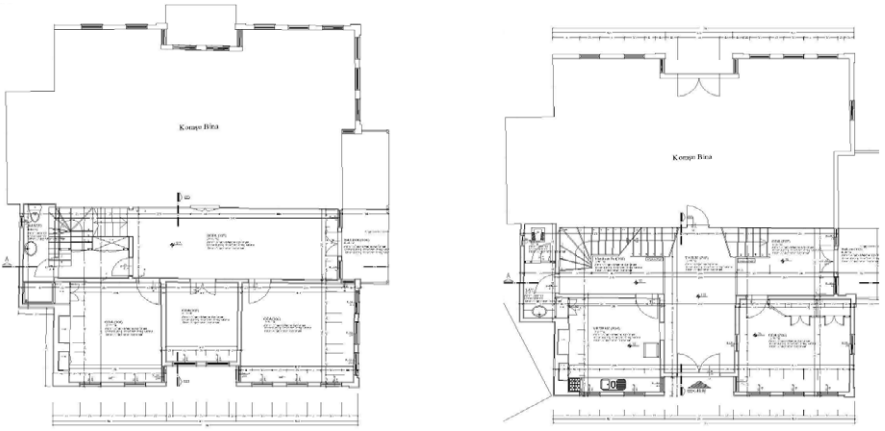


Figure 7. Handan Tekin House's ground floor plan and first floor plan

3.4. Çakırlar Mansion

Çakırlar Mansion; It is located in Adapazarı province, Taraklı district, Ulu Cami Parish, Santral Street. It is made of wooden carcass technique on a stone foundation, with a wooden roof on the edge of the roof and a broken roof. It is composed of ground floor, 1st floor and 2nd floor. The 2nd floor has a triangular pediment with a pedestal on the northern side and a balcony on the west side. The building, which is the original and the current usage, is well maintained. The entrance floor was used as a shop. The workshop was changed at the entrance floor and a reinforced concrete single-ply attachment was made to the side of the building. The main entrance is from the north front and has entrances from the east and south. The entrance door is double-storey with three arches. From the side is passed to the entrance floor. 1st floor is stair-climbing on both sides. There are rooms on the 1st floor and the 2nd floor sofa, and there are rooms around. The ceiling of Sofa is "Wooden Roofed Ceiling". At the exit of the upstairs is a double staircase followed by a single wooden staircase. All the walls are separated by wooden panels and painted in panels with landscape and plant motifs. All windows are rectangular and continuous. The windows on the exit are over the arches. The sides of the balcony in the west are double sides with single wooden arches. The building was built in 1905 [14].

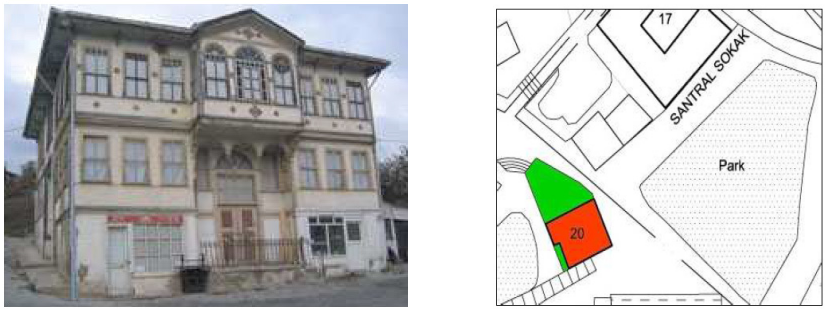


Figure 8. Çakırlar Mansion's view and plan example

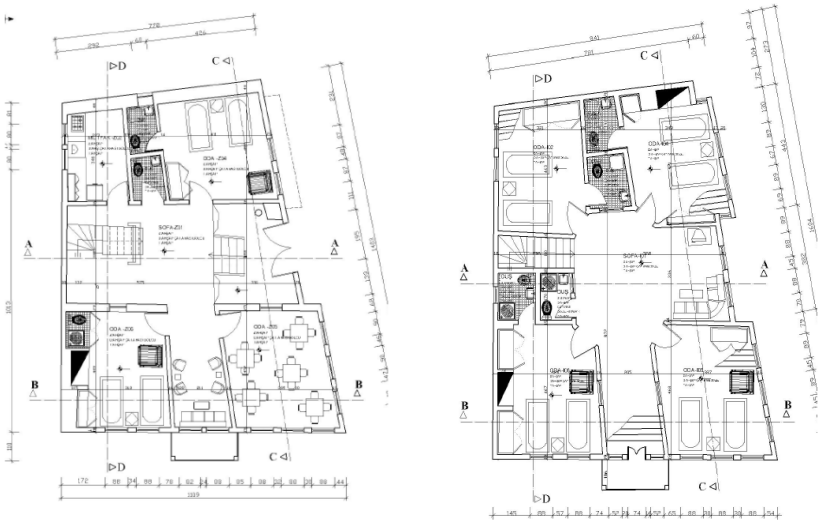


Figure 9. Çakırlar Mansion's ground floor plan and first floor plan

3.5. Fenerli House

Fenerli House; It is located in Adapazarı province Taraklı district, Ulu Cami Parish, Rüştiye Street. Stone is made of wood carcass technique on foundation. Fenerli House consists of Entrance, 1st floor, 2nd floor and roof room. The southern ceiling has a balcony on the 1st floor, a balcony on the 2nd floor, and a balcony on the 2nd floor of the east ceiling. Afterwards, the partition was made for use. The entrance to the building is provided by a double-winged wooden door from the south and a door opening to the east ceiling. The stairway to the north of the building leads to the 1st floor, the 2nd floor and the roof room. There are rooms around the sofa and the sofa of the 1st floor and 2nd floor. It is a structure with a central sofa plan. There are windows on every side of the attic. The doors and windows of the building are made of wood, and the ceilings and floors are made of wood. The building was built in 1900 [13].

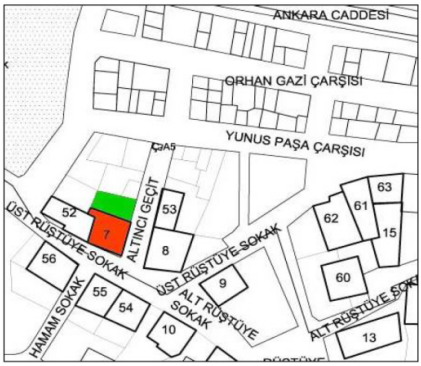


Figure 10. Fenerli House's view and plan example

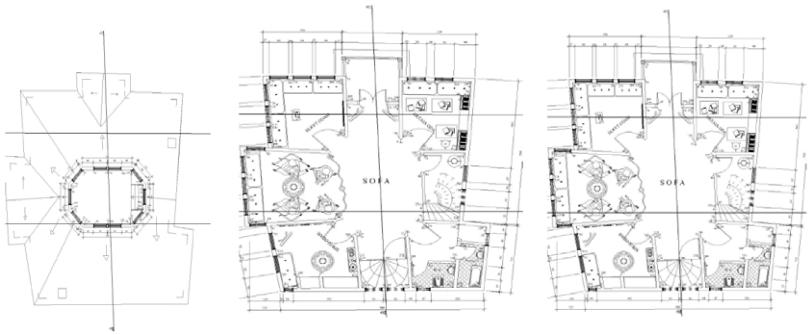


Figure 11. Fenerli House's Cihannum floor plan, ground floor and first floor plan

3.6. Hacı Rıfatlar Mansion

Hacı Rıfatlar Mansion; It is located in Adapazarı province, Taraklı district, Ulu Cami Parish, Aşağı Cami Street. It is made of wooden carcass technique on a stone foundation and is a crushing roof. The original use is housing. It is not well-maintained. The building of1st floor is cantilever. The structure is in ruins. It's the 1st floor of the building. All windows are rectangular and continuous, but the windows of the private rooms on the south western side are arches. The building was built in 1926 [15].

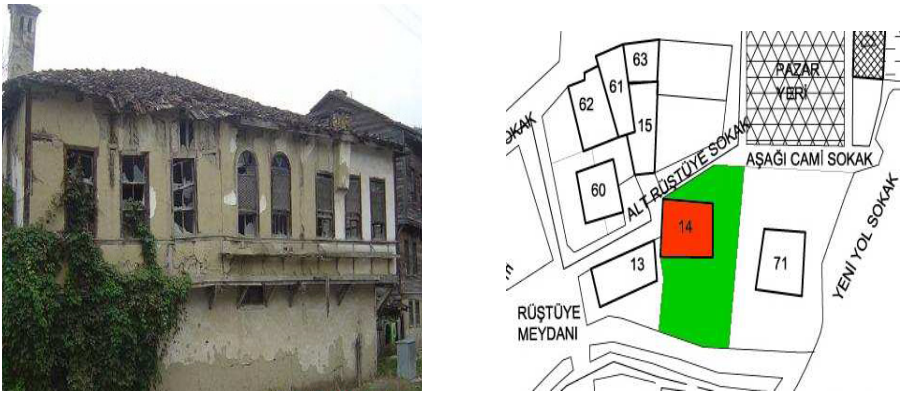


Figure 12. Hacı Rıfatlar Mansion's view and plan example

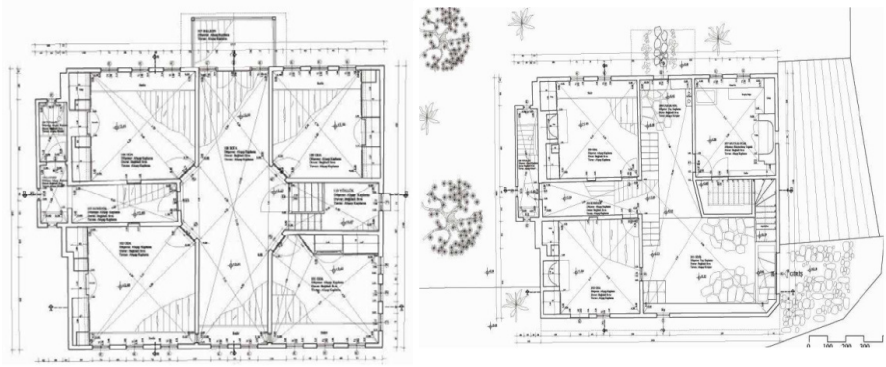


Figure 13. Hacı Rıfatlar Mansion's ground floor plan and first floor plan

4. HALIM DÜZGÜN HOUSE RESTORATION PROJECTS

4.1. Structure of Location and General Properties

Hacı Rıfatlar Mansion; It is located in Adapazarı province, Taraklı district, Hacı Murat Parish, Kozcağız Street, 3 section, 323 no parcel. The total building area is built on 195,39 m^2 and has a total of two floors. As a production system; stone on the base is wood-carcass adobe fill. The building consists of floor, first floor and cihannum. The original and current usage is the housing. The structure of crib roof is covered with alaturka tiles. The building was built in 1926.

4.2. Halim Düzgün House of Rolove Studies

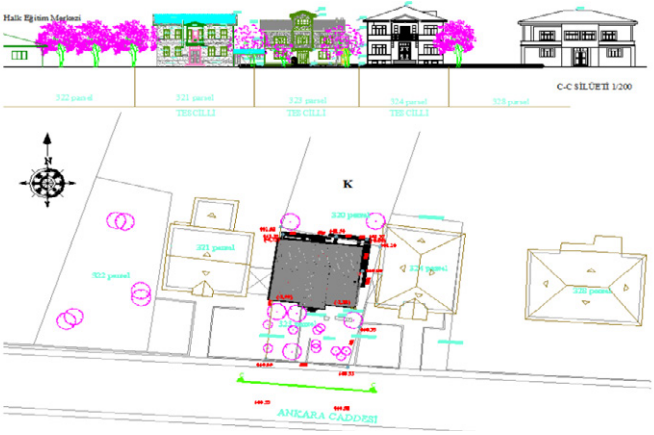


Figure 14. Halim Düzgün House's situation plan

4.2.1. Plan characteristics

The entrance to the building is provided by double-wing wooden doors on the southern side of the building facing the Ankara Street. The plan features of the building are made with wooden built-in ladder on the eastern side of the floor, with the floor blanket coming out losing its originality over time. The ladder in the interior is removed. The most glamorous front of structure is the southern front. The Spanish-style windows are on the ground floor and the windows are large rectangular. There is a Spanish-style window on the front side of the crib roofed window, and a few guillotine type windows are on the side walls of the cihannum. There is only one window on the western front. There are adding on the back front. This also disturbs the original texture of the structure. There are two rooms on the ground floor, wc, kitchen, storage and hall. The ground floor is the basic upper level; above the floor level. Because the upper part of the foundation is high, the in the rooms was designed as a countertop with a slightly higher elevation in the kitchen. There is also a cooker in the kitchen. But the cooker is not used. Because this floor is used, it is well maintained according to the first floor. The ground floor walls are concrete plastered. The storage area on the floor is empty and is not used. There are no floors and ceilings in this section. On the first floor there are two rooms, wc and sofa. It has a central sofa plan feature and has the traditional Turkish house feature. There is a hall at the entrance to the first floor. This hall is formed by the division of the kitchen. Kitchen has shelves, stove and cupboard. The cupboard is used for the bath. The cupboard was expanded towards the back of the building. There is a shelf in the upper part of the bench next to the cooker. The ground floor plan and the first floor plan were not designed with similar features. There is cedar on the first floor. But there are no cedars in the rooms. From the first floor to cradle roof with a staircase. Cihannum is used as storage. The first floor and cihannum are not used because they are neglected. There are damage to the walls and surfaces. The structure of first floor windows, cihannum windows and first floor doors are not maintenance. There

are expressions on wooden floors and ceiling floors.

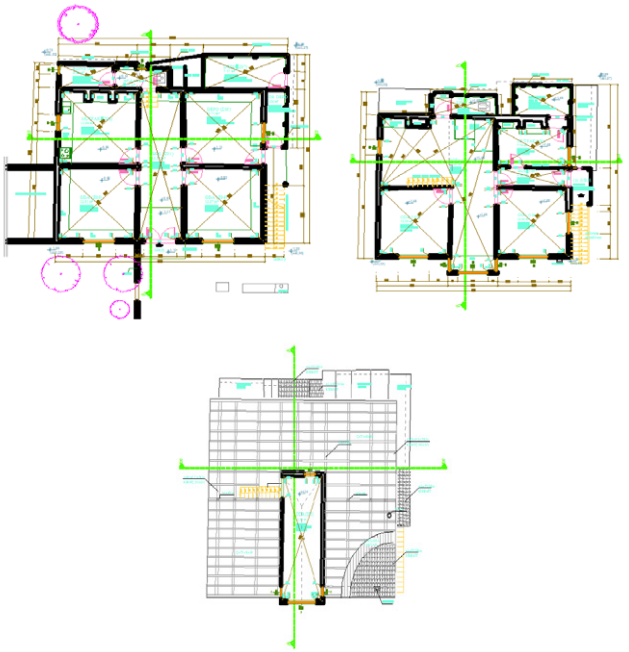


Figure 15. Halim Düzgün House's rolove ground floor plan, first floor plan and second floor plan

Because of the atmospheric conditions, the precipitation waters leading to the deterioration of the roof cover led to the decay both in the interior space and in the construction elements of the roof to enter the water. There are breaks in most of the roof tiles. There are also damages in the chimneys.

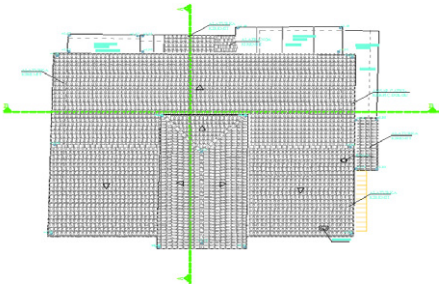


Figure 16. Halim Düzgün House's rolove roof plan

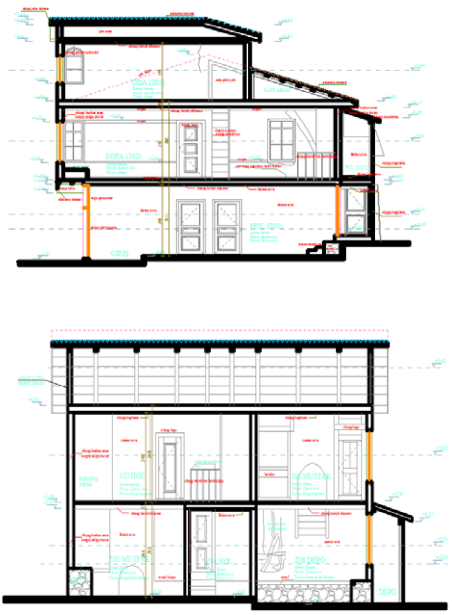


Figure 17. Halim Düzgün House's rolove a-a section and b-b section

4.2.2. Front characteristics

Ground floor between wooden carcass mud brick filler, on concrete plaster, first floor and cihannum wood carcass mud brick filler and mud lining. There are damage to the walls and surfaces. There is a great deal of deformation in the plasters. The most glamorous front of structure is the southern front. The Spanish-style windows on the ground floor and the windows on the front of the first floor are large rectangular. There is a Spanish-style window on the front of the cradle-roofed window, and some guillotine-type windows on the side of front. There is only one window on the western front. There are adding on the back front. This also disrupts the original texture of the structure. Because of the atmospheric conditions, rain water coming into the water led to deterioration in the roof cover, causing water to penetrate both in the interior and in the construction elements of the roof. There are breaks in most of the roof tiles. There are also damages in the chimneys.

Figure 18. Halim Düzgün House's rolove southern front view and rolove southern view

Figure 19. Halim Düzgün House's rolove northern front view and rolove northern view

Figure 20. Halim Düzgün House's rolove eastern front view and rolove eastern view

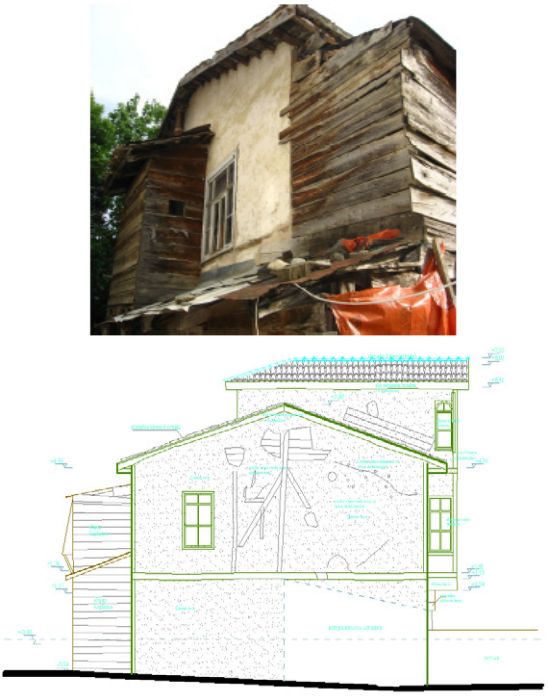


Figure 21. Halim Düzgün House's rolove western front view and rolove western view

4. 3. Halim Düzgün House Restoration Study

4.3.1. Restoration of plan

First, roof tiles and deteriorated construction elements should be removed and replaced with new ones, it should be done with the original construction system and the insulation with the material. By scraping in the walls should be looked what the carrier system and it must be replaced with a suitable material. Elements in good condition should be cleaned, if it necessary, it should be onsite maintenance. Deteriorated parts should be replaced with material suitable for the original material. Wall fillings should be made with appropriate materials and techniques, the inner walls should be plastered with the plaster technique. Wooden windows must be repaired without spoiling the originality and it should be replaced with new windows that are in very bad condition. Wooden doors and upholstery should be repaired and damaged ceilings caused by water intake from the roof should be repaired. The stair steps and balustrades must be reconstructed without spooling from their originality. Cabinets in the room must be preserved and it must be re-used with on-site repairs. On facade covering, lime whitewash over mud brick, if upstairs it should be made in accordance with the original wooden coating.

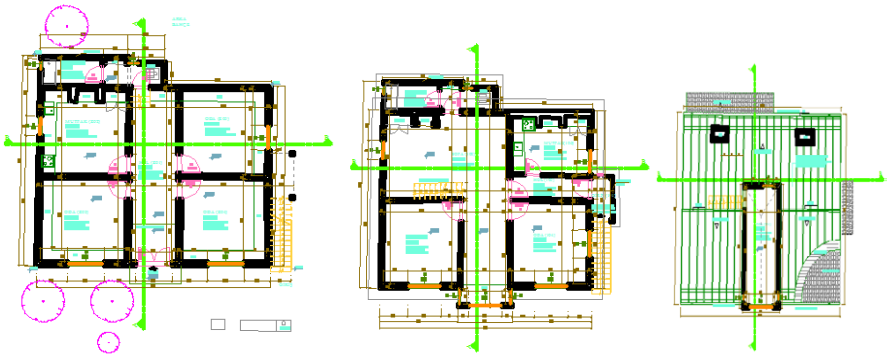
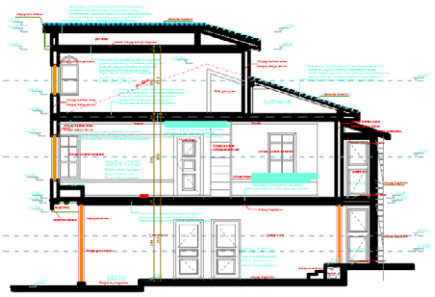


Figure 22. Halim Düzgün House's restoration ground floor plan, first floor plan and roof plan



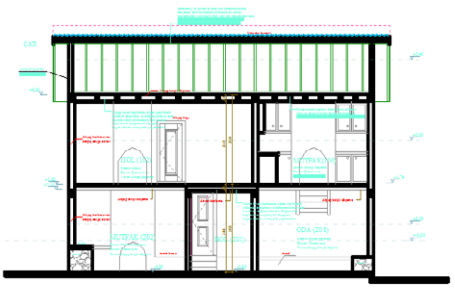


Figure 23. Halim Düzgün House's restoration a-a section and b-b section

4.3.2. Restoration of facades

On the northern front of structure deteriorated and rotten wooden floor windows will be replaced with new ones that will be made to match the original. Spoiled parts of the eastern and western facades will be repaired in a way that is appropriate to the construction technique. Deformed wooden beams on facades and broken and rotten wooden windows will be replaced by the originally impregnated wooden material. On the south facade, the parts that disrupt the originality of the structure and which are subsequently added will be removed to make it more suitable.

Figure 24. Halim Düzgün House's restoration southern view and northern view

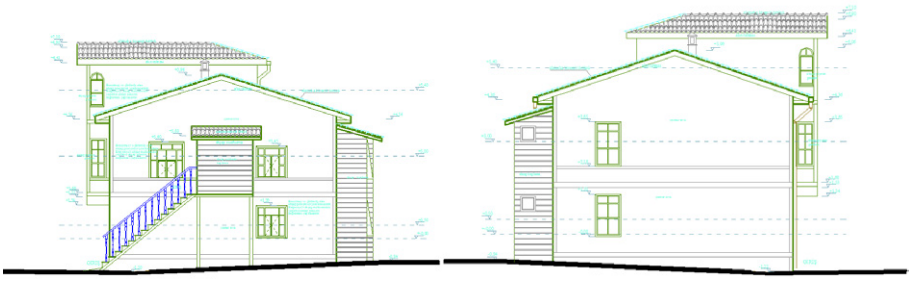


Figure 25. Halim Düzgün House's restoration eastern view and western view

4.3.3. Restoration of roof

The roof is subject to deterioration due to exposure to physical and chemical factors. These distortions will be repaired and the roof construction elements will be completely replaced. Instead of these factors resistant long-lasting impregnated wooden construction elements will be used. On this construction, alaturka tile covering will be done in accordance with the historical texture and the original structure.

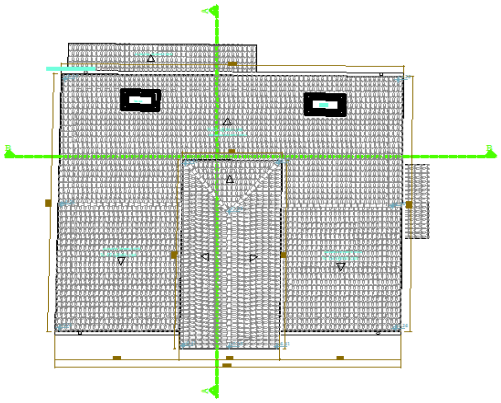


Figure 26. Halim Düzgün House's restoration roof plan

5. RESULTS

Due to Taraklı, geographical features and topography, it has a city texture where construction and transportation are difficult to solve. The freely arranged interiors we observed in civil architecture examples; reflecting our personal feelings and thoughts, is our most important cultural heritage to be moved to the future. Study topic selected Halim Düzgün House is a original structure of Turkish architecture. The biggest feature that differentiates the house from the others is its dimensions. In the house which is problematic in terms of architecture and structure, due to plaster plaster pouring, rotting wooden material serious dam-

ages has occurred. Taking into account these damages have been prepared rolove and restoration projects. Restoration works of Halim Düzgün Evi have been supported with projects and pictures, by making analysis studies with the techniques applied in practice, works have been completed with the necessary controls under control without deteriorating the originality of the structure. As a result; In order to wooden, masonry and mud brick structures to be long-lived without destroying the original texture of traditional Turkish houses, precautions should be taken and maintenance should be done with necessary protection proposals.

ACKNOWLEDGMENT

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CHAPTER 10

PLANTING DESIGN ECOLOGY APPROACH FOCUSED ON LOCAL LANDSCAPE: CASE OF KOZCAĞIZ RIVERFRONT RECREATION PARK PROJECT

Yeliz SARI NAYİM[1], B. Niyami NAYiM[2]

INTRODUCTION

Developing planting goals and objectives is an important part of the parks and recreation planning process (City of Midland, 2015). The planting goals and objectives provide overall guidance and vision for the future of parks and recreation within naturalistic and cultural landscape design and plan focused on local landscape ecology.

"Kozcağız River Recreation Area Landscape Design Project" was prepared by B. Niyami Nayim and Yeliz Sarı Nayim, faculty members of the Landscape Architecture Department on the request of Kozcağız Municipality from Bartın University in 2015. Structural and planting landscape design project in scale of 1/500, three-dimensional models, project animation videos and project report were created within the scope of the project prepared for the area of 6.7 ha (66.850 m^2).

In this book chapter, the planting design ecology strategy of the park project developed for the riverfront landscape in the Kozcağız settlement of Bartın province in the Western Black Sea Region is explained.

PLANTING DESIGN ECOLOGY

The common thread of the environment designed by landscape architects is plant materials. The common philosophy that guides the selection of plants in these environments is "The planting design ecology". Landscape architects create natural and decorative planting design projects considering landscape ecology which is an important component of planting design. They create more livable environments for people, protect wildlife and habitats, and prevent the deterioration of the aesthetic environment through the correct selection and placement of plant materials. They also use these forces to create planted areas that reconstruct, replenish and improve livable environments. The range of trees, shrubs, groundcovers and grasses forms an extensive and complex base of materials that is used to design the spaces. In all these processes, a number of factors related to each other should be taken into consideration for planting design. These are (Austin, 2002):

1 2 PhD, Asst. Prof., Bartın University, Faculty of Forestry, Department of Landscape Architecture, Bartın, Turkey. Corresponding author: Yeliz Sarı Nayim

'Defining usable space,

reinforcing nonplant design elements,

complementing architectural accents,

framing aesthetic views,

screening out undesirable views,

controlling pedestrian circulation,

providing interesting sources for sounds,

seasonal changes,

shadow patterns for aesthetic effect.'

Planting design process require knowledge of where, why and how plants live, that is, the characteristics of living environments (Dice, 1952; Austin, 2002).

According to Shelford (1963), the two basic plant ecological systems a designer must know are the individual system and the population system. Therefore, a single plant in a space designed must be dependent upon and related to the other plants in the composition.

The dynamic and complex relationship between the various plant systems, on the other hand is governed by following three basic ecological factors as follows (Austin, 2002):

- Climate (Temperature, precipitation, humidty, light),
- physiography, and
- soil.

CREATING SPACES AND SPATIAL COMPOSITION WITH PLANTS

Landscape design with plants in urban areas plays a key role in creating spaces. These areas can usually be defined in building language. In other words, they can be likened to structures. For example, while open spaces resemble the *rooms*, planting resembles the walls surrounding them. While the *floors* are covered with grasses or ground covers, the *ceiling* can consist of a shade of a spreading tree canopy, a climbing plant on a pergola, or a simple sky. While the d*oorway* or *door* provides access to these spaces, the *windows* can be formed by a gap in a foliage cover. These can sometimes occur with only the natural gaps of trees and shrubs, which show sparse branching.

Higuchi (1983) analyzes the landscape space in four different aspects (boundaries, focus-center-goal, directionality, domain) in his book named as "The Visual and Spatial Structure of Landscape" (Robinson, 2004). His work takes into account all the structural elements of landscape such as topography, water presence and vegetation. *Domain* property is defined as *the total space* where *boundaries*, *focus-center-goal*, *directionality* features are brouhgt together, and put out

after organizing. *Boundaries* include both open and surrounded edges. These open borders, which allow free pedestrian circulaton, tell us the general line of land but do not define the space. So, the first element of the spatial composition made with plants will be to surrounds the space. The *focus-center-goal* feature of an area can be any significant visual focus. This can sometimes be a fountain or a solitary tree, an amphitheater or sometimes a landscape or a building. *Directionality* refers to the sum of all the angles of the field that gives a sense of direction or orientation. They can be shape, ratio, focus, slope, and even direction of wind and sunlight. These direction elements add a dynamic structure to the space. Therefore, the third element of the landscape composition works will be the dynamics of the space (Higuchi, 1983; Robinson, 2004).

RESEARCH AREA

The study area is located in the Kozcağız settlement of Bartın province, the Western Black Sea Region of Turkey. The map with the location of the area is shown in Fig. 1.

In Kozcağız river landscape, the characteristics belonging to three basic ecological factors are as follows:

Climate (Temperature, precipitation, humidty, light)

The month where the average temperature of the area is the lowest is January. It is followed by February and March, respectively. Between June and August the temperature approaches the highest levels. The highest temperature is in July. The months with the most average sunny hours are June, July and August.

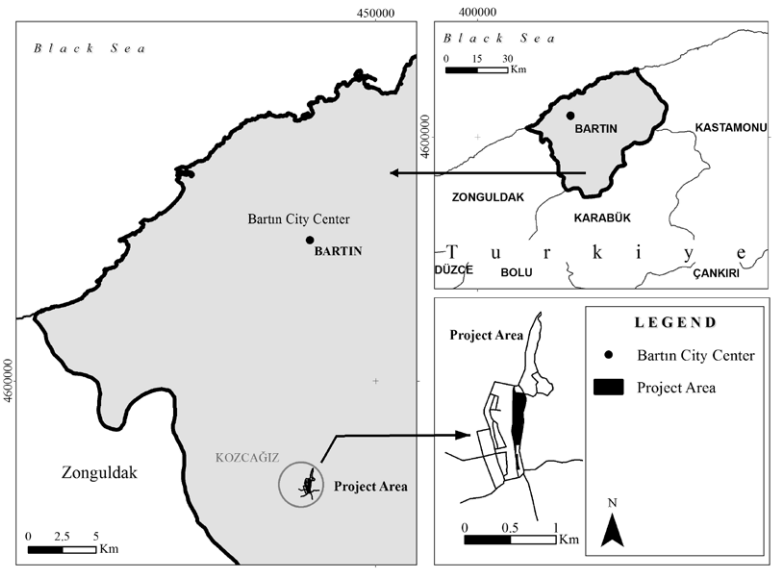

Fig. 1. Location of the study area (Nayim 2011; Nayim and Sarı Nayim, 2018).

Physiography

One of the dominant landscape elements of the research area is Kozcağız (Kocanaz) River. The existence of the river has been an important factor in the formation of residential areas. Kozcağız River constitutes one of the two branches feeding the Parthenious River (God of waters) mentioned in mythology. Parthenious is the ancient name of the Bartin River. Kozcağız River, which is born from the south, reaches to the Black Sea via Bartın city towards the north. From a physiological point of view, it is seen that the Kozcagız Plain, which is almost flat land around the river, is surrounded by a rough terrain in the distant areas.

Soil

The area on the edge of Kozcağız River, which includes the study area, is mostly composed of alluvial soils.

METHOD

In this project, the theory and method of "The planting design ecology" mentioned in Austin (2002) is adopted. In this scope, natural plant communities and ecological zones were defined by revealing the climate (temperature, precipitation, humidty, light), physiography, and soil characteristics specific to the river

landscape of Kozcağız. With the information obtained, ecological design guide which is compatible with the local landscape has been formed in the planting design of Kozcağız Park.

In this design project, the following goals were adopted with parallel to main objectives as protecting the natural and cultural values of the site and to ensuring their sustainability, meeting the recreation needs of the users and supplying facilities to support small-scale tourism activities:

- Analysis of natural and cultural landscape features of the area, protection, development and highlighting of local landscape ecology features.
- Development of sustainable design ideas that take the protection of natural plants and wildlife into account,
- Preservation, use and development of natural coastal vegetation in the planting design to be proposed along the Kozcağız River,
- Selection of natural plant species in the local landscape in the color garden,
- Designing a linear roadside planting along the river using natural plant species that emphasize and supports the ecology of the river landscape and combine it with circular wooden terraces
- In the places to be designed, the use of solitary plants, aesthetically and functionally suitable, or the use of plant groups compatible with natural population ecology.

According to the identified targets, the project was carried out in four main stages (Austin, 2002; City of Midland, 2015; Xiao-yun and Yong-gong, 2017). In the first stage, together with field studies and literature sources, data on the area to be designed have been collected. In the second stage, the park ecological zones were decided and a planting palette for each land use was proposed. In the third phase, the planting design project has been completed. The databases of the Royal Hoticultural Society (2017), the PFAF Database (2017) and the Missouri Botanical Gardens (2017) have been reviewed for writing the common name of plant species used in planting design.

Additionally, the literatures of the Mitchell and Wilkinson (1991), Coombes (1992), Brickell (1992), Ferguson (1992), Blamey (1997), Garrard and Streeter (1998), Brickell (1999), Yılmaz (2001), Sarı Nayim (2010), Sarı Nayim and Ayaşlıgil (2015) have also been reviewed for choosing the plant species.

RESULTS

Kozcağız River Natural Plant Communities

The alluvial landscape of Kozcağız is located in a continuation of the Bartın River. This area, at the same time is also home to alluvial forest communities where the characteristic species *Salix alba* (White willow) and *Platanus orienta-*

lis (Oriental plane) dominate. *Alnus glutinosa ssp. glutinosa* (European alder) and *Fraxinus angustifolia ssp. oxycarpa* (Narrow leaved ash) trees are also accompany such compositions of species.

The natural vegetation of the hilly slopes around Kozcağız River consists of the, Mixed Broadleaved Forest Communities. Main tree species are *Fagus orientalis* (Oriental beech), *Castanea sativa* (Anatolian chestnut), *Tilia argentea* (Silver lime), *Quercus* spp. (Oak), *Carpinus betulus* (European hornbeam). In addition, *Juglans regia* (Walnut) ve *Corylus avellana* (Turkish hazel) orchards are also common in the area.

Kozcağız Riverfront Recreation Park Ecological Zones

Kozcağız River Recreation Park Project area is located in the South of the Bartın City and Bartın River ecosystem. It is suggested to be a public activity area for recreation and cultural tourism. In the project, the park ecosystem is divided into three areas,

- **river ecological zones** with the concept of ecological protection and recovery function,
- **riparian zones** with the concept of leisure and entertainment, and
- **road zones** with the concept of visitor's entrance, parking and connecting.

In the following, design ideas are explained for each ecological zones according to the intended objectives. For each zone, the philosophy of planting design ecology is defined on the basis of species:

River ecological zones

In addition to the foregoing ones, the objectives set for this zone are:

- to contribute to the creation of ecological protection and recovery function,
- and to strengthen recreation opportunities which take advantage of Kozcağız River's water resources.
- to support the development of water trails along the Kozcağız River.
- to encourage the redevelopment of semi-naturalized riverfronts through the removal of invasive species, the planting of native species, and the reestablishment of semi-natural Kozcağız Riverbanks.

Two different areas that are decided according to these objectives are:

- Pedestrian and cycling routes,
- Wooden terraces.

Pedestrian and cycling routes

It is accepted that Kozcağız River Zone is considered to be indispensable for the continuity of the biological and ecological process in the project.

The planting design of the pedestrian and cycling route, which is designed in the linear form, focuses on natural plant compositions created from deciduous tree communities such as *Salix alba* (White willow), *Alnus glutinosa* (European alder), *Fraxinus angustifolia* ssp. *oxycarpa* (Narrow leaved ash), *Juglans regia* (Walnut), *Platanus orientalis* (Oriental plane). On the other side of the road, trees such as *Tilia tomentosa* (Silver lime), *Morus nigra* (Black mulberry), *Prunus avium* (Wild cherry), which were found to be successfully adapted to the local climate and landscape during the field survey, were given priority (Fig. 2).

Fig. 2. *Planting design idea for Pedestrian and cycling routes.*

Wooden terraces

Wooden terraces are fragrant and highlighted with large flowering *Magnolia sellowiana* (Sellow magnolia). *Vinca minor* (Vinca), one of the natural vegetation elements of the Bartın region, and egzotic *Oxalis triangularis* (Purpleleaf false shamrock) are used in the wooden plant cases at the terrace sides. On the wooden railings designed together with the border, the fragrant Jasminum officinale (Şair's Jasmine) is located (Fig. 3).

Fig. 3. *Planting design idea for Wooden terraces.*

Riparian zones

Fourteen different areas designed with the concept of leisure and entertainment that are decided according to the objectives of project are stated below:

- Square with pergola,
- Lower tree canopy seating and resting area with pergola,
- Wooden terraces,
- Color garden,
- Biological pond,
- Cafeteria and restaurant,
- Picnic area,
- The children's playground, which includes the game house, the ship-based wooden game unit and various other game units,
- Game sprinklers,
- Sports areas (areas where basketball, soccer fields and gymnastic equipment are located),
- Sales units for local handcrafted products**,**
- Kozcağız traditional life museum,
- Historical mill building to be restored and its garden,
- The mosque and traditional shops on its ground floor,

Square with pergola,

Lower tree canopy seating and resting area with pergola

Trees with special characteristics such as *Acer buergerianum* (Trident maple) with unique autumn colors, *Prunus serrulata* 'Kanzan' (Japanese flowering cherry) with beautiful blooming and *Tilia tomentosa* (Silver lime) with fragrant flowers, are proposed between the main entrance path and the wooden terrace by the riverside. In order to emphasize the entrance to the wooden terrace, *Agapanthus praecox* (African lily) perennial herbaceous plant has been selected with its blue flowers.

The children's playground

Sports areas

Sales units for local handcrafted products

Kozcağız traditional life museum

Game sprinklers

This circle-shaped area, which includes the three spaces, is surrounded by *Tilia tomentosa* (Silver lime). With the design of this area as an open green area, it is planned to create integrity with the existing vegetation in the vicinity of Kozcağız.

In this area *Pennisetum setaceum* (African fountain grass), *Campanula persicifolia* (Fairy bellflower), *Stipa tenuissima* (Mexican feather grass) are frequently proposed along roadsides. On the roadsides where *Magnolia sellowiana* (Sellow magnolia) and *Albizzia julibrissin* (Silk tree) were used as solitary, the *Eupatorium cannabinum* (Hemp agrimony), *Calla palustris* (Water arum) groups were proposed.

In order to soften the hard corners in the transition from the riverside road to the square with pergola, plants for different layers have been proposed. *Prunus avium* (Wild cherry) for the tree layer, *Cordateria selloana* (Pampas grass) for the shrub layer and *Typha angustifolia* (Lesser bulrush) for the grass layer have been selected.

Color garden

The design area is located adjacent to the city cemetery. The cemetery forms a habitat for natural plant elements such as *Quercus robur* (English oak), *Carpinus betulus* (European hornbeam), *Acer campestre* (Field maple), *Fraxinus angustifolia* ssp. *oxycarpa* (Narrow leaved ash), *Platanus orientalis* (Oriental Plane), *Tilia tomentosa* (Silver lime), which are the species of Kozcağız river ecosystem. For this reason, on the border between the color garden and the cemetery area, semi-natural species such as *Carpinus betulus* (European hornbeam), *Tilia tomentosa* (Silver lime), *Quercus robur* (English oak), *Sorbus aucuparia* (Rowan), *Platanus orientalis* (Oriental Plane) and exotic species *Paulownia tomentosa* (Royal paulownia) have been used. In the project, it is aimed to prefer water resistant individuals for the wetland ecosystems lay between the inclined surfaces and drainage channels connecting the river ecologic zone to the riparian zone. Specifically, *Typha latifolia* (Broadleaf cattail) ve *Iris pseudacorus* (Yellow flag) are widely used in drainage channels. These two species are important water plants that predominantly distribute in the alluvial wetland ecosystems on the river banks and river outfalls, in the Bartın province. These plant compositions form shelter, nutrition and breeding environment for different wildlife species, especially waterfowl.

Fig. 4. *Planting design ideas for color garden.*

Lavandula angustifolia (Common lavender), *Lysimachia nummularium* (Creeping jenny) were used on slightly sloping surfaces.

In the parcels between the paths, walking paths and resting points in the color garden, interesting and different colors of shrubs and herbaceous species are included. In these areas, *Phormium tenax* 'Purpureum' (Common flax lily) shrub species and herbaceous species such as *Calla palustris* (Water arum), *Digitalis ferruginea* (Rusty foxglove), *Campanula glomerata* (Clustered bellflower) are highlighted (Fig. 4).

Narcissus poeticus (Daffodil) and *Colchium autumnale* (Autumn crocus) herbaceous groups have been placed around the solitary species, such *Acer campestre* (Field maple), *Malus floribunda* (Japanese Crapapple), *Syringa vulgaris* (Lilac) which have made a visual and physical contribution to the pedestrian walkways and the sitting area. *Delphinium cultorum* (Larkspur) was preferred around the woody species such as *Hibiscus syriacus (Rose of sharon)*, *Ribes nigrum* (Blackcurrant), *Malus floribunda* (Japanese Crapapple) (Fig. 4).

Groups of *Narcissus poeticus* (Daffodil) ve *Lilium candidum* (Madonna lily) species have been proposed around, deciduous trees such as *Ginkgo biloba* (Maidenhair tree), *Quercus robur* (English oak), *Tilia tomentosa* (Silver lime) having yellow autumn color, and *Cotoneaster horizontalis* (Rockspray cotoneaster) shrubs having red fruits.

At the intersections of the paths, *Crataegus oxycantha* (Hawthorn) which draw attention with flower color and leaf texture, was used together with *Dianthus barbatus* (Sweet william) groups, while *Syringa vulgaris* (Lilac) tree species and *Hosta coerulea* (Plantain lily), *Narcissus pseudo-narcissus* (Wild daffodil) and *Narcissus poeticus* (Daffodil) herbaceous groups were preffered together (Fig. 4).

Picnic area

It was decided that the current old *Platanus orientalis* (Oriental plane) trees identified during the field survey should be preserved in the Project (Fig. 5).

In the picnic area, Oriental plane communities and tree species such as *Quercus robur* (English oak), *Paulownia tomentosa* (Royal paulownia), *Tilia tomentosa* (Silver lime), *Acer buergerianum* (Trident maple) were used together and species

such as *Cornus mas* (Cornelian cherry), *Hydrangea macrophylla* (Big leaf hydrangea), *Forsythia* x *intermedia* (Border forsythia), *Phormium tenax* 'Purpureum' (Common flax lily) and *Cotinus coggygria* (Smoketree) were preferred.

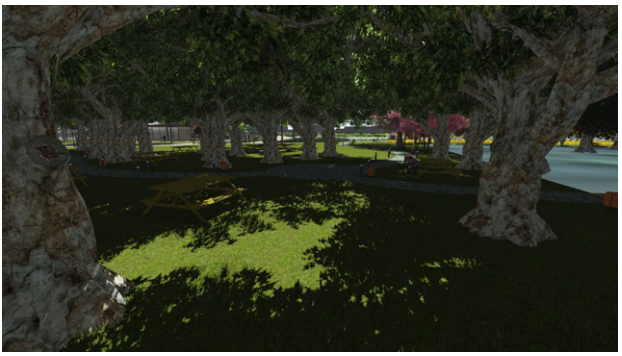

Fig. 5. *Planting design idea for picnic area.*

Biological pond

Around the pond designed in semi-natural form, the solitary *Salix babylonica* (Weeping willow) tree species, *Bambusa* spp. (Bamboo) shrub species, and herbaceous taxa such as *Calla palustris* (Water arum), *Typha angustifolia* (Lesser bulrush), *Nymphaea odorata* (Fragrant water lily), *Lythrum salicaria* (Purple loosestrife), *Iris pseudacorus* (Yellow flag), *Cyperus papyrus* (Papyrus) have been designed together (Fig. 6).

Fig. 6. *Planting design idea for biological pond.*

Cafeteria and restaurant

The entrance to the cafeteria and the restaurant was emphasized by using the *Albizzia julibrissin* (Silk tree), which has showy flowers in the summer. The main element of the planting design in this place is *Tilia tomentosa* (Silver lime) from the natural vegetation (Fig. 7).

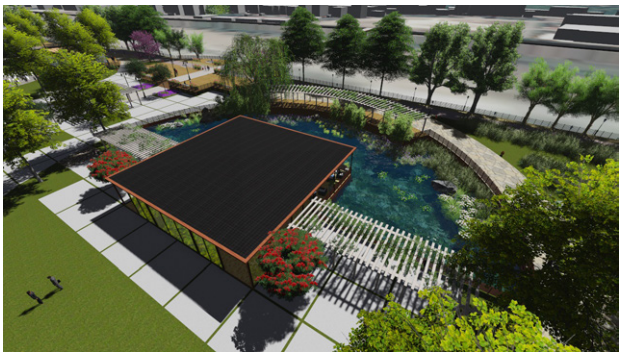

Fig. 7. *Planting design idea for cafeteria and restaurant garden.*

Road zones

The western boundary of the park, which extends in linear form, is formed by the Kozcağız River and the eastern boundary by the Bartın-Kozcağız-Kumluca road.

- The main entrance where the wooden arched entry unit is located,
- Carparks.

The main entrance where the wooden arched entry unit is located

The entrance space, designed in a radial form, is highlighted by *Acer buergerianum* (Trident maple), which has circularly placed and effective autumn colors, as well as existing old trees. Both sides of the circle-sheped entrance are surrounded by using *Viburnum opulus* (Snowball) and *Pitosporum tobira* 'Nana' (Japanese pittosporum) shrubs and herbaceous flowering plants such as *Chrysanthemum leucanthemum* (Daisy), *Kniphofia uvaria* (Torch lily) and *Campanula persicifolia* (Fairy bellflower) (Fig. 8).

For white-colored wooden arches, pink-colored climbing *Rosa* spp. (Rose) individuals were preferred. In addition, purple blooming *Wisteria sinensis* (Chinese wisteria) and pink flowering *Clematis montana* (Mountain clematis) were preferred on the wooden arches (Fig. 8).

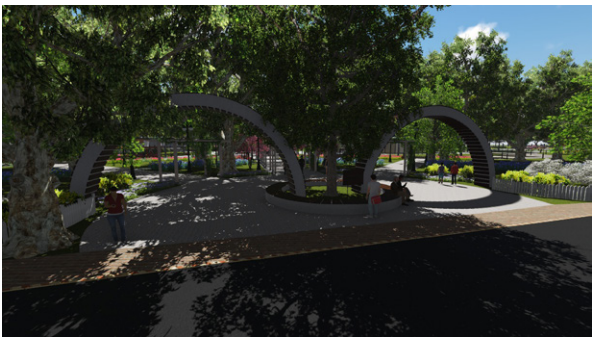

Fig. 8. Planting design idea for the main entrance with wooden arch.

Carparks

In carparking lots, tree species of *Acer pseudoplatanus* (Sycamore maple), *Albizzia julibrissin* (Silk tree), *Fraxinus angustifolia* ssp. *oxycarpa* (Narrow leaved ash), *Acer platanoides* (Norway maple) were used to create shady areas in summer (Fig. 9).

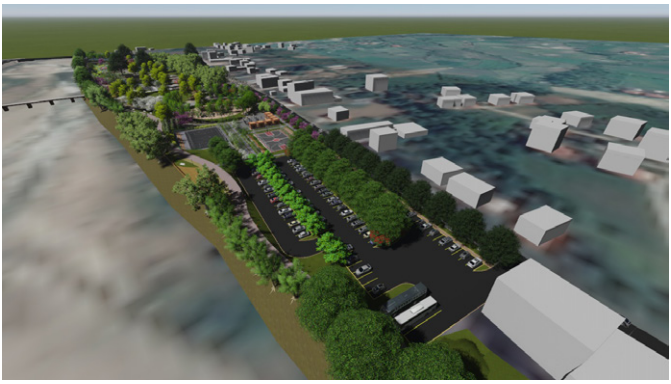

Fig. 9. Planting design idea for the carparks.

DISCUSSION AND CONCLUSIONS

In the planting design of the project, mature and elderly individuals have been used thus contributing to the preservation of existing natural vegetation: 71 *Platanus orientalis* (Oriental plane) and 7 *Juglans nigra* (Walnut) species. In the planting design project, a total of 603 tree and shrub individuals from 59 different deciduous and coniferous woody species and 42224 herbaceous and climbing individuals from 38 different species have been used. The list of natural and egzotic plant species used in the planting design is given in Tables 1, 2, 3 (Nayim and Sarı Nayim, 2018).

Table 1. Natural tree and shrub species used in the Landscape Design Project.

Natural Tree and shrub species	
Platanus orientalis (Oriental Plane)	*Crataegus monogyna* (Common hawthorn)
Juglans regia (Walnut)	*Prunus avium* (Wild cherry)
Fraxinus angustifolia ssp. *oxycarpa* (Narrow leaved ash)	*Prunus laurocerasus* (Cherry laurel)
Alnus glutinosa (European alder)	*Prunus x domestica* (Plum)
Acer campestre (Field maple)	*Pyracantha coccinea* (Scarlet firethorn)
Acer pseudoplatanus (Sycamore maple)	*Quercus robur* (English oak)
Carpinus betulus (European hornbeam)	*Salix alba* (White willow)
Cercis siliquastrum (Judas tree)	*Sorbus aucuparia* (Rowan)
Cornus mas (Cornelian cherry)	*Tilia tomentosa* (Silver lime)
Cotinus coggygria (Smoketree)	*Viburnum opulus* (Snowball)

Table 2. Egzotic tree and shrub species used in the Landscape Design Project.

Egzotic tree and shrub species	
Abelia x *grandiflora* (Glossy abelia)	*Hydrangea macrophylla* (Big leaf hydrangea)
Acer buergerianum (Trident maple)	*Laburnum anagyroides* (Common laburnum)
Acer negundo 'Variegatum' (Box elder)	*Lagerstroemia indica* (Crape myrtle)
Acer saccharinum (Silver maple)	*Magnolia sellowiana* (Sellow magnolia)
Acer platanoides (Norway maple)	*Malus floribunda* (Japanese Crapapple)
Albizzia julibrissin (Silk tree)	*Morus nigra* (Black mulberry)
Arundinaria japonica (Arrow bamboo)	*Paulownia tomentosa* (Royal paulownia)
Bambusa spp. (Bamboo)	*Philadelphus ittosporu* (Mock orange)
Buddleia davidii 'Pink Delight' (Butterfly bush)	*Picea pungens* 'Glauca' (Glauca group)
Catalpa bignonioides (Indian bean tree)	*Phormium tenax* 'Purpureum' (Common flax lily)
Chaenomeles japonica (Japanese quince)	*Pitosporum tobira* 'Nana' (Japanese pittosporum)
Cordateria selloana (Pampas grass)	*Prunus serrulata* 'Kanzan' (Japanese flowering cherry)
Cornus florida (Flowering dogwood)	*Prunus subhirtella* (Higan cherry)
Cotoneaster horizontalis (Rockspray cotoneaster)	*Ribes nigrum* (Blackcurrant)
Crataegus oxycantha (Hawthorn)	*Robinia pseudoacacia* 'Umbraculifera' (Black locust)
Cupressocyparis leylandii (Leyland cypress)	*Salix babylonica* (Weeping willow)
Eleagnus angustifolia (Silver berry)	*Salix matsudana* 'Tortuosa' (Peking willow)
Forsythia x *intermedia* (Border forsythia)	*Syringa vulgaris* (Lilac)
Ginkgo biloba (Maidenhair tree)	*Thuja orientalis* 'Compacta Nana' (Oriental thuja)
Hibiscus syriacus (Rose of sharon)	

Table 3. Herbaceus and climbing plant species used in the Landscape Design Project.

Herbaceus and climbing species	
Nymphaea odorata (Fragrant water lily)	*Lavandula angustifolia* (Common lavender)
Oxalis triangularis (Purpleleaf false shamrock)	*Leucanthemum vulgare* (Ox-eye daisy)
Agapanthus praecox (African lily)	*Liatrix spicata* (Blazing star)
Alisma plantago (Water plantain)	*Lythrum salicaria* (Purple loosestrife) *
Armeria maritima (Thrift)	*Lilium candidum* (Madonna lily)*
Calla palustris (Water arum)	*Lysimachia nummularium* (Creeping jenny)*
Cyperus papyrus (Papyrus)	*Narcissus poeticus* (Daffodil)

Campanula persicifolia (Fairy bellflower)*	*Narcissus pseudo-narcissus*(Wild daffodil)*
Campanula glomerata (Clustered bellflower)*	*Pennisetum setaceum* (African fountain grass)
Colchium autumnale (Autumn crocus)*	*Primula hortensis* (Primrose)
Chrysanthemum leucanthemum (Daisy)	*Stipa tenuissima* (Mexican feather grass)
Dianthus barbatus (Sweet william)*	*Typha latifolia* (Broadleaf cattail)*
Digitalis ferruginea (Rusty foxglove)*	*Typha angustifolia* (Lesser bulrush)
Delphinium cultorum (Larkspur)	*Vinca minor* (Vinca)*
Eupatorium cannabinum (Hemp agrimony)*	*Clematis montana* (Mountain clematis)
Festuca ovina 'Glauca' (Blue fescue)	*Wisteria sinensis* (Chinese wisteria)
Hosta coerulea (Plantain lily)	*Rosa* spp. (Rose)
Iris pseudacorus (Yellow flag)*	*Jasminum officinale* (Poet's jasmine)
Kniphofia uvaria (Torch lily)	*Vitis sp.* (Grape)*

* Natural herbaceous taxa used in the Project.

Perennial plants have been preferred in the selection of herbaceous species used in the project. In this way, it is aimed to make an economic contribution to the local government in the maintenance of park and re-planting the flowering species. With the classification given in Table 4, the perennial herbaceous plant species which are used in the planting design of the project and stand out in terms of their seasonal attractiveness are emphasized.

Table 4. Seasonal interests of herbaceous plant species used in the Landscape Design Project.

Summer interest	
Delphinium cultorum	Perennials large herbaceous plants
Lysimachia nummularia	Perennials medium herbaceous plants
Digitalis ferruginea	"
Lythrum salicaria	"
Campanula glomerata	"
Campanula persicifolia	"
Agapanthus praecox	"
Chrysanthemum leucantemum	"
Primula hortensis	"
Leucanthemum x *suberbum*	Perennials small herbaceous plants
Autumn interest	
Eupatorium purpureum	Large
Phormium tenax 'Purpureum'	"
Spring interest	
Iris pseudocorus	Perennials medium herbaceous plants

In the book of Higuchi (1983), titled as "The Visual and Spatial Structure of Landscape", landscape spaces were analyzed in four different aspects (Boundaries, Focus-center-goal, Directionality, Domain) (Robinson, 2004). The main "*focus-center-goal*" feature of Kozcağız Riverfront Park Project is Kozcağız River. Secondary focus points are Wooden terraces, Square with pergola, Color garden, Biological pond, Cafeteria and restaurant, Game sprinklers, Historical mill, The mosque and traditional shops, Kozcağız traditional life museum, Picnic area.

Elements that refer to *directionality* feature proposed in the project are Walking and cycling routes, Lower tree canopy seating and resting area with pergola, The main entrance with the wooden arched entry unit and carparks.

The Boundaries in the project include both open and surrounded edges. Open spaces that allow free circulation such as the Picnic area, Game sprinklers, Square with pergola, show the general line of land but do not define the space.

Walking and cycling routes, Biological pond, Cafeteria and restaurant, Sales units for local handcrafted products, The children's playground, which includes the game house, the ship-based wooden game unit and various other game units, Sports areas (areas where basketball, soccer fields and gymnastic equipment are located), carparks are examples of enclosed edges.

As a last word, discourse belonging to Austin (2012) that inspired this project and should not be forgotten by landscape architect is given below:

'Our repertoire of trees, shrubs, ground covers, and grasses provides the extensive and complex base of ingredients we use to manipulate the spaces around us.'

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