RESEARCH & REVIEWS IN ARCHITECTURE, PLANNING AND DESIGN

EDITORS:

Doç. Dr. H.Burçin HENDEN ŞOLT

gece kitaplığı

İmtiyaz Sahibi / Publisher • Yaşar Hız
Genel Yayın Yönetmeni / Editor in Chief • Eda Altunel
Kapak & İç Tasarım / Cover & Interior Design • Gece Kitaplığı
Editörler / Edıtors • Doç. Dr. H.Burçin HENDEN ŞOLT
Birinci Basım / First Edition • © Şubat 2021
ISBN • 978-625-7342-75-9

Gece Kitaplığı / Gece Publishing
Türkiye Adres / Turkey Address: Kızılay Mah. Fevzi Çakmak 1. Sokak Ümit Apt. No: 22/A Çankaya / Ankara / TR
Telefon / Phone: +90 312 384 80 40
web: www.gecekitapligi.com
e-mail: gecekitapligi@gmail.com

Baskı & Cilt / Printing & Volume
Sertifika / Certificate No: 47083

Research & Reviews in Architecture, Planning and Design

EDITORS

Doç. Dr. H.Burçin HENDEN ŞOLT

gece kitaplığı

CONTENTS

Chapter 1

PROPORTION AND ORDER IN ARCHITECTURAL DESIGN

Oğuz DEMİRARSLAN[1]
Deniz DEMİRARSLAN[2]

1 Lecturer, Maltepe University, Istanbul, Turkey, oguzdemirarslan@maltepe.edu.tr, Orcid No: 0000-0001-9512-5022
2 Assoc.Prof. Kocaeli University, Kocaeli, Turkey, demirarslandeniz@gmail.com, Orcid No: 0000-0002-7817-5893

1.INTRODUCTION

Though space is, in general, a very broad concept, it is a symbol of individuals' or groups' actions and life habits. In other words, space is a limited form that evolves through perception (Demirarslan, 2007). In the creation of architectural space, features, ergonomics, structure, visual perception, proportion, and order, scale, rhythm, texture and material, light, color, symmetry, ornamentation, form, and sound are essential elements. These components come together and, within the scope of certain design styles, form the architectural space. Although the subject of proportion and order is of great importance, particularly in the development of architectural space and in the creation of an architectural form, studies on this subject are inadequate in terms of artistic philosophy and art as part of beauty. Many ratio systems have been used in architecture throughout history. However, there is little written source of information to discuss these ratio systems together. In this study, a reference resource is generated by summarizing the proportion and order systems that are effective in the creation of architectural spaces with examples.

2. PROPORTION AND ORDER

There is an element of scale and proportion in the essence of all art concerned with forms such as drawing, sculpture, and architecture. The quantitative properties that make up beauty have been pursued by art practitioners since Pythagoras. Every art is an art of proportion. The concern for proportion in the arts depends on beauty rather than functionality. In architecture, functionality is evident with beauty, and beauty with functionality. From time to time, the architect trying to combine function and beauty arranged the ratio to the detriment of functionality and for the benefit of beauty (Timuçin, 2003).

The meaning of the word "proportion" originating from the Latin word "pro-portio" is "partitioning for something". What for? To have the greatest influence. If the division of a whole is successful, a description of "they have good proportions" is made. Bruno Taut states in his work that it would be more appropriate to use this term in architecture in the sense of a nice division, that is, proportionality (Taut, 1938). Proportion is known to be the foundation of beauty above anything else. However, the disproportion is thought to be the basis of the beautiful, being a kind of ratio. The ratio is one of the most used terms in architecture. In a linguistic sense, the ratio is defined as "the relation between two things in terms of size, quantity or degree or between part and the whole, proportion" (URL-1, 2021). According to Euclid, the ratio is a concept related to the equality of fractions. A fraction is defined as the comparison of two similar things. If the ratio is a / b fraction; it can be formulated as a / b = b / c = c / d = d / e = ratio (Demirarslan , 2007).

Proportion is the distance between an object and our perspective, the relation between objects. That is, the relation between objects and their positions is the ratio that affects the perception of space. The arrangement of this quantitative relation is important in determining the qualitative nature of the work. According to Timuçin's statement (2003), it is the ratio that creates a work. The finest examples of the principle of proportion in art have been seen in sculpture throughout history. The statue of Doryphoros, in which the male body is represented in the most unique way in ancient art, stands out in the history of art for its perfect proportions (Figure-1).

Figure 1. The Sculptural Work "Doryphoros" in which the Male Body is Represented in the Most Unique Way in Ancient Art, Sculptor: Polykleitos (URl-2, 2021) and a Sculpture Disproportionate from Today (Demirarslan, 2004).

The proportion in architecture is identical to the description above. It is defined as the harmonious dimensional relationship of the different sections of the building with each other and with the whole. Vitruvius (1st Century BC) identified the "Six Principles of Design" as order (ordinatio), arrangement (dispositio), proportion (eurythmia), symmetry (symmetria), propriety (decor) and economy (distributio). Among the six principles, proportion interrelates and supports all the other factors in geometrical forms and arithmetical ratios (Vitruvius, 2017)

. As we look at Andrea Palladio's beauty description (1508-1580); "Beauty is more than form, because the individual components are compatible with the whole and ultimately these components are compatible with the whole; in other words, it arises from the creation of a complete body in which each component of the structure correlates with each other and unites to form whatever you want." Essentially, in this description, Andrea Palladio emphasized the concept of the golden ratio. The human element also presents itself in architectural space as a necessity (Demirarslan, 2007; Hasol, 1998). The measurements are necessarily reduced to human size or built according to human scale in architecture, where functionality and aesthetics affect each other. Throughout history, however, many cultures have constructed buildings far from the human scale as a sign of glory, holiness, or with the aid of emerging technologies, for reasons such as the rise in population and the importance of urban lands (Figure-2). The portal appears as the best example of the relationship between human, purpose, and space components in traditional Turkish architecture and periods such as Roman, Gothic, Renaissance, Baroque, and Neoclassical. While the portal is a monumental entrance emphasizing the grandeur of a large building; it can also be reduced to the human scale (Figure-2).

Figure 2 . Egyptian Pyramids and Man, Photo: Pascal Sebah (URL-3, 2021) , A Hotel in China and a City Texture Far from Human Size (URL-4, 2021) , The Portal of The Double Minaret Madrasah, Erzurum (URL-5, 2021) .

3. PROPORTION SYSTEMS IN ARCHITECTURAL DESIGN

Architectural design is what will enable the arts to adapt to nature. Another characteristic of architectural design is that, according to social standards, it takes place. Since the early stages of history, numerous proportional systems have been used in the development of architectural design. Proportion is not just to obtain adequate proportions in architecture; it has also been used to develop a sense of rhythm, balance, and symmetry (Gangwar, 2017). The ratio rules developed by architects in the Greek and

Roman periods were written later and applied from the 16th century to the 19th century. These rate rules have changed according to the preferences of different times. The most important of these ratio systems are:

- Canon of Proportion
- Transept and Squaring
- Triangulation
- Golden Section
- Classical Order
- Renaissance Theories: Palladio's Harmonic Proportions
- Modulor and
- Ken

Explaining them briefly is going to help in architectural design.

3.1. Canon of Proportion

The earliest known human measuring experiments were found in the burial chamber of the Memphis Pyramid (3000 BC) (Neufert, 1997). In ancient Egypt, mathematicians, philosophers and artists studied the principle of proportion in human anatomy and recognized it as the measure of everything. The proportion method for humans was taken into account in the design of the Memphis pyramids and applied as a rule. Many artists and designers in different periods in history, in particular the ancient Egyptian, Greek, and Roman cultures, have studied various ratios and modules to base the system of proportions on the human dimensions in art and space design: Polykleitos (480 BC), Vitruvius (1st century BC), Hildegard von Bingen (1098-1179), Fra Giovanni Giocondo (1435- 1515), Bartolomeo Caporali (1442- 1509), Cesare Casarano (1483- 1543), Agrippa von Nettesheim (1486- 1535), Leonardo da Vinci (1452-1519), Robert Fludd (1617), Eliphas Levi (1810- 1875), Albrecht Dürer (1528), Le Corbusier (1887- 1966), Oscar Schlemmer (1928), Ernst Neufert, etc. (Table-1).

The human body was measured according to the length of the head, face, and feet in all these studies. These lengths were then divided and their association with each other was found. Thus, measurement standards such as inch (2.54 cm) and foot (30.48 cm) used today were obtained. Today the imperial system is based on this ratio system (Demirarslan, 2007). The canon measurement system takes the proportions of the human body as a unit of measurement. Generally, the head / body ratio is adopted as 1/7, 1/8, or 1/10. Canon means "rule, rule of the form" in Greek. In the second half of the 5th century BC, Greek writer, and sculptor Polykleitos explained the Canon Ratio rule as follows: "The beauty lies in the limbs of the body.

This concept of beauty, as we call the Canon, is the ratio of one finger to the other, both fingers to the hand, the hand to the elbow, all of them to the forearm, the forearm to the whole arm, the arm to the other parts of the body." (Eco, 2006). According to Polykleitos; all parts of the body shall match in geometric proportions: such as the ratio of A to B, the ratio of B to C (Figure-1). This proportion system was later represented by Vitruvius with parts of the figure: the face should be 1/10 of the total height, the head should be 1/8 of the total height and the length of the chest should be one-quarter of the total height (Eco, 2006). Again, Polykleitos defined beauty according to the rules of the Canon ratio system as follows: "Beauty is not in individual elements; one should be in the harmonious proportion concerning the others, according to the whole. " (Eco, 2006). According to the Egyptian architect Khesi-Ra, "Canonical principles reflect the harmonic foundations of the universe." (Demirarslan, 2007). Among the ratio studies based on human measurements in the table below, Albrecht Dürer's work has been accepted the most. Body proportions in Durer's study are based on certain mathematical modules. Durer expressed the human height as follows:

1/2 h: The upper part of the body from the groin.

1/4 h: Leg length from heel to knee and distance from chin to belly.

1/6 h: Head length from top to chin.

1/10 h: Face height and width, hand length to wrist.

1/12 h: Face width under the nose (Neufert, 1997).

Essentially, the Canon proportion system is based on the golden ratio. While it is mainly used in art, its contribution to architecture is excellent. Using the canon proportion system, Adolf Zeising and Gustav Fechner worked on it, and Le Corbusier developed the Modulor ratio system based on these studies. The Canon proportion system was developed and the Modulor ratio system used in architecture was formed.

3.2. Transept and Squaring

This system is the ratio rule that uses the square as a measure. In early Christian and Mediaeval architecture, for example, churches were constructed in a basilical plan that adopted the Transept square as a measuring unit. Transept is a Latin term which is the shape that is perpendicular in churches to the middle aisle which forms a cross with the middle nave. The transept square is the part of the square or rectangular shaped nave that occurs at the junction of the transept and the stage (Figure-3). Essentially, the combination of squares to form a combination still fits with the golden ratio. The Crystal Palace, which was built in 1851, was also planned in the transept layout (Hitchcock, 1977).

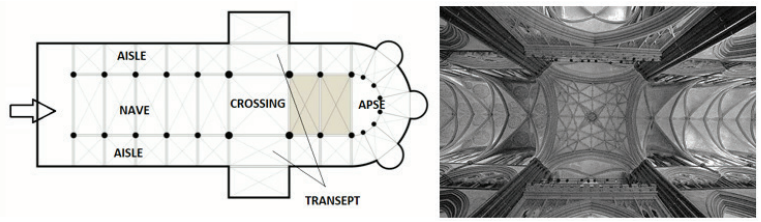
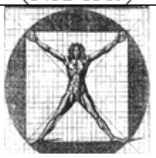
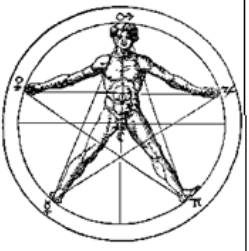
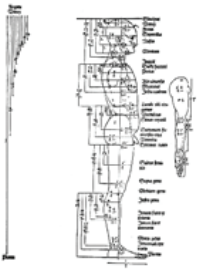
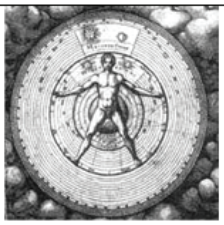
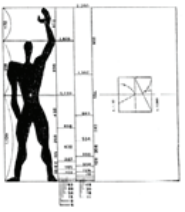


Figure 3. Transept and Squaring (Drawn by the Author), Transept Vault of Salisbury Cathedral, UK (Sulitsky, 2018).

Table 1. Designers and Artists Working on Proportion Systems that Take Human as Measure. (Demirarslan, 2007).

 Vitruvius (1st Century BC)	 Hildegard von Bingen 1098-1179	 Leonardo da Vinci (1452-1519)
 Fra Giovanni Giocondo 1435-1515	 Bartolommeo Caporali 1442-1509	 Cesare Casarano 1483-1543
 Francesco di Giorgio 1482-89	 Agrippa von Nettesheim 1486 - 1535	 Albrecht Dürer 1528
 Robert Fludd 1617	 Eliphas Levi 1810-1875	 Charles-Edouard Le Corbusier 1887-1966

3.3. Triangulation

It is a ratio series with equilateral triangles formed. The proportions of Gothic architecture were been tried to be analyzed through triangulation. In the elements that make up space and space reinforcement elements in Gothic spaces, sharp lines are dominant for this purpose. Buildings with the features of Gothic architecture were built again in the 19th century. Within the context of the Gothic Revival movement, and the triangulation technique was used in the designs. The works of Violette le Duck in this direction attract interest. The basis of the space frame system we use while creating the structure in architecture is based on the triangulation ratio system. Many designers, particularly Zaha Hadid, have used this module framework in today's architecture. It is not also for architectural space alone; in furniture and product design, this ratio system is often used (Figure -4,5). This ratio system is also based on the golden ratio system (Kovalev, 2019).

Figure 4. Coop Himmelb(l)au Designed the BMW Welt in Munich., Zaha Hadid Designed the Guangzhou Opera House, HOK Architects Designed the Dali Museum in St. Petersburg, Florida. (URL-6, 2021).

Figure 5. Zhang Zhoujie Designed the Triangulation Furniture Series (URL-6, 2021).

3.4. Golden Section

Over the ages, philosophers, mathematicians, and artists have undertaken numerous studies to bring the relationship between dimensions and proportions into a system and principle, and have discovered the golden ratio, defined as the harmony rule. In several contemporary and functional architecture designs, this perception of proportion still retains its influence. In the 5th century BC, Pythagoras theorists found the relationship between measurements and harmony with the pentagon and the pentagram. In many aspects of nature, in the plant world, in crystalline structures (ice, snowflakes), and many living organisms, this mathematically precise proportional system can be observed. In the year 300 BC, a system of ratios was used by Euclid, later called the golden ratio. The Greeks tried to understand and adapt their discoveries in the building of great temples, particularly the Parthenon temple, to the concepts of the creation of natural forms (Reuben, 2020) (Figure-6).

Essentially, the word "Golden Ratio" was used for the first time in the Middle Ages. The famous architect Le Corbusier attempted to establish a new rule of harmony that could be extended to human proportions in his book "Modulor" published in 1945, using the system of the golden ratio (Becer, 1991).

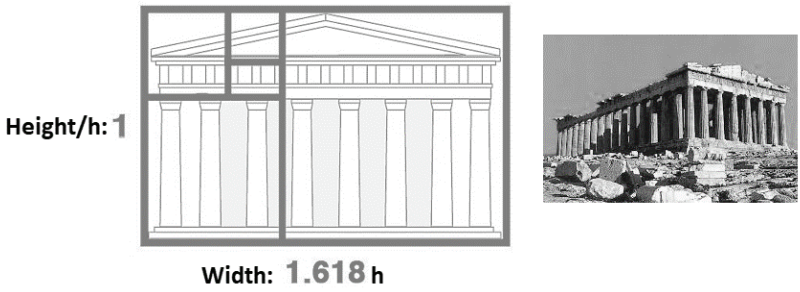


Figure 6. Application of the Golden Ratio in the Parthenon Temple (URl-7, 2021).

To examine the golden ratio geometrically; the figure below indicates the division unit of the AB line shown by Euclid and where we can see the golden ratio rules. The line segment AB is divided into two parts, but the ratio between the short part and the long part is equal to the ratio between the long part and the whole line. First, the AB line is divided into two; M point is found, then half the line is turned up to the perpendicular edge by taking point B as the center to form triangle ABC. Using C as the center, the line BC is rotated upwards to intersect the AC hypotenuse from where the B' point is located. Then, using A as the center, the line AB' is turned

down to the original AB to determine the dividing point D. The result is the ratio of DB to AD and the ratio of AD to AB: DB / AD = AD / AB. This ratio reminds us of Andrea Palladio's definition of beauty (Figure-7).

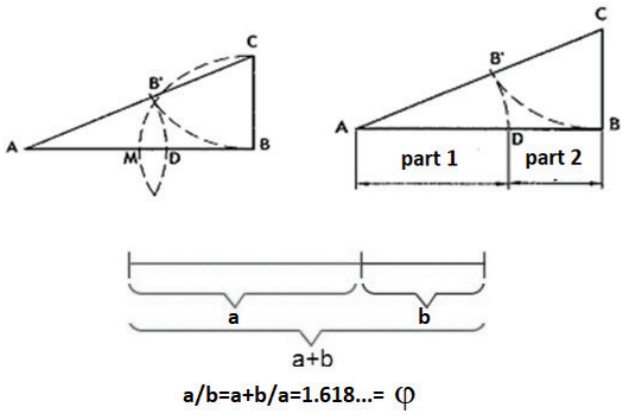


Figure 7. A Diagram Illustrating How a Line can be Separated so that Its Components have a Golden Ratio: Part 2 / Part 1 = Part 1 / whole (Demirarslan, 2007).

The square is also described both geometrically and artistically as a very perfect shape and has a balance in itself. Measuring the diagonal of a square and rotating it along one side of the square, we get a rectangle √2 which sides have a proportional relationship of 1.414 / 1 (or 1: √2). Or, measure the diagonal of this rectangle by placing two squares end-to-end and rotating it along this long side to create a √5 rectangle which sides have a ratio relationship of 2.2361 / 1 (or 1: √5). This system of proportion is visible in the plans of several churches built in the Middle Ages (Transept Square). A Golden Ratio Rectangle can be derived from a square. First, the square is divided in half. Each half measures one unit by two units. The diagonal is then rotated down to the side of the initial square of one of these rectangles. The ideal golden section rectangle is obtained from the end of the rotating diagonal. The proportions of the finished rectangle are 3.236 / 2, or (1 + √5) / 2, which is 1.618 / 1. This ratio is roughly 5/8. A rectangle of about 5 and 8 dimensions looks the same to our eyes but looks better than other rectangles of different sizes (Figure-8).

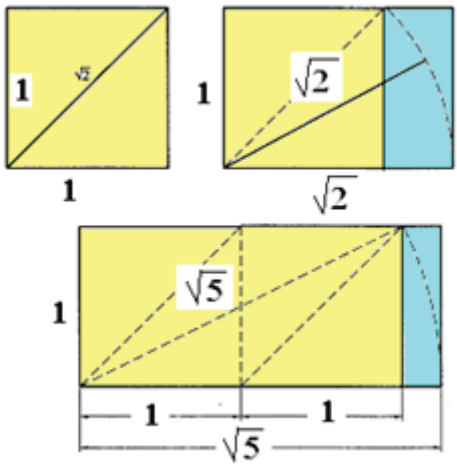


Figure 8. The √2 and √5 Rectangles (Demirarslan, 2007).

Gustave Fechner (German philosopher, 1801-1887), who tried to prove this experimentally, showed many rectangles of different sizes to many people and found that preferences increased as the dimensions reached the golden section. In other words, the resultant rectangle is identical to the first rectangle, where a square is placed within a rectangle with a side equivalent to the short side of the rectangle, and this process takes place indefinitely (Timuçin, 2003)This golden rectangular system is known to have been used in the planning of the central parts or general frames of numerous buildings and reliefs in ancient Egypt. For example, using this rectangular method, the plan of the famous Saqqara Pyramid was created. In the King's room of the Keops Pyramid, a golden rectangular ratio framework in three dimensions was implemented (Figure-9). The floor of this room consists of a 1: 2 rectangle containing a triangle of 1: 2:√ 5. The height of the room is half the diagonal length of the plan. The ratio between the sizes of the resulting prism gives the golden ratio measurements. Besides, the relief works on the wooden panels used as false doors in the pyramids built by the architect Khesi-Ra, known as a contemporary of the famous Egyptian architect Imhotep, were made according to the golden ratio system. In the panel where Khesi-Ra was represented, in fact, it can be shown that the ratio of √5 is equal to the diagonal ratio of a rectangle with 1:2 dimensions (golden segment rectangle) (Bergil, 1993) (Figure- 9).

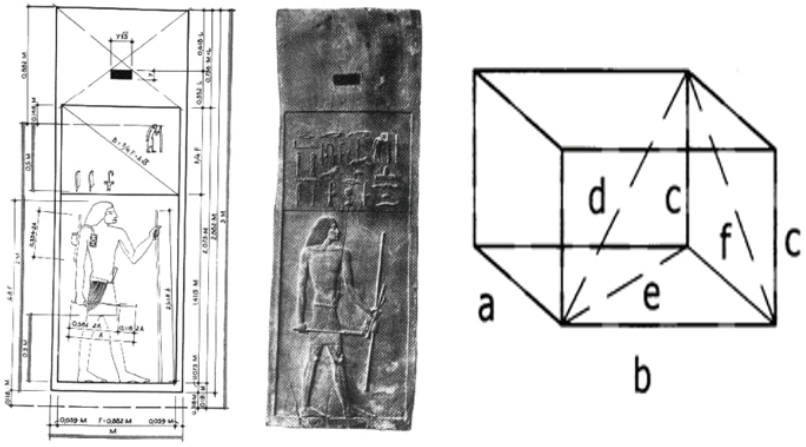


Figure 9. Application of the Golden Ratio in a Panel Made by Egyptian Architect Khesi-Ra (URL-8, 2006; URL-9, 2006), The Cheops Pyramid King's Chamber Golden Section Ratios (Demirarslan, 2007).

A special tool called the reduction compass has been developed by architects, sculptors, and stonemasons that makes it simpler to measure the golden ratio. The point where the legs of this compass, that is, the point where the connecting screw is placed, separate the heights of the legs in the golden section ratio (Becer, 1991). Geometrical shapes suitable for the golden ratio are not limited to the only triangle, square or pentagon, hexagon. These shapes can also come together in different ways to form new three-dimensional geometric shapes. In this regard, the cube and pyramid can be presented as an example. For example, in the design of his architectural structures, Le Corbusier used the cube shape as the base. However, apart from these, there are also three-dimensional shapes such as tetrahedron (smooth tetrahedron), octahedron, dodecahedron, and icosahedron, which we have never encountered in daily life and even heard the name for the first time. The dodecahedron consists of 13 pentagons and the icosahedron consists of 20 triangles. As a result, these shapes are also based on the Triangulation ratio system. Scientists have found that these shapes can be mathematically transformed into each other and that this transformation occurs with ratios dependent on the golden ratio. Ultimately, by describing the golden ratio system as the relation of two unequal parts, we can formulate it as "the ratio of the small part to the big part must equal the ratio of the big part to the whole":

$a/b = b/a+b$

$b^2 = a^2 + ab$

If a value of 1 is given and the equation is solved for b, the result is b = 1.61804. Or if b is given a value of 1, then a = 0.61804. The proportional relationship between 1 and 1.618 and between 0.618 and 1 is the same. There are similarities between the Fibonacci Sequence rules and the golden ratio rules found by the Medieval mathematician Leonardo Fibonacci (1170-1240). In the Fibonacci Sequence, the number sequence begins with one, and the next number in the series is obtained by adding the two numbers before it. Thus, the sequence 1,2,3,5,8,13,21,34, ... is obtained. The larger the numbers, the closer the last two to the golden ratio (Roth, 2014; Rasmussen, 1994; Hasol, 1998). The rectangle created based on Fibonacci numbers is called the "Fibonacci rectangle". This proportional rectangle has been used by various artists for many years, especially in the art of painting. Below is the relationship between the Fibonacci numbers and the golden ratio:

1,2,3,5,8,13,21,34,.....

21:34=1:1.61905

34:55= 1.61765

Historical examples where the golden ratio was used include the Keops Pyramid, Parthenon Temple, Taj Mahal, Palazzo Vecchio, Notre Damme Church, Salisbury Cathedral, the Eiffel Tower. There were masterpieces of Turkish architecture in which the golden ratio was applied. The golden ratio was used in the planning of the Selimiye Mosque of Mimar Sinan. When examining the facades of the Selimiye Mosque, it can be seen that the ratio between the length and width of the supporting walls, in particular the arches and sections, and the length and width of the supporting walls and the height dimensions match the golden ratio (Demirarslan, 2007). Besides, the portal of the Ince Minaret Madrasa built by the Seljuks in Konya, the Davut Pasha Mosque in Istanbul, the Sivas Divriği Complex are in line with the golden ratio principles, from the general plans to some details. There are, however, examples of 20th century and present-day architecture as well. The UN Secretariat Building (1952) designed by architects Oscar Niemeyer and Le Corbusier, Le Corbusier's Ozanfant House, Frank Llyod Wright's the Guggenheim Museum, Mario Botta's SF MoMA Building, New Acropolis Museum designed by Bernard Tschumi, CN Tower in Toronto, Arne Jacobsen's buildings are examples (Figure-10,11,12, 13). In the design of Anıtkabir, architects Emin Onat and Orhan Arda used the golden ratio as well.

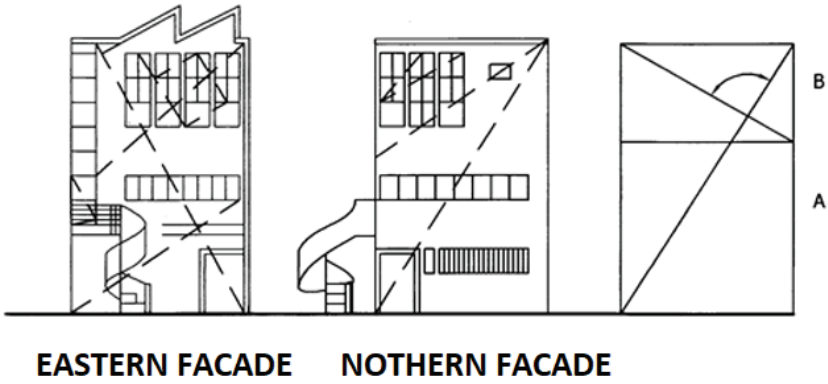


Figure 10. Facades of Paris Ozenfant House Designed by Le Corbusier According to the Modulor Ratio System Based on the Golden Ratio (Pile, 1995).

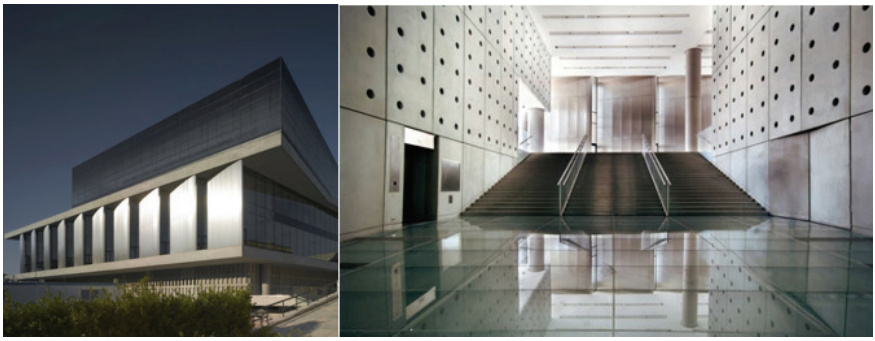


Figure 11. Bernard Tschumi - New Acropolis Museum (URL-10, 2021).

Figure 12. An Example of Application of the Golden Ratio on a Building Facade from the Netherlands (URL-11, 2021).

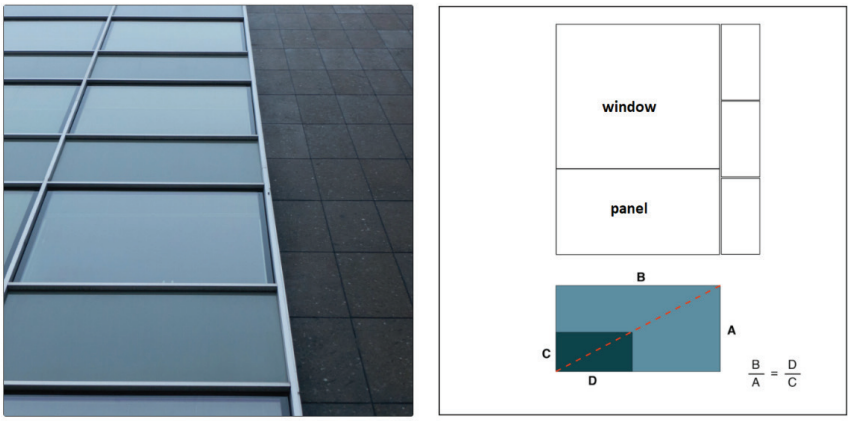


Figure 13. Nyropsgade 18, Copenhagen Building for A Jespersen & Son, By Arne Jacobsen (URL-17, 2021).

In furniture design, there are also examples where the golden ratio is used. A chest was found in Egypt that was determined to be made according to the golden ratio (Figure- 14). The dimensions of the chest are 524/646 mm. and its height is 324 mm. The following dimensions appear as we proportion the width and height of the chest according to the golden ratio rules:

324 mm/ 524 mm = 0.6183

524 mm/ 848 mm = 0.6179

Figure 14. The Box of Perpaut, which was Found to Have Been Built in Accordance with the Golden Ratio Measures in Ancient Egypt (URL-12, 2021), An Example of Furniture Made with a Golden Ratio Today (URL-13, 2021).

As a consequence, the "Golden Number" is not a matter of scientific invention, but the laws of equilibrium's natural theory. In short, the golden ratio can be called "the ratio of eye order". "Pythagoras, who lived in the 500s BC and was one of the greatest mathematicians in the world, expressed the following thoughts on the golden ratio: "The ratio of the height of a human to his all body and belly, the ratio of a pentagram's long and short sides, the rectangle's long and short sides are the same. What is the reason for this? Because the ratio of the whole to the big piece is equal to the ratio of the big piece to the small piece". (Demirarslan, 2007). What do the Egyptian pyramids, the Mona Lisa painting by Leonardo da Vinci, the sunflower, the snail, the pine cone, and your fingers have in common? Hidden in the golden ratio is the solution to this question.

3.5. Classical Order

Column order was used in the ancient Greek and Roman cultures to reflect the ideal beauty and harmony in the proportion of construction elements. In essence, it is based on the construction of a column-architrave based carrier system, i.e., the column-lintel bearing system, which, according to a certain ratio law, forms the space structure. The aim of this ratio system is for the eye to view the arrangement composed of columns in the best way, so the rules of visual perception are based on them. In the column order, the basic unit used in dimensioning is the column diameter. The dimensions of the heads and bases of the column body and the column spacing dimensioning system were also based on the column diameter. For example; In Doric order, the column height was taken seven times the column diameter (Figure-15). Another proportional system implemented by the Greeks was the ratio of x to 2x + 1. Due to the use of this proportioning system, Greek temples had six columns on narrow facades and thirteen columns on long side edges (2x6 + 1 by 6) or less, seventeen and eight columns (2x8 + 1 by 8) (Figure-14). This ordering system was also reused in the 18th and 19th centuries with styles such as Neoclassicism, Georgian and Greek Revival.

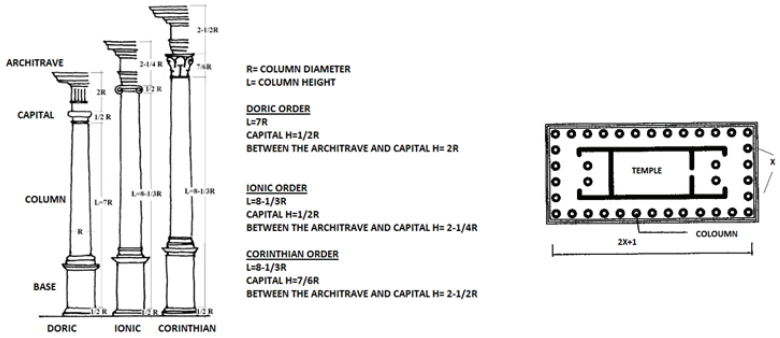


Figure 15. Classical Order and Proportion System (Demirarslan, 2007).

3.6. Renaissance Theories: Palladio's Harmonic Proportions

Renaissance architects, who believed that buildings were to be built in the highest order, as in the ancient Greek civilization, rethought the Greek mathematical proportioning system. In applying the principle that Pythagoras formed for the ratio of rhythm patterns to the Greek musical scale, Renaissance architects created an indivisible set of relations that form the basis of building proportions. Andrea Palladio (1508-1580), one of the Renaissance architects, developed the most suitable proportion system for a room accordingly. Using 2-1-2-1-2 or 4-2-4-2-4 modules in his designs, Palladio thus provided a rhythmic formation (Figure-16). This ratio system was used to determine the height of these rooms. While the height of the flat-ceilinged rooms was equal to their width, the height of the vaulted square-shaped rooms was one-third higher than their width (Ching, 2002). For example, it is seen that the "Palazzio" buildings, which are the Renaissance apartment-style houses, consist of rectangular and square rooms arranged around a rectangular courtyard and have an axial order. By creating a ratio system between the dimension and height of these spaces, which inner courtyards run parallel or perpendicular to the building's facade, the visual perception was been realized. The reduction in the size of the rooms in a linear order was generally from public to private areas.

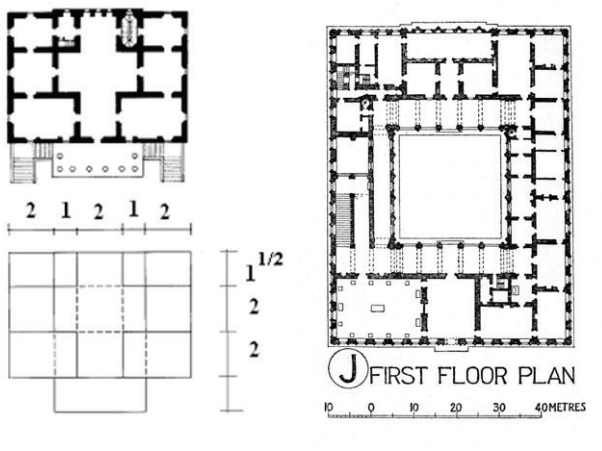


Figure 16. Room Rates and Plan of a Villa by Andrea Palladio, Villa Foscari (Pile, 1995; Demirel, 2004). The Rate System is Rhythmic in the Form of 2-1-2-1-2. Width is 8 Modules, Depth is 5 ½ Modules. The Ratio Between Width / Depth is Close to the Golden Ratio. The Plan of Palazzo Farnese is Shown in the Figure on the Right (URL-14, 2021).

3.7. Modulor

Architect Le Corbusier developed a proportion system called "Modulor" in the late 1930s based on the golden ratio and Fibonacci Sequence. As mentioned above, Le Corbusier modulated the classical gold section rate, inspired by the work of Adolf Zeising and Gustav Fechner. He created new measures based on his own understanding and experience and the proportion theories of Albrecht Dürer in German. This Le Corbusier dimensional module is based on the anthropometric dimensions of the human and Fibonacci Sequence described above. It is used to calculate the proportions of the building units (Demirarslan, 2007). Modulor consists of three basic measures:

43+70=113 cm (Half the size of the ideal human height)

113+70=183 cm

113+70+43=226 cm (2x113 cm) (Ideal height reached by an ideally sized person when raising his arm) (Figure-17).

The starting size is 226 cm, which is the height that a human can achieve while raising his hand, and the half is 113 cm. The 113 cm measurement is obtained by dividing the human figure according to the golden section rule. This measure is equal to both the belly button level and half the height of the extended arm. Human height was taken as 183 cm in Modulor. Le Corbusier showed with a diagram that all decreasing

measurements starting from human height can be used for different purposes and functions such as various table and chair heights. In other words, he did not use a scientific method such as determining the smallest or largest possible limits of objects by measuring them but instead stated that these two measures could be used for all purposes based on two basic measures such as human height and raised arm height (Corbusier, 1967) .

In the 20th century, while many architects agreed that the modular architecture demanded by the period was a structure that involved the duplication of units of the same dimensions, Le Corbusier recognized that a system centered on 1+1+1 rhythm would lead to uniformity in design. For this reason, Le Corbusier argued that a method composed of correlated proportions and centered on the golden ratio is the most suitable pre-production-prefabrication ratio for space and spatial components (Bergil, 1993,143). Le Corbusier designed the architectural planning, façade, and interior design of the Unité d'Habitation, Villa Savoy, and Paris Ozenfant residences in Marseille, France based on this system. It is notable that the furniture heights and building elements were manufactured according to the modulor dimensions when the related figures are analyzed.

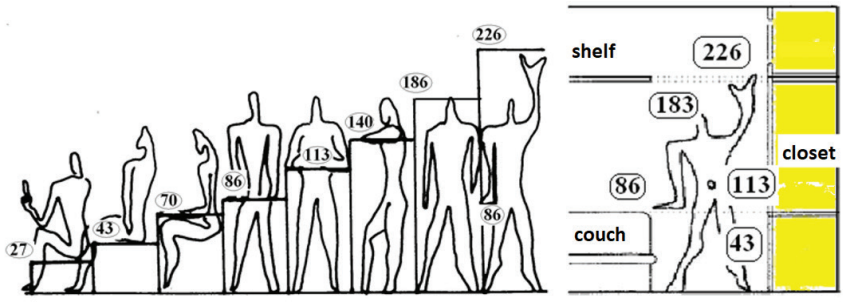


Figure 17. The Modulor with Le Corbusier's Drawing and Modulor Measurements in a Traditional Turkish House (Ching, 2002).

On the other hand, when analyzing the typical Turkish home, it can be seen that the furniture elements, such as the couch, closet and shelf used in the design of the room, are based on human proportions and are identical to the Modulor proportion system. Undoubtedly, Le Corbusier's long-term observations of Turkish architecture when designing the modulor-proportion method were influential in this situation (Figure-18) (Demirarslan& Demirarslan, 2020).

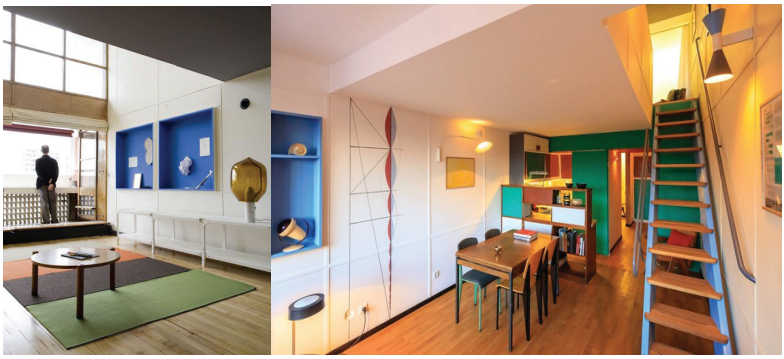


Figure 18. Modulor Measures in Unité d'Habitation Indoor Space (URL-15, 2021; URL-16, 2021).

3.8. Ken

It is a proportioning system that emerged in the second half of the Japanese Medieval. The size of the spaces in this system is dependent on the number of tatami (floor mat used in Japanese architecture) modules. The size of this floor unit was originally designed to accommodate two people sitting or sleeping. However, as the Ken proportioning system has evolved, the dimensions of the floor structure have not been determined by human measurements; it is determined by the column spacing of the structural system. In Japanese culture, there is talk of "sitting down culture based on this ratio system. There are also unproven theories that the Japanese used to sit in chairs. The "sitting on the floor culture" and the "looking down culture", which have been practiced for about 1200 years, are other factors that affect the formation of the Japanese interior. In other words, the human eye's line of sight, 1.60 m above ground level, lies below the horizontal plane. For this purpose, the things used inside the building are not kept high. All the spaces are shaped in a modular way according to the dimensions of the floor mats called "tatami", which is an element of the seating culture (Demirarslan, 2007) (Figure-19). A Japanese tatami mat usually has a width to length ratio of 1: 2. Some theoretical findings argue that the golden ratio is often consistent with the scale and arrangement of tatami. In deciding the height of the room, it was discovered that the relationship between the tatami, in particular, is based on the Fibonacci series (Figure-19) (Ruskey& Woodcock, 2009).

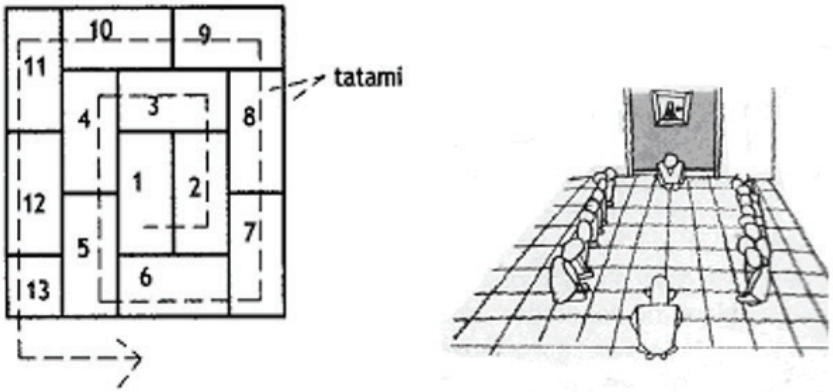


Figure 19. Tatami, Space and Ground-Seating Culture (Demirarslan, 2007).

Construction components expand or shorten in direct proportion to the loads they bear, according to the concept of traditional Japanese architecture called "Kivari". If the tatami size of the place is chosen, the size of the elements of the bearing structure is also determined (Ayverdi, 1972; Yamamoto, 1989). In other words, tatami dimensions are not just on the floor; It is also used in ceilings, walls, and carriers. It is known that Tadao Ando, one of today's architects, uses exposed concrete materials to assess the dimensions of the gross concrete molds in its building projects, based on tatami dimensions. The Ken rate system is not only used by Japanese architects. Charles Eames designed his house to tatami dimensions (Banham, 1997).

4.CONCLUSION

Scale and proportion play a very significant part in architecture. Proportion refers to the proper and harmonious balance between one part and another or the whole, while scale refers to the size of something relative to a reference level or the size of something else. Geometry and modulation are the essences of architectural design. Geometry and proportion are at the center of all components, such as bricks, windows, load-bearing systems, and furniture, that make up the architectural design. Geometry and proportion have jointly produced modulation, especially throughout history. In several respects, modulation has applied features to architectural design.

There is a certain ratio system in that design whether a shape is achieved that is satisfying or strongly balanced in terms of application or functional elements. In spatial design, however, the ratio is neither forced nor compulsive, according to Bruno Taut's argument. Proportion and modulation by themselves do not mean anything in space architecture

without function, technique, and construction (Taut, 1938). Throughout history, various proportion theories briefly explained above, have been used in both art and space design. The most famous of these ratio systems is the golden ratio. Actually, as can be seen from the examples given, the essence of these eight main rate systems is based on the golden ratio rules. The golden ratio = 1.618034 = 2 cos (π / 5) is an important geometric constant showing fivefold symmetry.

Arne Jacobsen clarified that "the main thing is proportioning is what makes the beauty of old Greek temples classical. Like great blocks from which the air is literally carved out between the columns. And whether we look at a building from the Baroque, from the Renaissance, or from our own time the ones we wish to look at, the ones we admire - they are all well-proportioned: this is what is decisive." in an interview published in Politiken in 1971 (Thau&Vindum, 2002; URL-17, 2021).

From Greek temples to Le Corbusier's Modulor, the golden ratio and its related pentagonal division have played a significant role in art and architecture. This proportion system, which gives the size relationship between parts, closely concerns both rhythm and balance issues. The reason why some rhythm and balance adjustments are more noticeable than others is undoubtedly the golden ratio. For example, it can be seen that the Parthenon and Pantheon temples and the Farnese Palace, which are very significant in terms of the golden ratio, are notable symbols in terms of rhythm and balance (Borrissavlievitch, 1958).

REFERENCES

Ayverdi, A. (1972). *Japonya Mimarlığı Mekanı: Özellikle İç Mekan Kuruluşuna Yaklaşım.* Istanbul: ITU, Architectural Faculty.

Banham, J. (1997). *Encyclopedia of Interior Design.* Routledge.

Becer, E. (1991). Altın Oran. *Bilim ve Teknik, 24*(278), 24.

Bergil, M. (1993). *Doğada Bilimde Sanatta Altın Oran.* İstanbul: Arkeoleoji ve Sanat Yayınları.

Borrissavlievitch, M. (1958). *The Golden Number.* London: Alec Tiranti.

Ching, F. (2002). *Mimarlıkta Biçim, Mekan ve Düzen.* İstanbul: Yem Yayınları.

Corbusier, L. (1967). *The Modulor.* London: Faber & Faber.

Demirarslan, D. (2004). *Namık Kemal Heykeli.* Tekirdağ.

Demirarslan, D. (2007). *İç Mekan Tasarımına Giriş.* Kocaeli: Kocaely University Publishings.

Demirarslan, O. Demirarslan, D. (2020). Storage Furniture from Traditional to the Contemporary in Turkish House. *Theory and Research in Architecture, Planning and Design*. Ed.L. K. Prof. Dr. Ruba Kasmo, Ankara: Gece Publishing.

Demirel, E. (2004). Boşluğun Mimarisi. *Mimarlık Dergisi* (315).

Eco, U. (2006). *Güzelliğin Tarihi.* İstanbul: Doğan Kitapevi.

Gangwar, G. (2017). Principles and Applications of Geometric Proportions in Architectural Design. *Journal of Civil Engineering and Environmental Technology, 4*(3), 171-176.

Hasol, D. (1998). *Ansiklopedik Mimarlık Sözlüğü.* İstanbul: Yem Yayınevi.

Hitchcock, H. R. (1977). *Architecture, Nineteenth and Twentieth Centuries.* New York: Penguin Books.

Kovalev, A. (2019). "On the Knowledge in the XIII–XVI Centuries of the Relationship of Fibonacci Numbers with the Golden Ratio", *Mathematical Education, 4*(92), 63–75.

Neufert, E. (1997). *NEUFERT Yapı Tasarımı.* İstanbul: Güven Yayınları.

Pile, J. (1995). *Interior Design.* New York: Abrams Including.

Rasmussen, S. (1994). *Yaşanan Mimari.* İstanbul: Remzi Kitapevi.

Reuben, J. (2020). The French Monk, the Quiet Swede, and the Golden Section. *Journal of Architecture and Construction, 3*(2), 21-29.

Roth, L. (2014). *Mimarlığın Öyküsü.* İstanbul: Kabalcı Kitapevi.

Ruskey, F. W. (2009). Counting Fixed-Height Tatami Tilings. *The Electronic Journal of Combinatorics* (16), 1-20.

Sulitsky,A.(2018).*TranseptVaultofSalisburyCathedral.*UnitedKingdom.January 29, 2021 tarihinde https://www.flickr.com/photos/sulitskiy/46740580181/in/photolist-2ediG56-6Rqh9N-7XsBGD-23oBdge-2ahPSHx-cmVHiu-21WKW3R-Fpj42j-cjX8eC-2i7arfx-5hvzMh-nJcnBh-KKkUGu-8mx72A-zb6CLk-antyZb-62k2Fv-2hG7kvk-pDr8oL-6Gswmx-PWWwe6-2jdhzxv-nZ6tD-EgCWZ3-7uvTCC-2yibgh-2j adresinden alındı.

Taut, B. (1938). *Mimarlık Bilgisi.* İstanbul: İ.D.G.S.A Publishings.

Thau, C. &. (2002). Arne Jacobsen. *Politiken*, 16.

Timuçin, A. (2003). *Estetik.* İstanbul: Felsefe Dizisi, Bulut Yayınları .

URL-1. (2021, January 29). Turkish Language Association Current Turkish Dictionary: https://sozluk.gov.tr/ adresinden alındı.

URl-2. (2021, January 27). Pompeitourguide: https://pompeiitourguide.me/2013/04/30/the-doriforo/ adresinden alındı.

URL-3. (2021, January 27). Mildred Lane Kemper Art Museum: https://cpb-us-w2.wpmucdn.com/sites.wustl.edu/dist/3/2659/files/2020/07/2.-SS34144_34144_15627488.jpg adresinden alındı.

URL-4. (2021, January 27). Reddit: https://www.reddit.com/r/CityPorn/comments/95knwh/grand_lisbon_macau_oc_1638x2048/?utm_source=ifttt adresinden alındı.

URL-5. (2021, January 29). Archnet: https://archnet.org/sites/1947/media_contents/128020 adresinden alındı.

URL-6. (2021, January 30). https://74fdc.wordpress.com/2012/03/07/triangulation-in-art-architecture-and-design/ adresinden alındı.

URl-7. (2021, January 29). Freemasonry: https://freemasonry.bcy.ca/symbolism/golden_ratio/kaech/65.jpg adresinden alındı.

URL-8. (2006, November 12). Golden Museum: www.goldenmuseum.org adresinden alındı.

URL-9. (2006, November 12). www. milan.milanovic.org adresinden alındı.

URL-10. (2021, January 30). Dezeen: (ttps://www.dezeen.com/2009/04/10/new-acropolis-museum-by-bernard-tschumi-architects/ adresinden alındı

URL-11. (2021, January 28). Govaert: https://www.govaert-vanhoutte.be/golden-ratio/ adresinden alındı.

URL-12. (2021, January 30). Art Resource: https://www.artres.com/C.aspx?VP3=ViewBox_VPage&VBID=2UN365I7DJY49&IT=ZoomImageTemplate01_VForm&IID=2UNTWAHPJ7SP&PN=46&CT=Search&SF=0 adresinden alındı.

URL-13. (2021, January 30). Dezeen: https://www.dezeen.com/2009/03/26/products-by-hundredstensunits/ adresinden alındı.

URL-14. (2021, January 28). https://quod.lib.umich.edu/h/hiaaic/x-bf578j/BF578J?chaperone=S-HIAAIC-X-BF578J+BF578J;evl=full-image;lasttype=boolean;lastview=thumbfull;quality=1;resnum=2;size=20;sort=none;start=1;subview=download;view=entry;rgn1=hiaaic_su;q1=Rome--Palazzo+Farnese adresinden alındı.

URL-15. (2021, February 01). Archdaily: https://www.archdaily.com/896624/apartment-in-le-corbusiers-unite-dhabitation-renovated-to-original-design-by-philipp-mohr adresinden alındı.

URL-16. (2021, February 01). https://ar.pinterest.com/pin/416723771751529429/ adresinden alındı.

URL-17. (2021, February 02). Danish Design Review: http://danishdesignreview.com/architecture/2016/4/2/all-in-the-detail-arne-jacobsens-use-of-proportions adresinden alındı.

Vitruvius. (2017). *Mimarlık Üzerine On Kitap.* (Ç. Dürüşken, Çev.) İstanbul: Alfa Yayıncılık.

Yamamoto, T. (1989). *Geleneksel Türk ve Japon Evlerinin Mekansal ve Yapısal Açıdan Karşılaştırılması ve Koruma Yöntemlerinin İncelenmesi.* Istanbul: MİImar Sınan University.

Chapter 2

EVALUATION OF THE EFFECTS OF GREEN ROOF SYSTEMS ON URBAN LIFE QUALITY

Dr. Öğr. Üyesi Uğur ÖZCAN[1]

Y. Mimar Muhammed Taha SEVGİN[2]

1 Fatih Sultan Mehmet Vakıf Üniversitesi, Mimarlık ve Tasarım Fakültesi, Mimarlık Bölümü, İstanbul, Türkiye. e-posta: uozcan@fsm.edu.tr

2 Fatih Sultan Mehmet Vakıf Üniversitesi, Lisansüstü Eğitim Enstitüsü, Mimarlık Anabilimdalı, İstanbul, Türkiye. muhammedtaha.sevgin@stu.fsm.edu.tr

1. INTRODUCTION

Consumption, which has increased through economic development as a result of industrial and technological developments, increases our need for renewable energy sources. Drugs were developed with various treatment methods and increases in people's life expectancy were observed with these developments. The rapid construction due to the decrease of resources each passing day and population growth has caused environmentally friendly and energy-effective construction to become important.

Many studies are carried out today in the development of environmentally friendly and energy-efficient building designs. It is thought that one of the ways that urbanization adapts to the natural environment is possible by expanding the effect of the need for green area on design concerns.

Green areas are known to be very important in biological and psychological terms on humans. Therefore, applications ought to be made to meet the green space requirements in urban areas. Greening vertical surfaces, terraces and roofs will be an alternative to the ground in the developing and squeezed urban texture.

On roof surfaces, providing the need for green space means contributing to the urban ecosystem (creating a more livable environment), as well as providing alternative opportunities to meet people's physiological and psychological needs. The presence of a natural texture, that people can reach right next to them, allows for the break of congestion and artificial environmental stress.

Green roof systems are ecologically, economically and socially important in this respect. Green roofs are sustainable applications that provide solutions and alternatives such as ecological improvement in urban areas, management of rain and wastewater, increase in insulation performance, reduction of urban heat island impact and providing recreation area.

In this study, the definition of the concept of green roof, the progress it has made in the historical process and the benefits of green roofs to the city and life in the context of sustainability (ecologically, economically and socially) were evaluated. Within the scope of these evaluations, improvements in urban quality of life in the case of green roof applications on the flat roofs of industrial sites located in the İkitelli Industrial Zone will be evaluated. In the conclusion part, the implications of this assessment will be discussed.

2. GREEN ROOF CONCEPT

The concept of green roof is used to name green area applications with multiple purposes and functions made with the help of special materials and methods on sloping or low-slope roof surfaces of structures.

Green roof is the concept used to describe the roofs with a layer of vegetation on the outer surface covered with membrane, aiming to increase energy efficiency by reducing insulation, heating and cooling costs in the building in the most efficient way (Kaymak, 2014).

Green roofs are sustainable systems in which the roofs and terraces of the structures are planted using building components obtained by technological developments, aiming to benefit the urban space and improve the physical and psychological state of the human being.

3. HISTORICAL DEVELOPMENT OF GREEN ROOFS

The idea of planting roofs is thought to date back thousands of years. Civilizations in Mesopotamia have found various types of roof gardens and used them to cool and green arid regions. (Snodgrass, 2006).

There are pyramid-like temples called “Ziggurat” in Ur, which is thought to have been founded by the Sumerians in the B.C. 2000s. The entire building consists of terraced spaces in the form of pyramids, that get narrower as you go up with steps. It is a structure with central and side stage stairs, consisting of unusual brick walls on the outside. The center of the temple, accessible by stairs, and the top terrace, has a holy room.

Ziggurat was mostly built seven floors and painted in seven different colors due to superstition. These artificial hills are a form developed in plain Mesopotamia by Sumerians, praying on high hills in Central Asia, their old homeland, to reach the Sky God. (Uzun, 2002). During excavations in the 1920s, archaeologist Leonard Wooley discovered large tree remains grown on the third floors of these temples (Ercan, 1992).

Image 1. *Ziggurat Temple (Url-1)*

The Hanging Gardens of Babylon are one of the examples of green roofs dating back to the B.C. The idea of hanging gardens is thought to come from the Ziggurat temples of the Sumerians.

The real terrace gardens are the Hanging Gardens of Babylon, built 1,500 years later in the name of his wife Semiramis, on the terrace of King Nebuchadnezzar's castle, known as the seventh wonder of the world. (Osmundson, 1999).

Image 2. *The Hanging Gardens of Babylon (Url-2)*

Since there is no stone in Mesopotamia, the gardens are made multi-story by adding tar in mud-brick. These gardens are built to consist of seven floors and have a height of approximately 23 meters. The main garden is located on the terrace of the top floor. Waterproofing is provided

by using wicker plastered with bitumen. On top of this, there are two rows of bricks lined up on top of it with mortar. A varve made of lead is spread over the last layer.

Some construction elements have been added to the structures to handle these roofs, which piled up soil at a depth where large trees could grow. These terrace gardens, that usually have a formal plan feature, included entertainment areas, fountain pool, shady spots, trees and decorative flowers (Uzun, 2002).

Viking huts were found in Scotland around the 900s. In order to protect against harsh climatic conditions, examples of walls and roofs covered with seaweed are seen.

Image 3. *A Viking House in Nova Scotia (T. Ormston, Wikimedia)*

The Guinigi Tower, built in the mid-14th century due to the tradition of wealthy families building high towers to show status, is one of the green roof examples of the period. Brick beds were made and planted using insulation materials of the period to grow oak trees. Irrigation is provided from groundwater.

Image 4. *Guinigi Tower, Lucca, Italy (Url-3).*

Norwegians also used the soil on the roofs of the structures as a means of insulation and used plants to keep it stable for a long time (Magil, 2011).

There is a farm of 27 buildings which was built in the middle of the 19th century in the Sunnfjord region of Norway. Birchbark is used as a waterproof barrier on the roofs of these structures. The studies identified that this green roof had a 30-40-year durability. The function of the grass above the birchbark is to keep the bark flat and in place as well as to provide thermal insulation.

Modern architecture, which started a universal rise in the early 20th century, seems to support the use of green roofs with different expansions. In 1930, Harry Maasz predicted a city where people could walk around the gardens on the roofs and green roofs covered the city (Tohum, 2011). One of the first steps towards embodying this was taken by Le Corbusier, who defined the five principles of modern architecture, and adopted the roof of the building as the fifth façade and identified one of these principles as roof gardens. The first example of this view, which contributes to the development of the roof landscape, is the green city design and it was developed in 1922.

Over time, the concept of green roofing began to be accepted in Europe and America. The Rockefeller Building of New York (1939), Kaizer Center (1960) is one of the examples of green roofs in the history of architecture.

In the mid-20th century, the transformation of green roof works into an ecological movement in the context of sustainability and the its widespread usage began in Germany (Dunnet and Kingbury, 2008).

Institutions that conduct studies and researches on the use of green on building surfaces have been established with the 21st century. Various institutions that conduct research on growing plants on roofs have been established (IGRA, LLS), exhibitions have been organized and congresses have been held. The 4th International Green Roof Congress was held in Istanbul on April 20, 2005. In this congress, green roof applications were evaluated as urban aesthetic element as well as ecological benefits. Green roof systems have become widely used with the widespread use of sustainable building design certificates and bringing them to the agenda in many different usage areas.

4. APPLICATIONS OF GREEN ROOFS

Green roofs are classified into three different types according to the nature of the growing environment and vegetation types;

- Extensive (sparse / passive) green roofs
- Intensive (intense / active) green roofs
- Semi-intensive (semi-intense / semi-active) green roofs

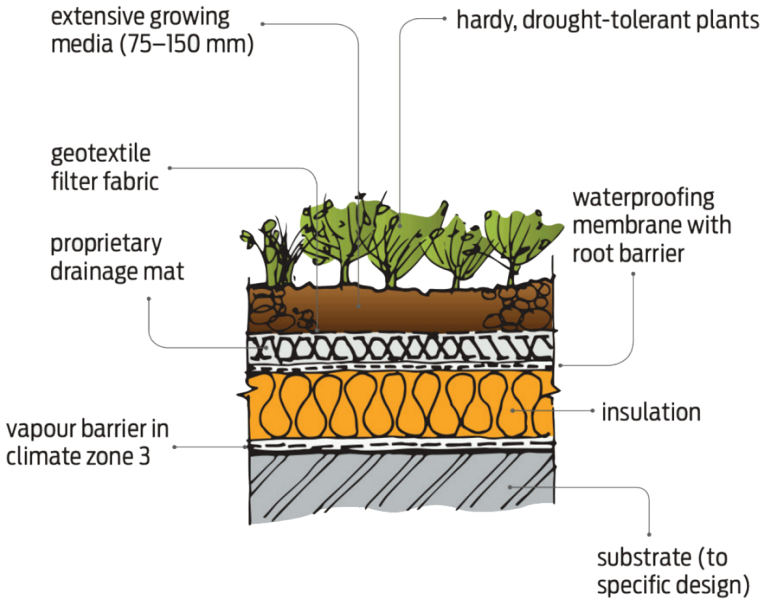
Extensive (Sparse) Green Roof Applications

Extensive green roofs are used to describe green roof systems with a shallow depth of layers (Weiler and Scholz-Barth, 2009). The plant species used in these roofing systems should be plants that do not require maintenance and irrigation, that can survive and breed on their own (Alcazar, 2004).

Extensive green roofs are highly resistant to drought compared to other green roofs. It has less construction and maintenance costs. Ecological benefit is aimed by keeping the resistance of the structural system at a low level. However, it is not suitable for navigation due to the thin thickness of the structural system.

In extensive green roofs, the plant layer thickness is less. The low thickness of the plant layer can be interpreted as a positive effect in terms of creating structural load. It is preferred in retrofit roof applications because it does not load a significant load on the structure and does not require detailed technical infrastructure (Dunnett and Kingsbury, 2004).

Figure 1. *Extensive (sparse) green roof profile (Url-4).*

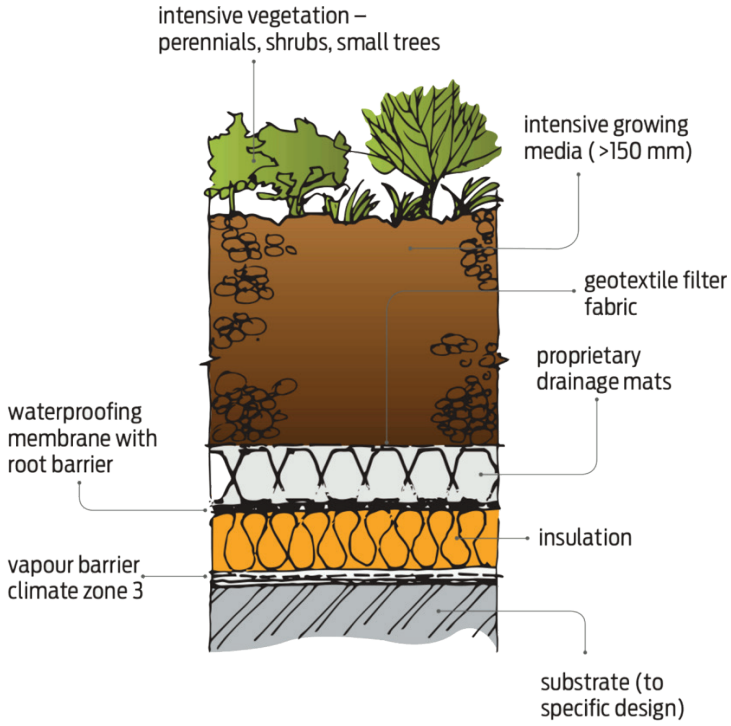


Intensive Green Roof Applications

Intensive green roof applications are systems created with a thick layer of soil in a large area, where various plant species and high trees are heavily used (Weiler and Scholz-Barth, 2009). Since the load on the roof is high, the structural system should be designed to handle this load in advance.

Intensive green roofs are the roof systems with the highest layer thickness in terms of allowing them to be equipped with trees with high root depth. The design of high strength structural systems makes it possible to use it as a recreation area. The high plant variety reveals the need for good waterproofing, drainage and maintenance.

Figure 2. *Intensive (dense) green roof profile (Url-4).*



Intensive green roofs have advantages such as dense plant diversity, high insulation performance, recreation area creation and the potential to hold high amount of rainwater. Disadvantages of intensive green roofs are the extra burden on the structure, high investment and maintenance costs.

Semi-Intensive Green Roof Applications

Semi-Intensive green roofing applications are roofing systems created by the inter-use of extensive and intensive green roofing systems. They include more plants than extensive green roofs applications. But the thickness of the substrate layer is not enough to accommodate trees.

Semi-intensive green roofs, investment costs are less than intensive green roofs, more than extensive green roofs. They have better thermal insulation and water retention capacity than extensive green roofs.

5. BENEFITS OF GREEN ROOFS

Green roofs provide a place identity to the roof area used as a cover in the city and add an aesthetic quality, as well as many benefits for the city and its residents.

Table 1. *Comparison of Traditional Roofs with Green Roofs (Kaymak, 2014).*

	Green Roofs	Traditional Roofs
Urban Heat Island Effect	**Preventing Temperature Rise**	**Contributing to Temperature Rise**
Contribution to the Ecosystem	**Creating a Habitat for Living Creatures with Its Flora and Fauna**	**-**
Rainwater Retention Capacity	**Savings in High Rainwater Retention and Drainage Costs.**	**-**
Improving Air Cleaning Quality And Air	**Cleaning Air dust, Toxic Gas and CO2 Gas. Produce Oxygen.**	**-**
Interior Quality	**High Thermal and Sound Insulation**	**Low Thermal Insulation (If Containing Insulation Material)**
Energy Saving	**Saving Energy by Contributing Highly to Thermal Insulation**	**-**
Spatial Quality	**Recovery of The Green Space Lost in the City;**	**Idle areas**
	Aesthetic-Visual Contribution to Urban Space and Building;	
	Providing a Public Activity Area for Building Users	
Construction Cost	**Cost per Square Meter $5-12 in New Applications; $7-20 in Transformations**	**Cost per Square Meter $2-10**
Life of Structure	**Over 36 Years of Strength, Despite Requiring More Maintenance**	**Less Than 20 Years of Strength, Despite Requiring Low Maintenance**

Green roofs have higher initial costs than traditional roofing, but green roofs have several benefits (Dunnett and Kingsbury 2004);

Green roofs reduce the need for heating by providing thermal insulation in roof systems. It also prevents overheating and reduces the cooling needs of the building.

- Reduces the effect of urban heat island.
- Provides use of rainwater.
- Helps to balance carbon dioxide and pollutants in nature.
- Filters air pollutants and captures air particles.

• Provides recreational benefits.

• Contributes to biodiversity and creates habitats for birds and invertebrates.

• Offers alternatives for organic food production and creates a social meeting place.

• Contributes to urban aesthetics by adding "green" space to an urban environment.

Contributing to Biodiversity

Biodiversity refers to the diversity of plants and animals in a region. Green roofs contribute to increase biodiversity by providing new habitat for plants and animals in urban space.

Green roofs can be designed to include multiple habitats. It is thought that the use of local species in these designs will bring more benefits. A biodiverse environment positively affects human health by reducing the stress levels of individuals.

Biodiversity is gradually decreasing in today's cities. Green roofs are able to break this negative effect and provide the recovery of the species that leave the city day by day. The increasing density in the urban texture with each passing day creates a lifeless (soulless) environment. The offer of an alternative with green roofs to cities where natural flow is interrupted will be able to provide some recovery of this continuity.

Improving Air Quality

If the building stock in the city is not specially designed, it usually affects the ventilation negatively by blocking the wind corridors. For this reason, health-harmful particles in the air can remain suspended for a long time. The vegetation on green roofs reduces carbon dioxide through photosynthesis and increases the amount of oxygen. Multi-leaf plant species can help reduce dust and particles in the air.

By converting carbon dioxide gas into oxygen through photosynthesis, plants increase the amount of oxygen in the atmosphere, that is, they clean the air. In addition, it has been observed that it filters the air by absorbing harmful toxins such as VOC (Volatile Organic Compounds) in the air (Yüksel, 2013). Green roofs play an important role in reducing asthma and other respiratory-related diseases (MacDonagh, 2005).

Reducing Urban Heat Island Effect

Green roofs reduce the urban heat island effect by providing an environment for evaporation. The cooling costs of the buildings are reduced indirectly with this reduction.

There are several ways to reduce the effect of urban heat island with green roofs. A normal roof absorbs much more solar energy than a green roof. Absorbed energy turns into heat on the normal roof. The amount of cooling provided by the green roof varies depending on the climate and its design. Green roofs will minimize irrigation requirements, prefer durable plant species will reduce the amount of evaporation cooling. Green roofs will minimize irrigation requirements, preferring durable plant species will reduce the amount of evaporative cooling. However, it will still provide cooling thanks to the heat insulation that will occur with the decrease of sunlight absorption (EAD, 1990).

Rainwater and Wastewater Management

Rainwater management has become an indispensable issue in today's cities. As the construction increases, majority of the city is covered with surfaces (streets, buildings) that cannot keep rain and therefore produce more polluted water. The negative effects of rainwater contaminated with garbage, oil and other toxins on natural water bodies are well known. The amount of precipitation captured by the green roof also depends on the design of the green roof. Green roofs become saturated after precipitation and cannot retain any more water. To deal with this situation, many systems include a structure that captures over-rainfall and stores it for irrigation during dry spells (EAD, 1990). Irrigation options include the use of gray (waste) water as an alternative option. The use of waste water, after the necessary filtration process, in irrigation minimizes water costs.

Providing Recreation Area

Today, cities cannot meet the needs of places where people can socialize and have fun together. Crowded, cramped and noisy, stressful city life brings up the need to create alternative recreation areas. Many studies are carried out to bring alternatives to shopping centers, entertainment centers and quality social spaces. According to researches, natural environments such as parks or gardens help people to deal with stress (Ulrich, 1984). Green roofs contribute to the need for recreation areas by providing opportunities for many activities and social activities.

Improving Urban Aesthetics and Quality of Life

Green roofs can provide a large part of the aesthetic and quality of life benefits from urban green spaces. Green roofs around the place can improve visual quality. Plants are tools used to improve the negative values of an area. If this improvement is carried out with a certain planning, it can offer opportunities that are both eye-pleasant and improve the quality of life. An urban texture where green roofs are used effectively can offer people landscape alternatives. For this reason, the aesthetic aspect of our cities can be strengthened with these greening activities. This aesthetic improvement

realized by green roof systems can provide a return in terms of economic value.

With the increase in environmentally friendly green areas in the urban space, the quality of life also increases. These green spaces contribute to the urban aesthetics and create a positive effect for people both socially and psychologically (MacDonagh, 2005).

Open spaces, parks and natural places help people get away from stress. These places are important for healthy people, as they are for sick people. The importance of the places has been proven by some studies. Most of the patients who visited green areas recovered without the need for medication, or recovery was faster than other patients.

In this context, green roof systems offer important alternatives for human health (biological and psychological) at a time when quality studies in urban space are losing importance with economic concerns.

6. APPLYING GREEN ROOF SYSTEMS TO THE İKİTELLİ INDUSTRIAL ZONE

Green roof systems, which offer an alternative to the roof area used as a cover, can contribute to urban quality of life thanks to factors such as improving biodiversity and air quality and providing recreation space.

Organized Industrial Zones are the production zones operated with the aim of ensuring the construction of industry in the areas deemed appropriate by the Law no. 4562 on Organized Industrial Zones, preventing distorted industrialization and environmental problems, directing urbanization, using resources rationally, using information and information technologies, placing and developing industrial types within a specific plan (Url-5).

İkitelli Organized Industrial Zone, located on the borders of İstanbul, Başakşehir district, have great importance in terms of being one of the largest organized goods and services production facilities in the city.

Image 5. *İkitelli Organized Industrial Zone (Url-6)*

İkitelli Organized Industrial Zone is defined as an industrial, commercial and Small and Medium Sized Enterprises (SME) city established in 1981 on an area of 700 hectares in order to continue its production in Modern facilities in İkitelli, which is now impossible to maintain in and around the Historical Peninsula. İkitelli Organized Industrial Zone, which has become one of the productions, trade and sales bases in the past 25 years, is located north of TEM Highway in Başakşehir, İstanbul, 15 kilometers from Eminönü, Bayrampaşa Bus Station, Ataturk Airport, Sultan Selim the Stern Bridge connection road and about 10 kilometers from the new airport (Url-7).

Production activities carried out in İkitelli Organized Industrial Zone affect the air quality negatively compared to other parts of the city. Within the scope of this field study, it includes an assessment of increasing the air quality with green roof applications in an area of 400 hectares of İkitelli Organized Industrial Zone (Figure 3). In determining the boundaries of the area, the measurement station located on Hürriyet Boulevard of İkitelli district within the scope of the National Air Quality Monitoring Network project by the Ministry of Environment and Urbanization was taken as basis.

Figure 3. *Area Limit Subject to Study in İkitelli Organized Industrial Zone.*

Geographic Information System

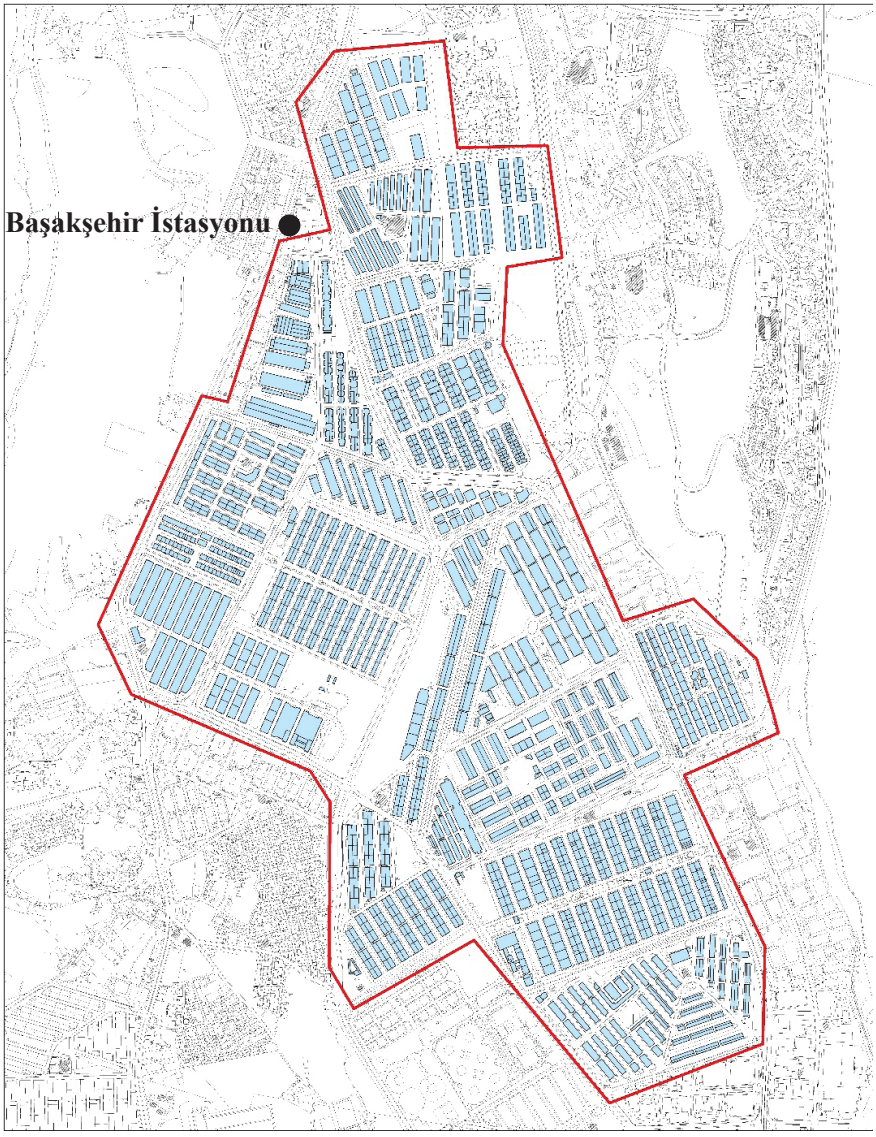
In urban applications, electricity, gas, water and communication infrastructure installations can be planned through the Geographic Information System (GIS). In case of problems, the relevant system can detect problem places, disconnect the point related to remote intervention on an urban scale and activate the scenarios of solving the problem on a local scale. However, in intervention scenarios, material information and maintenance and repair notes used in infrastructure systems can be recorded and this information can be easily accessed if desired. Open areas,

social activity areas, education and health structures that are intended to be located in the city can be planned in more feasible way using GIS data (Özcan ve Erol, 2018).

The implementation of green roof applications in organized industrial zones with GIS can provide significant benefits. With detailed studies to be carried out in GIS implementations, it is possibility to create developer analyses by entering the data of the land (rainfall, sunbathing, soil, etc.) and information about the qualities and needs of the plant species intended to be planted with the green roof application in question. In this study, the structures in the designated area were processed into Arcgis (GIS-based software).

From the processed data, the surfaces subject to the green roof application are stratified, the roof surfaces are code-designed and the square meter of each surface is automatically digitized. Thus, the total surface area of 885 roof surfaces was calculated as 125 hectares, and the average roof size was calculated as 708 m^2.

Figure 4. *Roof Surfaces in The Area Subject to Study at İkitelli Organized Industrial Zone*



Evaluation of Air Pollution Measurement Data

PM10, NO2 (Nitrogen dioxide), SO2 (sulfur dioxide), NH3 (ammonia), O3 (ozone) and CO (carbon monoxide) substances are used as the main air pollutants in the measurement studies of air pollution. If these substances are found above the values that should be present in the atmosphere, human health is negatively affected.

Table 2. *Contaminants and Health Effects (Url-8)*

Contaminant	Main Source	Health Effect
Sulfur dioxide	**Fossil fuel burn**	**Respiratory tract diseases**
Nitrous oxide	**Vehicle emissions, high temperature burning processes**	**Eye and respiratory tract diseases, Acid rains**
Particulate trap	**Industrial, fuel burn, agricultural and secondary chemical reactions**	**Cancer, heart problems, respiratory tract diseases, increase in infant mortality rates**
Carbon monoxide	**Missing burn product, vehicle emissions**	**Decrease in oxygen transport capacity combined with hemoglobin in the blood, death**
Ozone	**Nitrogen oxides caused by traffic and the exchange of volatile organic compounds (VOCs) with sunlight**	**Respiratory system problems, irritation of the eyes and nose, asthma, decrease in body resistance**

Air pollution; substances in the form of solids, liquids and gases in the air are present in the atmosphere in quantity, density and time, which will have a negative impact on human health and ecosystem. PM10 means particulate matter smaller than 10 mm in diameter. Particles larger than 10 µm accumulate in the nose or throat, while particles smaller than 10 µm pose a great risk as they can be pulled deeper into the lung. These microscopic particles are very small. Therefore, it can penetrate deeply into the lungs, and even smaller ones can leak into our bloodstream. Although PM10 is not the only air pollutant that adversely affects health, it has the largest share in the negative effects of air pollution on human health.

According to the International Agency for Research on Cancer (IARC), in cases of prolonged exposure to PM2.5, heart diseases, as well as diseases such as lung diseases and cancer, are likely to occur. As a result of the study conducted by the UK Health Forum and Imperial College London in collaboration with the Centre for Community Health England (PHE), it was estimated that a reduction of 1 µg / m3 in particulate air pollution in the UK could prevent around 50,900 coronary heart cases, 16,500 cases of paralysis, 9,300 asthma cases and 4,200 lung cancers over an 18-year period. (Url-9)

Transportation activities, industrial production and plastic abrasions are some of the factors that cause the amount of PM10 to increase. It can lead to an increase in the amount of PM10 in some pollutant gases and volatile organic compounds. PM10 pollution can be exposed from both direct and indirect sources.

In Turkey, interest and approach to air pollution increased after the 1960s. Air quality measurement stations were established by the Ministry of Environment and Forestry in 81 provinces between 2005 and 2007. Data is transferred to the data center by the hour through these stations. Monthly and annual reports are prepared with the evaluated data and raw data from the monitoring network is published simultaneously at www.havaizleme.gov.tr (Url-10).

Table 3. *National Air Quality Index Breakpoints (Url-8)*

İndexs	HKİ	SO_2 µg/m³	NO_2 µg/m³	CO µg/m³	O_3 µg/m³	PM10µg/m³
		1 Sa. Ort.	1 Sa. Ort.	8 Sa. Ort.	8 Sa. Ort.	24 Sa. Ort.
Good	0 - 50	0-100	0-100	0-5500	0-120	0-50
Medium	51- 100	101-250	101-200	5501-10000	121-160	51-100
Sensitive	101–150	251-500	201-500	10001-16000	161-180	101-260
Unhealthy	151– 200	501-850	501-1000	16001-24000	181-240	261-400
Bad	201– 300	851-1100	1001-2000	24001-32000	241-700	401-520
Dangerous	301– 500	>1101	>2001	>32001	>701	>521

Air quality value is classified as good between 0-50, medium between 51-100, sensitive between 100-150, unhealthy between 151-200, bad between 201-300 and dangerous between 301-500. Air quality measurement data for 25 September, 25 October and 25 November of 2019 and 2020 were obtained from Başakşehir MTHM station located on Hürriyet Boulevard in İkitelli Organized Industrial Zone. In this data, good, good, medium air quality measurement data were determined in September, October and November 2019, respectively. In September, October, November 2020, medium, sensitive, good air quality measurement data were detected respectively (Url-11).

Measurement values defined as good between 0-50 mean that air quality is satisfactory and air pollution poses little or no risk. Measurement values defined as mediums between 51-100 mean that air quality may pose moderate health concerns for some pollutants for a small number of people who are suitable but unusually sensitive to air pollution. Measurement values defined as sensitive between 101-150 mean that negative effects will occur for those with chronic conditions (Url-11).

7. CONCLUSION

Poor air quality leads to a negative situation in terms of human health and employee performance. Air that is oxygen-rich and pollutant-free can have a direct influence on improving urban quality of life.

It is planned to green the 125 hectares roof surface calculated in the work area. Considering the issues mentioned in the green roof applications section, it is recommended to apply an extensive green roof due to its high drought resistant, less construction and maintenance costs, low green roof layer thickness no significant load on the structure in later roof applications and no need for detailed technical infrastructure.

A study to measure the air filtration capacity of green roofs found that an extensive green roof of 1 (one) square meter removes pollutants from the air in the amount of about 0.22 lb. / year (0.1 kg / year) (GRHC, 2002). It has been confirmed by studies that plants growing on green roofs capture both nitrogen oxides and carbon dioxide (McRae, 2016).

A study conducted in the United States found that the above-ground part of a plant collects an average of 84 g of C / m2, and the roots accumulate 53 g of C / m2 during a vegetative season (Li and Babcock, 2014). Research conducted on an area of 4000 m2 in Singapore found that green roof surface, substrate and vegetation can capture up to 37% SO2 from the air (Cartera and Keeler, 2008). According to Bass and Currie (2008), it is predicted that a green roofing system can eliminate an average of 8.10−3 kg/m2 of contaminants in the air.

Although these studies cannot be transferred directly to other studies due to different meteorological conditions and the diversity of plant species used, they can contribute to our predicting possible results in the studies to be carried out. Within the scope of this study, it is predicted that if an extensive green roof is carried out on an area of 125 hectares, air particles can be cleaned in approximately 125 tons per year, a 30-40% reduction in pollutant gases and eliminate approximately 10000 kg/m2 of contaminants. Pollutant-free air will contribute greatly to the formation of a more livable urban space by making a positive contribution to biodiversity, air quality. In the long term, it will allow reductions in cases of coronary heart disease, paralysis, asthma and lung cancer. It breaks the effect of urban heat island, making temperatures normal in the city center. It can also contribute to improve the quality of life with the increase of environmentally friendly green spaces in urban space.

Based on the air quality measurement data for September 25, October 25 and November 25 of 2019 and 2020 from Başakşehir MTHM station, it is predicted that air quality, which is determined as medium level (moderate

health concern) and sensitive level (adverse effects for those with chronic conditions) at certain times of the year, can be achieved by cleaning the air particles in the amount of 125 tons per year with this application and reaching the measurement values defined as good between 0-50.

In green roof applications carried out on this scale, the use of geographical information systems can ensure that infrastructure, maintenance and repair works are carried out in a less costly way. Intervention plans for possible disaster situations (hail, insects, etc.) can be prepared and the most suitable plant species can be analyzed according to regional data and presented through the system. In order to ensure the highest efficiency from green roof applications, the right time and amount of irrigation can be carried out by calculating irrigation needs according to the amount of precipitation. A participatory organizational structure can be formed by receiving the demands and complaints of the organized industrial zone management and users through the system.

As a result, the construction of green roof applications on low-slope and large roof surfaces of organized industrial zones, the city's largest organized goods and services production facilities, can benefit the city ecologically, socially and economically. Ecological benefits can be counted as increased biodiversity, improved air quality and breaking the effect of urban heat island. Social benefits are positive effects on employee performance and providing recreation space. Economic benefits; effects such as reducing heating and cooling costs and improving employee performance can be counted with increased isolation. Thus, sustainability balance can be achieved in the context of supporting ecological, social and economic development.

In organized industrial zones, green roof applications can be mandated or encouraged by regulation. Reducing property taxes and operating fees from businesses can contribute to reducing the recovery time of initial investment costs, providing a more stimulus quality. In organized industrial zones where the most pollutants spread to the atmosphere due to the fact that the city's hosting the largest organized production facilities of goods and services, evaluating the unused roof surfaces with green roof applications may provide an opportunity to solve the problem on site.

REFERENCES

Alcazar, S. S. (2004). *Greening the Dwelling: A Life Cycle Energy Analysis of Green Roofs in Residential Buildings.* Master's Thesis, University of Toronto, Graduate Department of Civil Engineering, Toronto.

Cartera, T. and Keeler, A. (2008). Life-cycle cost-benefit analysis of extensive vegetated roof systems. *Journal of Environmental Management.* 87, 350–363.

Currie, B.A. and Bass, B. (2008). Estimates of air pollution mitigation with green plants and green roofs using the UFORE model. *Urban Ecosystem.* 11, 409–422.

Dunnett, N. and Kingsbury, N. (2008). *Planting green roofs and living walls (7th ed.).* Oregon: Timber Press.

EAD. (2006). *Green Roofs – Cooling Los Angeles A Source Guide.* Environmental Affairs Department, Los Angeles.

Ercan, B. (1992). *Çatı ve Teras Bahçeleri.* Master's Thesis, Yildiz Technical University, Institute of Science, İstanbul.

Erkul, E. (2012). *Yeşil Çatı Sistemlerinin Yapım Açısından İrdelenmesi.* Master's Thesis, Dokuz Eylül University, Institute of Science, İzmir.

GRHC. (2002). *Public Benefits of Green Roofs*. The Cardinal Group Inc., Green Roofs for Healthy Cities. Toronto.

Kaymak, Y. (2014). *Çevre Odaklı Mimari Tasarım Yaklaşımı Kapsamında Yeşil Çatılar ve Türkiye Ölçeğinde Uygulanabilirliği Üzerine Bir Araştırma.* Master's Thesis, Yildiz Technical University, Institute of Science, Department of Architecture, Architectural Design Program, İstanbul.

Kabuloğlu Karaosman, S. (2006). Yeşil Çatıların Ekolojik Yönden Değerlendirilmesi, 3. *Ulusal Çatı ve Cephe Kaplamalarında Çağdaş Malzeme ve Teknolojiler Sempozyumu*, İstanbul.

Li, Y. and Babcock, R. (2014). Green roofs against pollution and climate change. *A review Agron Sustain Dev.* 34, 695–705.

MacDonagh, L. P. (2005), *Benefits of Green Roofs, Implications.* 04 (08), 1-3.

McRae, A.M. (2016), Case study: A conservative approach to green roof benefit quantification and valuation for public buildings. *Eng. Econ*. 61, 190–206.

Magill, J. (2011). *A History and Definition of Green Roof Technology with Recommendations for Future Research*. Master's Thesis, Southern Illinois Üniversitesi, Soil and Agricultural Systems in The Graduate School, Department of Plant, Carbondale.

Osmundson, T.F. (1999), *Roof Gardens: History, Design and Construction*, New York: Norton Company.

Özcan, U. ve Erol, İ. (2018). Sürdürülebilir Yerel Planlamada Coğrafi Bilgi Sistemi, *International Journal of Social and Humanities Sciences*, 2(2), s. 85 – 96.

Snodgrass, E.C. and Snodgrass L.L. (2006). *Green roof plants: a resource and planting guide*, Timber Press, Oreon, ISBN-13:978-0-88192-787-0.

Tohum, N. (2011). *Sürdürülebilir Peyzaj Tasarım Aracı Olarak Yeşil Çatılar.* Master's Thesis, Istanbul Technical University, Institute of Science, Landscape Architecture Program, İstanbul.

Ulrich, R. S. (1984). View Through a Window May Influence Recovery from Surgery, *Science*, 224, s.420-421.

Uzun, A. (2002). Çatı Bahçesi Ders Notları*,* İstanbul.

Weiler, S.K. and Scholz-Barth, K., (2009). *Green Roof Systems – A Guide to the Planning, Design and Construction of Landscape Over Structure*, Hoboken, New Jersey: John Wiley & Sons, Inc.

Yüksel, N. (2013). *Dikey Bahçe Uygulamalarının Yurtdışı ve İstanbul Örnekleri ile İrdelenmesi.* Master's Thesis, Bahçeşehir University, Institute of Science, İstanbul.

Url-1 < *http://angelsdia.com/sumerbabilsanattapinakatasozleri/* >, accessed on 24.11.2020.

Url-2 < *https://emoji.com.tr/babilin-asma-bahceleri/* >, accessed on 24.11.2020.

Url-3 *<https://www.informagiovani-italia.com/guinigi_tower_lucca.htm>, accessed on 24.11.2020.*

Url-4*<https://www.buildmagazine.org.nz/index.php/articles/show/the-gen-on-green-roofs>, accessed on 24.11.2020.*

Url-5 < *https://www.csb.gov.tr/*>, accessed on 24.11.2020.

Url-6 < *http://portal.sanayigazetesi.com.tr/* >, accessed on 24.11.2020.

Url-7 < *https://www.iosb.org.tr*>, accessed on 24.11.2020.

Url-8*<https://sim.csb.gov.tr/Home/HKI?baslik=HAVZA%20%C4%B0ZLEME%20S%C4%B0STEM%C4%B0>*, accessed on 24.11.2020.

Url-9 **<***https://www.gov.uk/government/publications/health-matters-air-pollution/health matter-air-pollution* >, accessed on 24.11.2020.

Url-10 <*https://sim.csb.gov.tr/Intro/Uhkia*>, accessed on 25.11.2020.

Url-11 < *https://www.havaizleme.gov.tr*>, accessed on 25.11.2020.

Chapter 3

A RECREATİONAL POTENTİAL DETERMİNATİON METHOD: CASE STUDY İN ISTANBUL-AZİZPAŞA FOREST[1]

Assist. Prof. Dr. Alev Perihan GÜRBEY[2]

1 This study has been produced from the completed Doctoral Thesis of "Generating a Recreation Planning Model in İstanbul-Azizpaşa Forest" conducted at Istanbul University, Institute of Graduate Studies in Science, Landscape Architecture Department.

2 Assist. Prof. Dr. Alev Perihan GÜRBEY, Istanbul University-Cerrahpaşa, Faculty of Forestry, Department of Landscape Architecture 34473, İstanbul-Turkey.
E-mail: alevbk@istanbul.edu.tr, ORCID: 0000-0001-7659-0199

1. Introduction

People's values and behaviours are continually changing. Some cultural values that are common to societies continue in specific periods. However, the historical process, especially modern periods, show us that change is a rule rather than an exception. Cultural values govern our interaction with each other and with our physical environment. Cultural matters affecting our physical environment arise from the level of human perception of the natural environment. Today's human history is characterized by a gradual change from living in nature to living in cities. With this change, people, their relations with the natural environment; described many times to reconcile with discoveries and new forms of economic interaction (Miller, 1996). In addition to the agricultural revolution and industrialization, cities' unplanned rapid growth has seriously shaken the human-nature balance, bringing new definitions to people's relationship with nature (Walker, 1987). Alienation from the natural environment has accelerated, mainly due to the horizontal and vertical spreading of growing cities and building technology developments (Yaşlıca, 1986).

Industrial development physically changes the appearance of cities on the one hand. On the other hand, by affecting the business life socially, shortens working hours, increases the income level and causes the society to gain new social rights. As the social welfare level rises, the need for recreational activities increases, which means participation in recreational activities is one factor that shows the development level of the individuals who make up the society (Westover and Colins, 1987).

Today, as urban spaces become more artificial and monotonous, people living in the cities longing for nature and green and their recreational demands have increased. The proven healing benefits of nature on some health syndromes and psychological disorders such as stress have revealed the need and necessity for open green spaces. (Gül and Gezer, 2004). However, today's cities do not have sufficient quality and quantity of space for recreation because the development plans cannot be approved on time and cannot be implemented later. Besides rapid population migration, illegal housing, incompatibilities between the current situation-needs-necessary equipment, and the development plans' regulations affect the recreation areas (Özgür, 1992). Besides, the increase in land rents due to technological developments, political and economic rent fights also plays a role in decreasing open green spaces around the city, which should be reserved for public needs (Aslanboğa, 1988). The inadequacy of urban green spaces in terms of quantity and quality causes people to tend to forests with recreational functions in line with social needs and values (Miller, 1996).

Bringing vital functions such as organizing human-society-nature relations ensures and maintains natural ecological balance to cities depending on effective recreation planning. In economically developed societies, while cities are being planned, recreation areas are also designed considering the increasing population, and the recreation needs of people are always taken into consideration. Although many experts and organizations have made plans and suggestions for the Istanbul metropolis, the current situation is unsatisfactory. The recreation areas in the metropolitan of Istanbul suffer from a lack of system, physiological and organizational inadequacy rather than physical. The primary purpose is not to create recreation areas, but to prevent naturally existing recreational areas from being used with high capacity by other functions and from slipping under the weight of different purposes.

İstanbul is a city with unique natural characteristics (such as Bosphorus, Golden Horn, forests, waterfront areas), the most crucial metropolitan in Turkey by its location, a geographical area with widely influential economic power. İstanbul metropolitan should gain an identity, which will solve all problems caused by overpopulation, urbanization, illegal construction, unemployment and industrialization. It needs to become a city having high standards on the urban environment and a city to whom the authorities have developed particular methods to protect its natural habitat.

The problem which has the most critical pressure on natural resources is overpopulation. By considering demographic projections carried out previously, Istanbul's population will become 50 million by 2050. Inhabitants in İstanbul will put pressure on the forests scattered (northern Istanbul) North of the city for recreation needs. Besides this, dissemination of settlements, founding mines and quarries in forest lands, threats such as not to find a solution to article 2-B areas and unsystematic-unrestrained recreational uses are also elements of pressure. Nowadays, forest resources used for recreational purposes are being damaged.

In Turkey, the municipal plan regulations have stated that open space requirement per 1 person is ten m² by 02.09.1999. According to the Istanbul Metropolitan Municipality reports, the amount of open space per 1 person increased to 7.04 m² by 2019 (IBB, 2021). Comparing these values shows that Istanbul is not attained the norms yet. Achieving the standards can be possible by opening forest resources to access. Therefore, resource allocation based on recreational planning efforts has increased to provide these open-access forest resources from being damaged.

2.**A Resource-Based Recreational Planning Model**

Conservation and stable utilization of natural-cultural resources may be possible with recreation planning approach. The central theme of planning is; to examine the resources in terms of their values, compatibility assessment of the activities to be brought into the resources and determining the impact levels between actions, either positive or negative.

Activities must be developed where the necessary natural resources exist, and only when the environment can absorb the development's impact. In this context, various methodologies have been developed for determining a rational use of an existing resource that anticipates the possible long-term effects on the environment, the decisions taken and that takes into consideration all the existing relations between the natural resources and the planned operations (Toccolini and Angileri, 1992). Some of these methods use the "threshold" concept to establish the limits on the environment's ability to support the planned operations (Senes and Toccolini, 1998).

Threshold analysis is instead a set of rules within which we can see where and how thresholds should be overstepped to save the input of available means for further development. This partially assists in long-term planning operations (Malisz, 1969).

Site analysis is the first step of the planning process. Variables such as soil types, geology, natural drainage, geomorphology, hydrology, climate; other biotic and geodynamic themes are the main issues on the terrain. Thematic overlay of the site's biological variables identifies as the areas of contradiction, especially those unsuitable and risky for locating human activities. Above all, overlay allows us to identify possible environmental impacts in the long run (Pérez and Pérez, 2008).

In this study, a two-stage planning model based on the features discussed within site analysis and threshold concept is established. GIS (Geographic Information System) is used for the study of synthesis.

By the same token, since it is a developed by sample model, Istanbul-Azizpasa Forest area is selected as a sample area because of its closeness to the city centre, having no recreational activities, having pressure factors like settlement areas, mining and article 2-B areas and also having natural resources which are essential for recreation potential. Azizpasa forest is located on the European side of Istanbul and has 7398,7 hectares (Figure 1). The geographical alignment of the research area is 45°60'23" – 45°51'47" north latitude and 40°42'44" - 41°82'45" east longitude.

Figure 1. *İstanbul-Azizpaşa Forest Location Map*

The stages of the established model for this study are;

a) Identification and assessment of natural resource values (water, soil and topographic structure) exist in the sample area based on conservation approaches.

b) Determination of settlement, agriculture, and article 2-B areas will be excluded from planning and mining areas with limited natural resources value. It may be planned and opened to access as a forest land by the mid-short term rehabilitation studies.

c) Determination and assessment of positive (vegetation and transportation) and negative (state of preservation, closeness to settlements and conservation areas) factors affect the area's recreation potentials.

d) Examination of recreational potential values' distribution depends on the conservation thresholds of the site's area and priorities that will be open for use.

2.1. Stage I: Conservation Thresholds Method Intended for Recreation

Areas having forest characteristics must be handled with a conservatory approach to maintaining their features and functions. This method established to identify and assess Istanbul-Azizpasa Forest's restrictive natural resource values intended for recreation based on a conservation approach.

In the synthesis study, the maps created by the sample area's datasets and databases generated by these maps identify the conservation approach. Datasets which are evaluated as part of existing constraints are consist of three primary datasets;

a) Water resources (surface water, dam lake and dam basin),

b) Land resources (soil, land use capability classes),

c) Topography (slope analysis).

Water resources are vital in terms of planning. Now, water is evaluated as a semi-renewable resource for being at risk of losing its renewable resource property by existing human uses. Water is handled as an essential component within the framework of achieving spatial analysis in the sample area.

All data located in each dataset, transferred to the assessment matrix of conservation thresholds and all data rated in five interval scale,

1 Less important

2 Secondary importance

3 Strong importance

4 Very strong importance

5 Extremely strong importance.

By obtaining the experts' opinion and considering environmental sustainability's main principles, subjective scoring was done in the assessment matrix (Table 1). An assessment approach is used in scoring that;

- Meets the basic needs of future generations (not only today) that based on natural resources,

- Protects and permits the use of not/limited renewable natural resources that forms the natural structure (forests, water resources, valuable lands, etc.).

A geographical information layer needs to be generated for every subtitle of datas stated in the matrix. A scoring value designates for every layer is assigned to the related attribute class in the database.

To achieve Conservation Thresholds Synthesis; land use capability classes' map, slope class map (three slope class) and surface water resources' map need to be overlaid using GIS. Determined points entry are performed with the help of probability matrixes by querying the obtained database. The layer of total values will be generated on the spatial base within the

area border. A three-class Natural Breaks Classification method will be applied to this new layer to determine the area's conservation thresholds. Depending on these threshold values, natural resource characteristics can be categorized into three groups named as areas with extremely strong, strong and less importance.

Table 1. *Assessment Matrix of Conservation Thresholds Analysis*

ASSESSMENT MATRIX OF CONSERVATION THRESHOLDS					
WATER					
Surface water resources	**1**	**2**	**3**	**4**	**5**
Surface water resources (Dam lake)					**X**
Dam basin					**X**
Rivers in basin				**X**	
Dry rivers in the basin			**X**		
Rivers out of the basin				**X**	
SOIL AND LAND					
Soil (Land-Use Capability Classes)	**1**	**2**	**3**	**4**	**5**
1. Class					**X**
2. Class					**X**
3. Class				**X**	
4. Class				**X**	
5. Class			**X**		
6. Class			**X**		
7. Class		**X**			
8. Class					**X**
Slope (%)	**1**	**2**	**3**	**4**	**5**
0-15	**X**				
15-30			**X**		
>30					**X**

2.2. Stage II: Recreational Potential Determination Method for Forest Lands in Urban Areas

For having forest characteristics under settlement pressure in urban areas, Istanbul-Azizpasa Forest considers positive and negative impacts of biological and cultural data necessary in terms of recreational potential.

In the second stage of the planning model, an analysis is established for alternative forest lands to access recreational purposes. This analysis has three primary datasets that affect recreational potential, these datasets are;

a) Positive factors (vegetation and transportation),

b) Negative factors (state of preservation, closeness to settlements and conservation areas) and

c) Conservation thresholds values.

A subjective scoring matrix generated by these datasets contributes to the area's recreational potential (Table 2). Contribution levels are rated in five interval scale;

1 Having very low recreational potential

2 Having low recreational potential

3 Having average recreational potential

4 Having high recreational potential

5 Having very high recreational potential

Table 2. *Assessment Matrix of Recreational Potential Analysis*

ASSESSMENT MATRIX OF RECREATIONAL POTENTIAL ANALYSIS					
POSITIVE FACTORS					
Vegetation (Stand)	**1**	**2**	**3**	**4**	**5**
Gap					**X**
Broad-leaved stand					**X**
Mixed stand				**X**	
Coniferous stand	**X**				
Degraded broad-leaved stand				**X**	
Degraded coniferous stand		**X**			
Coppice stand			**X**		
Slope (%)	**1**	**2**	**3**	**4**	**5**
0-20					**X**
>21	**X**				
Proximity to transportation	**1**	**2**	**3**	**4**	**5**
0-500 m.					**X**
501-1000 m.					**X**
1001-1500 m.				**X**	
1501-2000 m.			**X**		
2001-2500 m.		**X**			
2501-3000 m.	**X**				
NEGATIVE FACTORS					
Settlement pressure	**1**	**2**	**3**	**4**	**5**
0-500 m.	**X**				
501-1000 m.	**X**				
1001-1500 m.		**X**			
1501-2000 m.			**X**		
2001-2500 m.				**X**	

2501-3000 m.						**X**
3001-3500 m.						**X**
Closeness to protected areas		**1**	**2**	**3**	**4**	**5**
Interior conservation area	**Natural areas with less and secondary importance**		**X**			
	Natural areas with strong importance	**X**				
0-200 m.			**X**			
201-400 m.			**X**			
401-600 m.				**X**		
601-800 m.					**X**	
801-1000 m.						**X**
1001-1200 m.						**X**
CONSERVATION THRESHOLD VALUE						
Natural areas with less and secondary importance						**X**
Natural areas with strong importance				**X**		
Natural areas with very strong and extremely strong importance		**X**				

Scoring system is built based on the following data;

2.2.1. Positive Factors

Vegetation: It is observed that open lands and broad-leaved stands in forest areas prioritize the recreation area's installations (Pehlivanoğlu, 1987). Therefore, these areas have taken 5 points for having very high recreational potential. Other stand distributions have also taken points according to their recreation potential.

Slope: In the light of the findings of survey and inventory works, it has emerged that the slope of the land is one of the most important limiting factors on recreational activities. As a result of the analysis, areas with 0-20 % slope value are suitable, areas having 21-40 % slope value is not economically ideal for recreational activities (National Parks Acts 2873, 1983). Areas having 0-20 % slope value are rated as areas having very high recreational potential.

Proximity to transportation: Recreation potential of an area makes sense as long as it can be reached. In other words, if many people will benefit from a site and if those people are not faced with a significant transport problem to get over there, that area's conformity to recreation will increase significantly (Gülez, 1990). In terms of urban planning principles and planning techniques, it is known that pedestrians walking

distance radius is 500-750 m. This specified range is also appropriate to the walking distance of 15-20 min. that mentioned in the attainability level studies for recreation potential. Thus, the recreational potential score is assigned according to the distance to the area's main transport routes.

2.2.2. Negative Factors

Closeness to protected areas: In planning, nominal conservation and use regulations that bring out different regions, called "Zoning System" are being implemented. According to the technical prospectus for recreational areas (Anon., 2005), the buffer zone is a transition area between the protection and utilization zone. It is established to maintain the protected area's natural and cultural resources against usages' influence and effect. Buffer zone distance for protected areas is 200 meters. (Geray ve Akesen, 2001). Sites nearby the protected areas have low recreational potential.

Settlement pressure: Changes in natural resources occur as a result of past and present human activities. Industrial development profoundly impacted landscape pattern, forest composition, habitat availability, water resource integrity and wildlife abundance. These impacts are caused by the combination of land clearing for roads, agriculture, clear-cuts for settlement installation and human-caused fires.

Zones of influence are areas within forest stands that are impacted by outside activities. This zone for different impacts usually extends from as little as 1 meter up to 500 meters. When it comes to a more intense effect, it can be up to 1 kilometre. As mentioned above, closeness to settlement areas decreases recreational potential (SFF, 1999).

Conservation thresholds synthesis values

The sample area is divided into three parts according to the conservation threshold values;

- Natural areas with very strong and extremely strong importance,
- Natural areas with strong importance and
- Natural areas with less and secondary importance.

Upon natural resource value, the area ratio can be opened for recreational use is high in natural areas with less and secondary importance. This increases the recreational potential value of the area.

To designate forest resource's recreational potential, the maps are used which code values of positive-negative factors' database and point values in the assessment matrix of recreational potential analysis, assigned to the related attribute classes.

All layers for positive and negative factors and the conservation threshold analysis layer need to overlay using GIS. A layer of total values will be generated on the spatial base within the area border by examining the obtained database. The layer of total values will be considered under three main group with the help of the three-class Natural Breaks Classification method. Forest area can be categorized as areas with low, average and high recreational potential.

3. Findings

3.1. Conservation Thresholds Method

After point entries stated in the Assessment Matrix of Conservation Thresholds by querying the database, Azizpasa Forest' land use capability classes' map, slope class-map and surface water resources' map overlayed using GIS. A layer of total values was generated and evaluating this layer with three-class Natural Breaks Classification method, the area's conservation thresholds point range is shown in Table 3, (Figure 2). The spatial distribution of Azizpasa Forest's conservation thresholds is also shown in Table 4 (Figure 3).

Table 3. *Natural Resource Characteristics Depend on Conservation Threshold Values*

Natural Resource Characteristics	Conservation Thresholds (Point)
Areas with very strong and extremely strong importance	**9-18**
Areas with strong importance	**4-8**
Areas with less and secondary importance	**0-3**

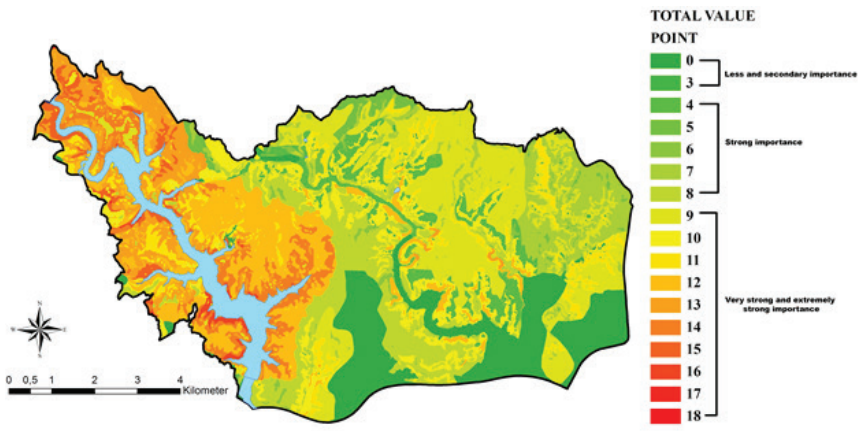


Figure 2. *Map of Total Values for Conservation Thresholds*

Table 4. *Spatial distribution of Azizpasa Forest's Conservation Thresholds*

Conservation Thresholds	Area (Ha.)
Natural areas with less and secondary importance	1356
Natural areas with strong importance	1812.7
Natural areas with very strong and extremely strong importance	4230
Total	7398.7

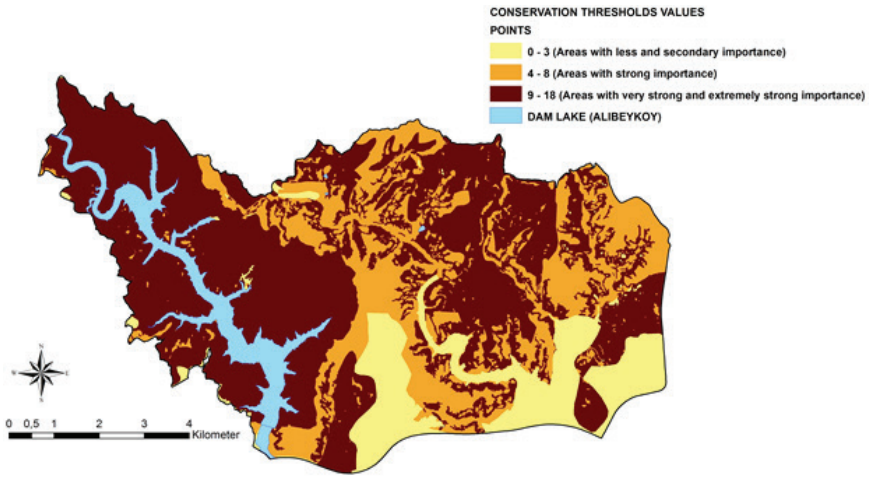


Figure 3. *Distribution of Conservation Thresholds*

According to the sample area's conservation threshold data and forest management plans designated for recreational planning model, a planning proposal is not established to non-forest areas (settlement and agriculture areas) and article 2-B areas. Mining areas within Azizpasa Forest have limited natural resource value, but they can be planned and opened to access as a forest land by the mid-short term rehabilitation studies. Spatial distribution of areas that are excluded from planning in Azizpasa Forest is as shown in Table 5.

Table 5 *Spatial Distribution of Out-Of-Planning Areas in Azizpasa Forest*

Out-of-planning areas	Area (ha)
Settlement areas	964,85
Agriculture areas	270,15
Article 2-B areas	187,79
Total	1422,79
Mid and short term planning areas	
Mining areas	188,74
Total sum	1611,53

When the map layers that belong to areas that excluded from planning, analyzed in GIS, it is seen that a portion of article 2-B areas are being used as agriculture or settlement field. Spatial distribution of article 2-B areas used for agriculture and housing are as shown in Table 6.

Table 6. *Distribution of Article 2-B Areas Used for Agriculture And Settlement*

Spatial distribution of article 2-B areas	Area (ha.)
Settlement areas (article 2-B status)	48,71
Agriculture areas (article 2-B status)	41,57
Total	90,28

After removing these areas in article 2-B status, 916,14 ha residential area and 228,58 ha agriculture area remains.

Out-of-planning areas' layers and Conservation Thresholds Analysis map are overlayed by using GIS. After that, it is determined that 5877,45 ha of the area is going to be planned. Spatial distribution of planning areas on conservation thresholds is as shown in Table 7.

Table 7. *Spatial distribution of planning areas on conservation thresholds*

Conservation Thresholds	Area (Ha.)
Natural areas with less and secondary importance	545,8
Natural areas with strong importance	1555,97
Natural areas with very strong and extremely strong importance	3775,68
Total	5877,45

The dam lake (368,75 ha) is also extracted as well as the out-of-planning areas. After that, it is determined that 5508,7 ha area having forest characteristics will be planned.

3.2. Recreational Potential Determination Method

After point entries stated in the Assessment Matrix of Recreational Potential Analysis by querying the database, a layer of total values was generated (Figure 4). The layer has considered under three main group with the help of the three-class Natural Breaks Classification method (Table 8). After considering the total values layer for recreational potential, distribution of planning areas' recreational potential is shown in Table 9 (Figure 5).

Table 8. *Analysis Points Based on Recreational Potential Value*

Recreational potential value	Analysis points
Areas with low recreational potential	6-13
Areas with average recreational potential	14-18
Areas with high recreational potential	19-26

Table 9. *Spatial Distribution of Planning Areas' Recreational Potential*

Recreational potential value	Area(ha)
Areas with low recreational potential	1342,65
Areas with average recreational potential	2817,19
Areas with high recreational potential	1348,86
Total	5508,7

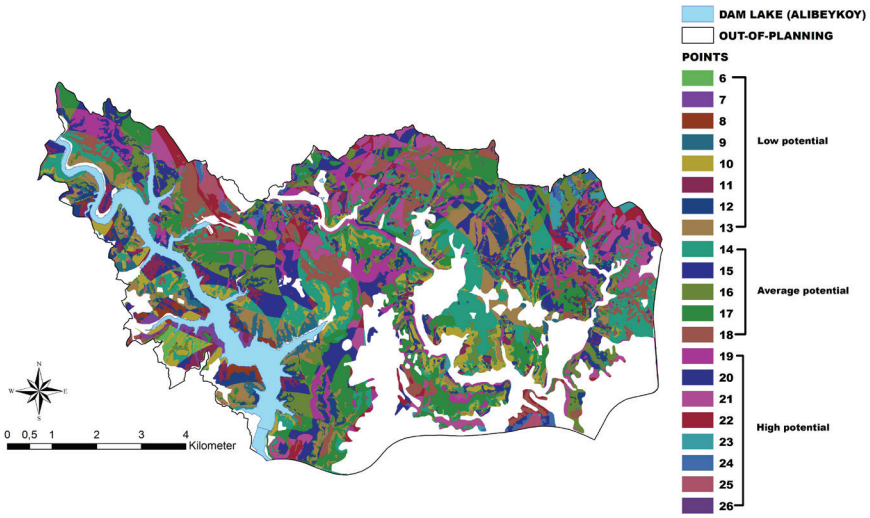


Figure 4. *Map of Total Values for Recreational Potential*

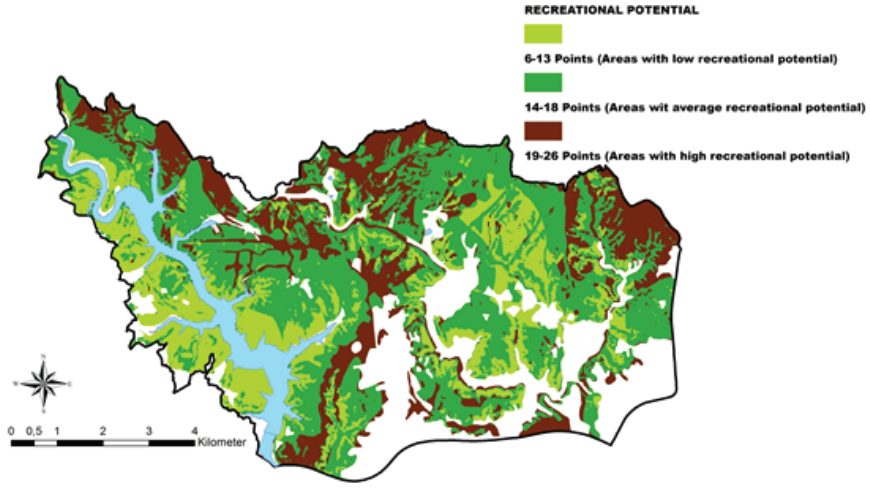


Figure 5. *Distribution of Recreational Potential*

4. Summary and Conclusions

Non-living natural factors' data of Azizpasa Forest as water resources, soil and geomorphological structure are analyzed using conservation thresholds analysis for recreation. Water resources are in danger of extinction because of global warming. Due to the formation of the soil, and geomorphological structure take many years; these factors have an immense effect on the natural structure and resource value of the area. Other non-living natural factors of geology and climate data were not taken into consideration. There is no geological formation that adds value to the research area planned for recreational purposes. Also; there is no

difference in elevation and topographic appearance that make a difference in temperature, the sun is not affecting recreational activities due to the forest structure have a closure of 50%, the precipitation conditions that do not make a difference in urban forests in terms of recreation and northeast aspects that affected by dominant wind direction has a small range of 9 %. According to the 6831 Forest Act research area, the forest regime is subject to the forest regime, and natural factors can be eliminated, the value of the resources with human action (fire, etc.) thus vegetation and fauna data have not defined the synthesis of conservation thresholds.

Forest lands are strict preservation areas according to the Forest Act 6831 thence settlement pressure was discussed in the research area's boundaries within this study.

It should not be forgotten that every urban area and every natural source have a different ecosystem and natural worth. Therefore, the pressure components and the other variables that affect recreation potential can change due to the character of urban and its source values. The model has a scoring system which can be used by applying all the mentioned differences.

To have accurate results from these syntheses; evaluated databases should be distinguished and efficient on recreational use and restricted as a source value in this model's application field.

According to the "Resource-Based Recreational Planning Model" created in the scope of this study; areas with high recreational potential have the priority to be opened for use. However, the intensity of use varies depending on the conservation thresholds of the area. Areas with average recreational potential will be the second priority areas to be opened for use.

What is needed to provide natural sources' sustainability in urban areas is to determine the worth of detail, control the inventory periodically, and preserve. Natural and cultural factors and legal regulations changes should be updated on the digital platform's maps.

It is a threat for the forest resources that the urban development tendency is through to the North. Because of the absence of legal legislation to avoid this process; it has become necessary to restructure urban management, renew the municipal ideology and compose new urban policies. Hence, the metropolitan municipality should prevent that faulty urban development by redefining their assessments.

Averting the increase of urbanization, especially in the large metropolitans such as Istanbul can only be possible by applying efficient policy instruments.

Istanbul is a great metropolis and has not enough active open spaces yet. Open space norms can be implemented by revising the municipal plans. The spaces should be created to respond to the recreation need of the citizens in the residential neighbourhood. Consequently, the pressure on the open spaces of urban can be lightened.

Planning of the local forests should have a stabilizing and regulating characteristic on social pressure. For this purpose, mentioned planning should be progressive, variable, leading and flexible in itself.

An initial decision should belong to the natural source of recreational planning. Excessive and false uses of natural resources cause losing the renewing ability and are being harmed. So far, most people have tried to control nature, but the result is the people have suffered in any case. They were, therefore planning actions to be compatible with nature a must. This study will be an example of future recreation planning studies based on natural sources in urban areas.

REFERENCES

Anonymous (2005). Mesire yerleri teknik izahnamesi, http://www.milliparklar.gov.tr/mesire/teknikizahname.htm,

Geray, U. ve Akesen, A. (2001) Av ve yaban hayatı kaynaklarının sürdürülebilir yönetim, Sürdürülebilir avcılık için temel eğitim kitabı, T.C. Orman Bakanlığı, Milli Parklar ve Av-Yaban Hayatı Genel Müdürlüğü, Eğitim Yayınları-1, Sf: 75-152, Başak Matbaacılık, Ankara, 975-8273-32-9.

Gül, A., ve Gezer, A. (2004) Kentsel alanda kent ormanı yer seçimi model önerisi ve Isparta örneğinde irdelenmesi, I. Ulusal Kent Ormancılığı Kongresi, 9-11 Nisan 2004 Ankara.

Gülez, S. (1990). Ormaniçi rekreasyon potansiyelinin belirlenmesi için bir değerlendirme yöntemi, İ.Ü. Orman Fakültesi Dergisi, Seri A, Cilt 40, Sayı 2, s:132-147, İstanbul.

IBB, (2021). 2019 Yılı Park Bahçe ve Yeşil Alan Verileri https://data.ibb.gov.tr/dataset/2019-yili-park-bahce-ve-yesil-alan-verileri/resource/1d9762dc-b3ea-43f1-a46b-2eb0884d26e1

Malisz, B. (1969). Implications of threshold theory for urban and regional planning, Journal of the town planning institude, 55(3), 108-110.

Miller, R. W. (1996). Urban forestry planning and managing urban greenspaces, Prentice Hall, New Jersey, USA, 0-13-458522-4.

Özgür, H. (1992). Kent ormancılığı ve yeşil kuşaklar, Ekoloji-Çevre Dergisi, Haziran, 1(3), ss. 30-35, İzmir.

Pehlivanoğlu, T. (1987). Belgrad Ormanı'nın rekreasyonel potansiyeli ve planlama ilkelerinin tesbiti, Doktora Tezi, Ankara.

Pérez, R. G., Pérez, R. A. (2008). Analyzing urban poverty, GIS for the developing for the world, ESRI Pres, New York, 9781589481510.

Senes, G., Toccolini, A. (1998). Sustainable land use planning in protected rural areas in Italy, Landscape and Urban Planning, Vol. 41, 107-117.

SFF (Silva Forest Foundation), (1999). Ecosystem-based conservation planning projects Horsey Creek, http://www.silvafor.org/programs/ebp/horsey.htm

Toccolini, A., Angileri, V. (1990). Il modelo "Metland" Metropolitan Landscape Planning Model: Applicazione ad una realta territoriale Italiana. Genio Rurale 2, 55-65.

Walker, R. P. (1987). Land use transition and deforestation in developing countries, Geographical Analysis, 19(1), 18-30.

Westover, T. N. and Colins, J. R. (1987). Perceived crowding in recreation settings: an urban case study, Leisure Science, 9, sf: 87-99

Yaşlıca, E., (1986). Kentsel yakın çevre alanlarının rekreasyonel amaçlı düzenleme kararlarını belirleyen etmenler ve Antakya kentsel yakın çevresinde uygulanması, Doktora Tezi, Gazi Üniversitesi.

Chapter 4

NATURE-BASED TOURISM AS A RURAL REVITALIZATION TOOL: AN ANALYSIS FOR TURKEY

Sevgi OZTURK[1]
Oznur ISINKARALAR[2]

1 Associate Professor, Kastamonu University, ORCID ID: 0000-0002-3383-7822
2 Research Assistant, Kastamonu University, ORCID ID: 0000-0001-9774-5137

1. Introduction

In industrialization, urban areas growing in proportion to population have become a center of attraction in consequence of the opportunities offered to people (Kalayci, Bulan and Ayan, 2015; Ozturk and Isinkaralar, 2018). Urban rent caused by increased urbanization has become more important than ecological and historical heritage (Ozturk et., al., 2018). The horizontal and vertical growth of urban areas has disrupted the urban-rural balance (Belkayali and Ayan, 2018). Consequently, many small towns and villages have started to struggle to maintain vitality and life.

Rural areas are frequently discussed in Turkey as the center of agricultural production. The necessity of not having a young generation devoid of external knowledge, technology, and inputs in labor-intensive production indicates population loss in rural areas (Jansen, 2015, Bernstein, 2014; Berg, Hebinck and Teixeria, 2018). On the other hand, problems in urban areas due to the increasing population have been an essential tool for rural areas to gain new meanings by leading decrease in quality of life and the axis of the relation between man and nature (Yenigül, 2016, Ozturk ve Isinkaralar, 2018). From the perspective of national development, an important development tool used in many countries, especially in rural populations, is less than the tourism sector (Turker and Ozturk, 2013; Alaeddinoglu et al., 2013). Nature-based tourism has become a potential savior for rural communities against the effects of long-term population loss, aging, migration to urban areas, and reduced agricultural profitability (Hasan, 2017). However, rural planning is often overshadowed by urban planning.

1.1. Natura Based Tourism for Rural Revitalization

The term “revitalization” has become popular in recent years. It has started to be used to define the change in urban planning and landscape architecture and various forms of revival, such as material state and fitness. In the mid-19th century, the idea and definition of revitalization have emerged in the United States (Wilczkiewicz and Wilkosz-Mamcarczyk, 2015). Supporting tourism is an essential strategy for implementing renewal in rural areas (Eid-Ul Hasan, 2017).

Tourism is presented as one of the limited alternatives for rural communities with the potential to promote rejuvenation and regional development in the academic environment (Hall, 2007, Muller and Jansson, 2007). Because tourism is considered a resource-intensive industry (Lu and Nepal, 2007). Increasing household income, improving living standards, creating more jobs and employment opportunities, and enhancing the flow of tax revenues are among the positive economic effects of tourism (Andereck et al., 2005; Choi and Sirakaya, 2006; Ko and

Stewart, 2002; Rasoolimanesh et al., 2017). Also, indigenous tourism is often seen to facilitate socio-economic benefits to indigenous individuals, communities and host regions. Like all types of tourism, the development, implementation, and management of domestic tourism should be supported by sustainable development and natural resource management (Carr et. al., 2016). Researchers have written about the importance of indigenous tourism (Altman and Finlayson, 1993; Bunten and Graburn; 2009; Butler and Hinch, 1996; Notzke, 1999; Ryan and Aicken, 2005; Smith, 1989; Smith and Brent, 2001; Smith and Richards, 2013; Sofield, 1993; Zeppel, 2006) since the early 1990s. And it is indicated in Carr et. al., (2016).

Different tourism models are described to the conservation of nature and landscape, a life of historical buildings, and support "traditional" life. Nature-based tourism is defined as tourism that includes traveling to relatively unspoiled natural areas to examine the scenery and its wild plants, animals and enjoy them (Boo, 1990; Luzar et. al, 1995). Also, nature-based tourism may effectively promote the conservation and management of natural resources for long-term, sustainable economic development (Kutay, 1989; Fredman et. al. 2012). Therefore, geography of natural richness, including the world's largest canyon, is handled in the study. Thus, the geography of natural richness, including the world's largest canyon, is dealt with in the course.

2. The implementation of IPA

The study area, Devrekani Stream Basin, a sub-basin of the Western Black Sea Basin, is one of Turkey's 26 main basin areas (Figure 1). The lack of a detailed tourism study in the area increases the importance of the research. There are certain parts of Devrekani, Pinarbasi, Seydiler, Azdavay, Daday, and Cide on the basin's border, which is 2343 km^2 (Ozturk and Tonuk, 2014).

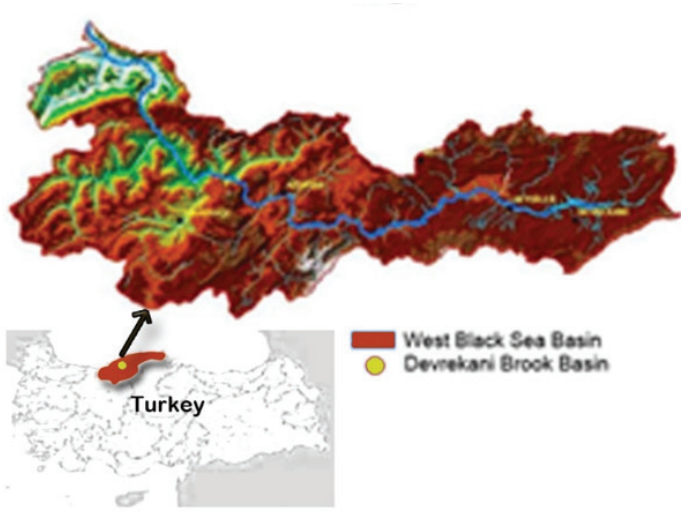


Figure 2. Location of the Devrekani Basin

Black Sea area into the workspace Area SPO, an official organization that promotes regional planning studies in Turkey, according to the ranking made by the sophistication ranked 5th of 8 in Turkey (probe's 3rd district) is located.

The 5th place of the Black Sea Region in the interregional ranking with its socio-economic development index value is reflected in all indicators in general. GDP per capita in the region is about half of the country's general level. This situation reveals that the economic and social development level of the area is below the country's values. However, the part has necessary tourism resources and the potential of these resources cannot be evaluated.

In this study, we find that the Devrekani River basin, which is the subject of the research, is one of the places integrated with the natural environment in terms of its geographical location and location. It is possible to organize all kinds of sportive activities (mountaineering, trekking, caving, horse-riding, transhumance, agricultural tourism, etc.) based on nature and daily visits, including recreational activities, agricultural product exchange, eating, and drinking. Therefore, managers' completion of the necessary infrastructure works in these areas will contribute to rural revitalization. At this point, it is crucial to work with a team of different disciplines and a holistic approach (Birisci et. al., 2018).

In the future, new forms of tourism, based on nature-based tourist activities, will replace mass and sea tourism. Hasan (2017) argues that social revitalization can be successful in rural revival through nature-based tourism by taking a sample settlement in Japan. The research aims to evaluate the existing consumer services and management components in

the field within the study's scope. It offers a nature-based tourism model, with the spatial potentials of landscape and environmental sensitivity, and evaluates them with Quadrant Analysis and producing suggestions according to the results obtained.

The research was carried out in 3 stages. In the first stage, field research was carried out and essential attraction points were determined. These areas are Sarpunalinca, Buz, Medil, Buzluk, and Ilgarini Cave, Balikligol, Kinik Archeological Site, Passing Strait, Azdavay and Ilica Waterfall, Horma, Catak and Valla Canyon, Agli Castle, and Zumrut Village.

Figure 2. Devrekani basin and tourism resource values

In the second stage, a checklist has been prepared from the literature (Alaeddinoglu et al., 2014) for 16 attraction points covering six districts in the basin area. The index consists of two parts. In the first chapter, the criteria of consumer services, and management components in the current service structure and in the second chapter, landscape analysis and environmental susceptibility standards in field potentials are located.

Table 1. Control list

1. Current Service Structure		**Consumer Services (quantal)**	**Management Components (Yes-No)**
	1	**Souvenir shops**	**Existence of tourism development plan**
	2	**Barbecue places and picnic tables**	**Availability of the field map**
	3	**Clean drinking water**	**Existence of non-tourist structures**
	4	**First aid or telephone**	**Quality of roads and accessibility of the area**
	5	**Trash cans**	**Presence of relevant brochure or information from the Internet**
	6	**Whether it is recognized by GPS**	**Efforts to protect the natural environment**
	7	**shelters**	**Local community participation**
	8	**Welcome places**	**Minimization of potential damage to tourists**
	9	**Scenery viewing points**	**Travel agent taking part in the tour program**
	10	**Accommodation and dining facilities**	**Being part of a tour**
2. Spatial Potentials		**Landscape Analysis (1, 2, .., 9,10)**	**Environmental Sensitivity (1, 2, .., 9,10)**
	1	**Variety of landscapes**	**Tracks caused by humans**
	2	**View quality and width of view**	**Vehicle traces**
	3	**Geological feature of the area**	**Level of environmental erosion**
	4	**Flora diversity**	**Waste status**
	5	**River or lake edge**	**Intensity of weeds**
	6	**Recreation opportunities and adventure opportunities**	**The degree of untouchability of the area**
	7	**Rocky, cliff or canyon**	**Protection using balance**
	8	**The level of wild life**	**Proximity to the settlement**
	9	**Fauna diversity**	**Destruction level of natural vegetation**
	10	**Uniqueness and unusualness of space**	**The quarry, the mineral, which disrupts the natural structure of the area. buildings**

In evaluating the prepared checklist, the value of each category of landscape analysis and environmental susceptibility scored according to the significance level from 0 (the lowest) to 10 (the highest). While determining the attraction points, consumer services are either evaluated as present or absent, and management components are as yes or no. While filling out checklists experts' (photographer, archaeologist, tourist geographer), opinions were consulted on the subject. In this process, landscape architects, urban planners, GIS expert forest engineers, and tourism experts have been involved.

Checklist implementation and analysis for the attraction points are the last stages of the study. In the analysis of the data, Quadrant analysis, which is often used in decision-making mechanisms, was used to determine which areas' current status and potential vary according to average values.

Quadrant analysis is a method in which data distributions are handled in four quadrants depending on average costs. This method is used in many types of research in different disciplines such as expectation satisfaction evaluation in tourism areas (Huh et al, 2008), importance-performance analysis of parks (Taplin, 2012), performance-customer satisfaction analysis (Matzler et al., 2004).

3. Findings

The experts evaluated the selected source values using the checklist. According to this, the Current Servıce Structure and Spatial Potentials values of the fields were compared. In the context of the Current Servıce Structure evaluation, Cide received 10 points in consumer services while other attraction centers received two and lower scores. It can be said that the distance between the different areas from the center is useful in this situation. In terms of Management Components, Cide got 9 points, while the Buz, Buzluk, Sarpun, Medil Caves, and Pass Strait remained within the range of 0-2 and the other areas scored 6 and higher.

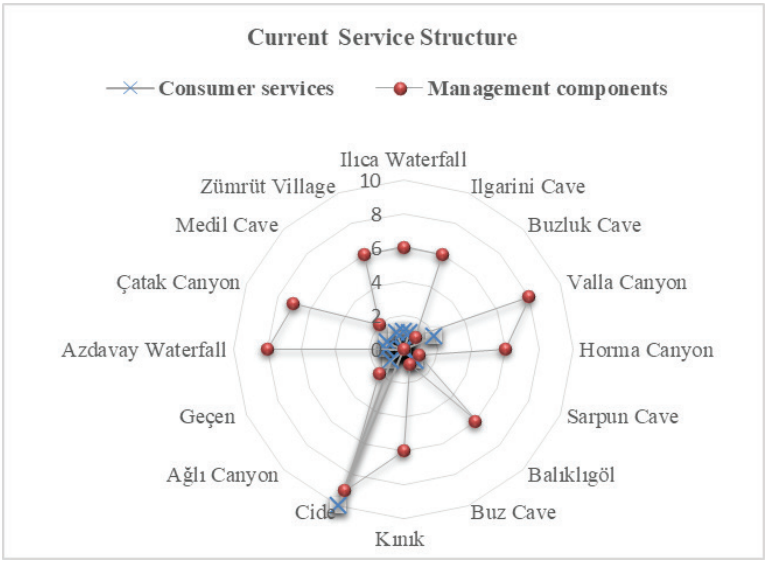


Figure 3. Current service structures of attraction centers

In the Spatial Potentials of the area, all centers in Landscape Analysis scored five and above. The highest scores are Valla Canyon with 9 points and Horma, Catak Canyons, and Cide with 8 points. Kinik and Agli Canyon are the lowest landscapes with 5 points. The values are very close to each other according to the Environmental Sensitivity Analysis. Ilica Waterfall, Agli Canyon, and Gecen Strait got the lowest with 5 points, Valla and Catak Canyons have the highest value with 7 points.

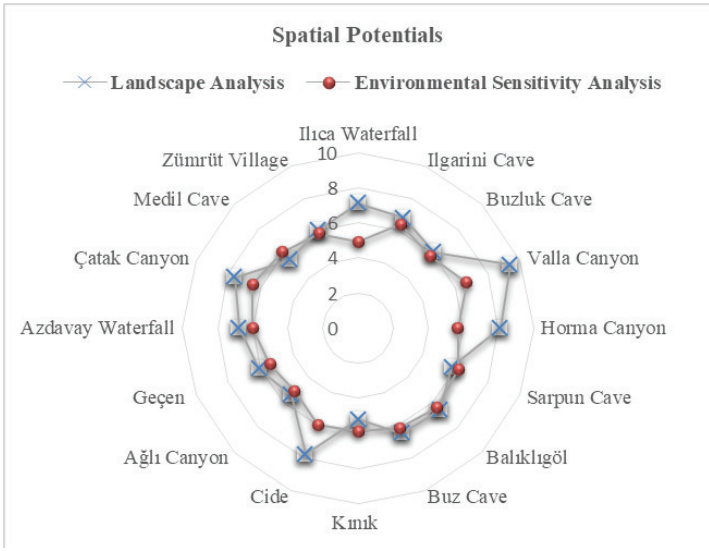


Figure 4. Spatial potentials of attraction centers

The spatial distribution of the existing structure and potential of the source values is given in Figure 5. According to this, it is observed that existing services decrease as they move away from the shore. At the same time, a more balanced distribution is seen when the potentials are evaluated.

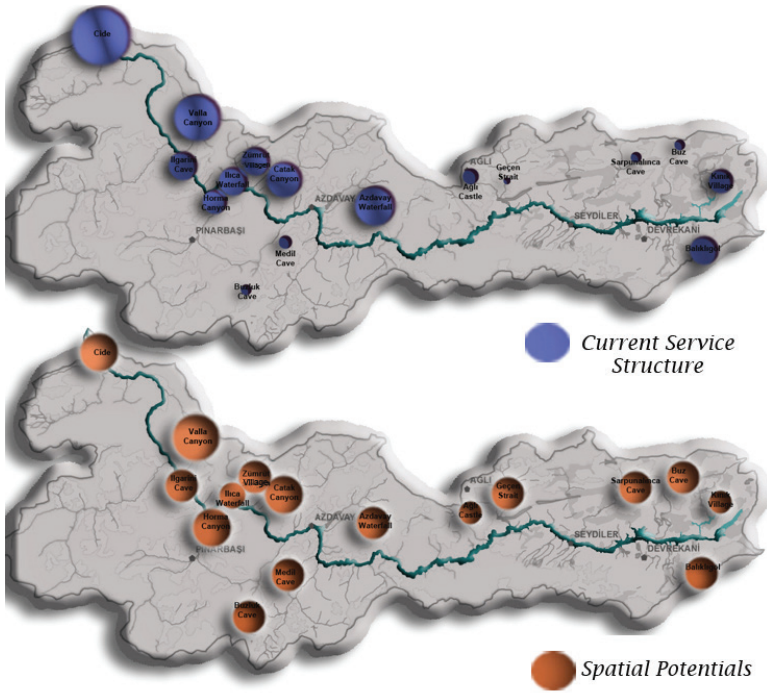


Figure 5. Current structure of source values and spatial distribution of their potentials

The fields were compared with Quadrant analysis following the spatial evaluation of existing structures and potentials depending on measurements made. According to this study, Zumrut Village, Ilica Waterfall and Kinik, located in the Quarter III, have high potential values and weak existing infrastructure. These areas need to be analyzed as to their primary priority and their high potential. These areas need to be analyzed primarily and their high prospects should be evaluated.

In Quarter I, the Agli Canyon, the Medil Cave, the Buzluk Cave, and the Sarpunalinca Cave are the areas that are above average when the potential values are taken into consideration. Maintaining this situation is vital for tourism.

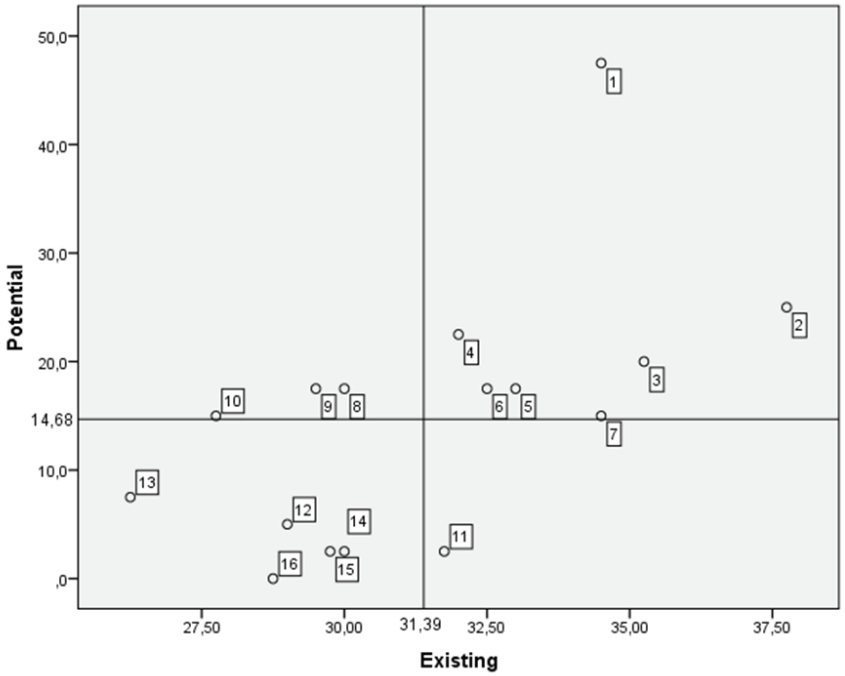


Figure 6. Quadrant Analysis of attraction centers (1: Cide, 2: Valla C., 3: Catak C., 4: Azdavay W., 5: Ilgarini C., 6: Balikligöl, 7: Horma C., 8: Ilica W., 9: Zumrut C., 10: Kinik, 11: Buz C., 12: Medil C., 13: Agli C., 14: Sarpunalinca, 15: Buzluk, 16: Gecen S.)

In Quarter IV, the areas where both the potential and the existing infrastructure were high were identified as Valla Canyon, Catak Canyon, Cide, Ilgarini Cave, Horma Canyon, Azdavay Waterfall, and Balikligol. The resource values in Quarter II should be considered after the evaluation of those in Quarter III.

4. Conclusion

In the implementation of development strategies, seeing the material and social transformations brought by the performance of tourism from the perspective of the revitalization movement ensures focusing on the changes that emerged with rural areas' ability to maintain their traditional qualities and participation in the economy. It is seen as a successful tool in terms of adaptation to global developments. At the same time, it can be said that the global powers respond to the real material effects on the local (Giovine, 2009). In this sense, nature-based rural tourism is ecologically and socially sensitive to environmental harmony and the environment. It aims to contribute to the local communities while maintaining natural and cultural resources.

In this study, we find that nature-based tourism resources often choose a place in the countryside. However, when analyzing the service supply, it was found that resource values that interact with the urban area are used more actively. In quadrant analysis of the current status and potential of the fields, generally IV. There is an accumulation in the quarter. Therefore, the possibility of the fields and the current service delivery are high. By enriching the resource values where the potential is high, but the services are low, these rural areas can be revived at the basin scale holistically.

REFERENCES

Alaeddinoğlu F. & Can A. S., (2014). Ecotourism in the Western Part of Lake Van Basin, Classification of Tourism Resources and Determining Tourist Profiles, Chapter 4, p.116-117, ISBN:978-975-7616-52-8.

Alaeddinoğlu, F., Türker, N., Can, A.S. & Ozturk, S., (2013). Basic Characteristics, Motivations, and Activities of Ecotourists: A Case of Lake Van Basin Area, Turkey, The Journal of Academic Social Science Studies, Volume 6 Issue 3, p. 91-107.

Altman, J.C., & Finlayson, J. (1993). Aborigines, tourism and sustainable development. The Journal of Tourism Studies, 4(1), 38–48.

Andereck K., Valentine K., Knopf R., Vogt C., (2005). Residents' perceptions of community tourism impacts, Annals of Tourism Research, 32 (4) pp. 1056-1076, 10.1016/j.annals.2005.03.001

Belkayali N. and Ayan E., (2018). Classsification of Open Spaces and Parks: The Case of Kastamonu, "Research and Development on Social Sciences", p.395-404, Krakow,2018.

Berg L., Hebinck D. and Teixeria H., (2018). Reassembling Nature and Culture: Resourceful farming in Araponga, Brazil, v.61, p.314-322. DOI: https://doi.org/10.1016/j.jrurstud.2018.01.008.

Bernstein H., (2014). Food sovereignty via the peasant way: a sceptical view, Journal of Peasant Studies, 41 (6) (2014), pp. 1031-1063.

Birişçi T., Kalayci Önaç A. & Demirkol A. K., 2018. Urban and Cultural Landscape Changes in the Tourism Regions: Kuşadasi Example, Kuşadasi Landscape Values, ISBN: 978-605-01-1236-8, p. 167.

Boo, E., (1990). Ecotourism: The Potentials and Pitfalls. vol. 1. World Wildlife Fund, Washington, D.C.

Bunten, A., & Graburn, N. (2009). Guest editorial: Current issues in indigenous tourism. London Journal of Tourism, Sport and Creative Industries, 2, 102–111.

Carr A., Ruhanen L. & Whitford M., (2016). Indigenous peoples and tourism: the challenges and opportunities for sustainable tourism, Journal of Sustainable Tourism, 24:8-9, 1067-1079, DOI: 10.1080/09669582.2016.1206112.

Choi H. & Sirakaya E., (2006). H. Sustainability indicators for managing community tourism, Tourism Management, 27 (6) (2006), pp. 1274-1289, 10.1016/j.tourman.2005.05.018.

Luzar E.J., Diagne A., Gan C. and Henning B. R., (1995). Evaluating Nature-based Tourism Using the New Environmental Paradigm, Journal of Agriculture and Applied Economics, 27 (2), December, 1995:544-555 Copyright, Southern Agricultural Economics Association.

Fredman P., Wall-Reinius S., Grundén A., (2012). The Nature of Nature in Nature-based Tourism Scandinavian, Journal of Hospitality and

Tourism, December 2012, DOI: https://www.researchgate.net/publication/263383833

Giovine M. A. D., (2009). Revitalization and counter-revitalization: tourism, heritage, and the Lantern Festival as catalysts for regeneration in Hội An, Việt Nam, Journal of Policy Research in Tourism, Leisure and Events, 1:3, 208-230, DOI: 10.1080/19407960903204364

Hasan, E., (2017). Nature-Based Tourism and Revitalization of Rural Communities in Japan: An Ethnographic Case Study of Oyama Town, Journal of Social Science Studies, ISSN 2329-9150, Vol. 4, No. 1.

Jansen K., (2015). The debate on food sovereignty theory: agrarian capitalism, dispossession and agroecology, J. Peasant Stud., 42, p. 213-232.

Huh J., Uysal M., McCleary K., (2006). Cultural/ Heritage Destinations: Tourist Satisfaction and Market Segmentation, Journal of Hospitality & Leisure Marketing, 14:3, 81-99, DOI: 10.1300/J150v14n03_07.

Kalayci M., Bulan Ö., Ayan E., (2015). Evaluation of Ergonomic Suitability of Urban Roads for Bicycle Use According to Users' Perspective: Case of Kastamonu, SDU Engineering and Design Journal, Isparta.

Ko D. W. & Stewart, W. P. (2002). A structural equation model of residents' attitudes for tourism development, Tourism Management, 23 (5) (2002), pp. 521-530, 10.1016/s0261-5177(02)00006-7.

Lu J. and & Nepal S., (2007). Sustainable tourism research: an analysis of papers published in the Journal of Sustainable Tourism, Journal of Sustainable Tourism, 17:1, 5-16, DOI: 10.1080/09669580802582480.

Chapter 5

HARDSCAPE ELEMENTS IN LANDSCAPE ARCHITECTURE - A CASE STUDY: TREETOP WALKWAY IN BAVARIAN FOREST NATIONAL PARK, GERMANY

İmge ÖZTÜRK[1]

Bahriye GÜLGÜN[2]*

1 *[1]**İmge ÖZTÜRK,** ORCID-0000-0002-2653-7557, Ege Üniversitesi Ziraat Fakültesi Peyzaj Mimarlığı ABD., İZMİR Bitkileri Programı, ALAŞEHİR

2 **[2]Bahriye GÜLGÜN,** ORCID- -0000-0002-7071-8486, Ege Üniversitesi Ziraat Fakültesi Peyzaj Mimarlığı ABD., İZMİR

*Sorumlu yazar: bahriye.gulgun@ hotmail.com.

1. INTRODUCTION

In landscape architecture, the design and use of the hardscape elements are essential along with the softscape elements. The softscape elements are horticultural components such as plants, trees, flowers, shrubs. Whereas the hardscape elements consist of structural components such as floor coverings, urban furniture, lighting elements, signs and information panels Hardscape elements enrich the aesthetic value as well as the functional quality in private or public spaces. Cities, rural areas and recreational areas have hardscape elements integrated with softscape elements (Kalaycı Önaç et al., 2018; Yazici et al., 2017; Yazici & Akça, 2019).

In this study,the use of the hardscape elements in recreational areas is examined in the context of Treetop Walkway Observation Tower in Bavarian Forest National Park, Germany.

Landscape design components which are crucial parts of daily life are placed in urban, rural or recreational areas and divided into two as animate and inanimate elements such as "Softscape Elements" and "Hardscape Elements".

Varying in accordance with the site characteristics, these elements are critically important used in both urban and rural landscaping. Hardscape elements which are mostly considered as being for urban areas are used extensively in recreational areas (Aksu, 2015; Yazici &Temizel, 2020; Akça & Ankaya, 2020).

Hardscape elements, including urban furniture, play a major role in improving the living standards of cities as they are a significant part of urban everyday life. Thus, hardscape elements help create the identity of the city from the very moment they are offered to the use of individuals. The same principle applies to the public furniture in recreational areas.

2. HARDCAPE ELEMENTS IN LANDSCAPE ARCHITECTURE

Hardscape elements are landscape design components that support and strengthen basic functions in public or private areas of use. These elements are also the indicators of comfort and environmental quality of areas in which they facilitate social life and gain the appreciation of users (Basal et al., 1997 as cited in Aksu, 2015). The hardscape elements in parallel with the design criteria are to be remarkable details and create uniqueness in design. Design criteria such as function, aesthetics, form, material, colour, texture and perceptibility are effective in designing unique and distinctive hardscape elements (Aksu, 2012 as cited in Aksu, 2015). It is important that the usage in urban furniture is easily perceptible; 'confidence' is another effective factor among the criteria related to perception (Hacihasanoglu, 1991 as cited in Bekci & Taskan, 2012).

It is a matter of fact that when hardscape elements are partially functional, non-aesthetic or not designed and used properly in natural areas, they do not define the space. As a result, they create complexity in a negative sense (Aksu, 2015). Properly and harmoniously placed components provide the morale and facilities that people need (Sahin et al., 2005 cited in Aksu, 2015).

According to Bekci and Taskan (2012); the user's comfort and peace of mind is measured by his ability to use dynamic and static anthropometric dimensions. Besides the anthropometric properties; the level of meeting other criteria such as sound, air conditioning, lighting and psychological compatibility should be defined as ergonomics. Ergonomics is the scientific study of the relationship between people and their work environment (Erkan, 1976 as cited in Gulgun and Turkyilmaz, 2001; Ankaya et al., 2017; Temzel et al., 2017; Birişçi et al., 2018).

The use of non-ergonomic hardscape elements can cause restrictions in users' movements which may require the individual to compromise the privacy of personal space. In this case, the user may feel discomfort and tend to move away from the place where the component is located (Bekci and Ozbilen 2012 as cited in Bekci & Taskan, 2012).

2.1. Design Criteria For Hardscape Elements

According to Hacihasanoglu (1991 as cited in Bekci & Taskan, 2012), the design criteria of hardscape elements are as follows:

Functional, psychological and technological criteria must be met in the design of reinforcement elements.

I. Functional criteria is about the relationship between the components and humans. Easily perceived hardscape elements designed in accordance with the anthropometric properties are crucially important.

II. Psychological criteria are taking the components' compatibility with sociocultural characterstics into consideration. The cultural characteristics of societies are variable and unique, therefore the design and use of hardscape elements should be executed accordingly.

III. Technological criteria are related to material, production and economy meaning the use of proper materials and the technology that is used during the process of manufacturing.

2.2. Classification of Hardscape Elements

- ✓ Floor coverings (concrete, stone, wood, asphalt, brick, etc.)
- ✓ Urban Furnitures (seating units, benches, chairs, etc.)
- ✓ Lighting elements

✓ Signs and information panels

✓ Barriers

✓ Water fixtures (ornamental pools, fountains, pumps, canals, fire hydrants, etc.)

✓ Shades (pergolas, etc.)

✓ Sales units (kiosks, exhibition pavilions, kiosks, etc.)

✓ Artistic objects (sculptures, etc.)

✓ Other objects (waste containers, mailboxes, ticket machines, bicycle parking areas, etc.) (Yildizci, 2001 cited in Aksu, 2015).

Figure 1. *Combination of hardscape and softscape elements: example of a lighting element designed by Robert Stadler in Paris (URL-1)*

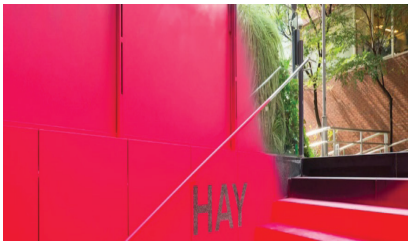


Figure 2-3. *Hardscape elements are seen in privately owned areas. Example of a staircase design from the world famous interior architecture brand HAY (URL-2)*

Figure 4-5. *Canopy designed by J. Mayer H. in Germany functions as a tram station, bus stop and restaurant (URL-3)*

2.3. Hardscape Elements in Recreational Areas

There are many studies on urban use of hardscape elements. In today's rapidly industrialized world, use of these elements in recreation areas which are indispensable for those who want to escape from the urban complex, have started to be examined.

According to Aksu (2015) "Hardscape elements, which are mostly considered as being for urban areas, are also used extensively in protected natural recreation areas. Various problems ocur when there is improper use of hardscape elements in natural areas. Thus, they create undefined spaces with partially functional and non-aesthetic components. This brings up the issue of examining the hardscape element designs in national parks."

Figure 6-7. *Example of the use of hardscape elements in recreational areas designed by Mezzo Atelier in Portugal (URL-4)*

Recreation areas can be in many forms (Demirel, 1999 cited in Aksu, 2015):

- ✓ National Park
- ✓ Natural Protection Area
- ✓ Environmental Protection Zone

Douglass (1975) defined "recreation" as "various actions that affect an individual's behavior at the mental level" (cited in Aksu, 2015). These actions can vary based on their time periods (long-term, weekend, daily), types (very active, active, less active, passive), and location (outdoor, indoor) (Kaya, 2012 cited in Aksu, 2015).

In the national parks, in which the recreational activities are held, hardscape elements are used extensively. Hardscape elements vary in accordance with the design and site characteristics. They are also used extensively in open areas for recreational activities such as national parks, nature parks, forest recreation areas, and urban forests (Aksu, 2015).

Figure 8-9. *1-1 scale, on-site furniture design workshop organized by Woven Architects in Slovakia: UWO (URL-5)*

Today, there are many observation towers only designed for users who would like to experience the beauty of natural areas. These structures that take place in forests, national parks and many recreational areas are good examples of the combination of the use of softscape and hardscape elements.

Figure 14. *Toya Design-Poland (URL-6)* **Figure 15.** *Effekt-Denmark (URL-7)*
Figure *16.* *Denizen-Scotland (URL-8)*

3. TREETOP WALKWAY IN BAVARIAN FOREST NATIONAL PARK, GERMANY

3.1. Bavarian Forest National Park

Figure 17-18. *Map and the satellite image of the park (URL-9, URL-10)*

The park of 24.000 hectares is located along the border between the German state of Bavaria and the Czech Republic. Opened on 7 October 1970 as Germany's first national park, the Bavarian Forest National Park, together with the neighboring Šumava National Park in the Czech Republic; forms the largest contiguous forest reserve in Central Europe (Nationalparkverwaltung Bayerischer Wald, 2021).

Figure 19-20. *Bavarian Forest National Park (NBW, 2021)*

3.2. Treetop Walkway Observation Tower

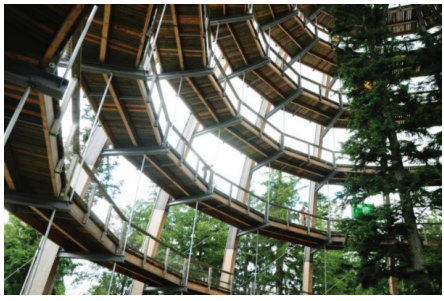
The 44-meter-long "Treetop Walkway" in the Bavarian Forest National Park is the world's tallest observation structure (Hudson, 2012). The Treetop Walkway, rather than being a structure, is a functional and aesthetic composition composed of hardscape elements.

According to Percin (2017), "Hardscape elements should be compatible with the location, size and meaning of the space, and reflect the character of the environment in which it is located."

Supporting the ideas of Percin (2017), Treetop Walkway is in unison with its surroundings with its unique form consists of solid-void parts.


Figure 20-21. *Treetop Walkway Observation Tower in Bavarian Forest National Park (URL-11)*

Starting from a 500-foot wooden ramp in the forest, visitors eventually find themselves at the bottom of a winding walkway that forms a kind of open-air dome and is supported by a series of vertical glulam columns. Three giant fir trees, 38 meters tall, are located in this structure (Hudson, 2012).



Glued Laminated Timber (Glulam) can be named as glued wood material or layered wood material done by the lamination technique (Karayilmazlar et al., 2007). Solid wood material of 25.4 mm to 50.8 mm thickness is used in the production of large-sized laminated wood (beam, column, arch, etc.). It is used in the construction industry and called "Glulam" (Glued Laminated Timber) or Microlam. (Keskin et al., 2004).

Figure 22-23. View from the inside of Treetop Walkway and the Glulam columns (URL-12)

The walkway which surrounds a tree and is accessible from the beginning to the end with a 6% slope presents a complete 360-degree view of the ecosystems including the various plants on the base, and many creatures ranging from mosses. The radially placed wooden columns feature a thin, protruding wide flanged beam that helps support the walkway. Cross-tension cables provide lateral support with the help of round metal tube cross beams in the lower sections (Hudson, 2012).

Table 1. Hardscape Elements of Treetop Walkway Observation Tower

Hardscape Elements

Figure 23-24. The tower offers its visitors both open and enclosed walkways (URL-12)

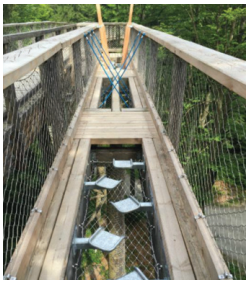


Figure 25-28. Parkours and mesh paths provide the users with unique experiences (URL-12)

Table 2. Hardscape Elements of Treetop Walkway Observation Tower

Hardscape Elements

Figure 29-33. Information panels that allow the users know more about the site (URL-12)

Figure 29-33. Sale and information kiosks (URL-12)

Figure 34-35. Decorative objects made out of wood (URL-12)

As a result; when the Treetop Walkway and the hardscape elements it contains are evaluated according to the hardscape design criteria of Hacihasanoglu (1991 as cited in Bekci & Taskan, 2012), they meet the functional, psychological and technological criteria. Due to its functionality, durability, interaction with its environment and its ability to communicate with its users; the structure and its hardscape elements serve the purpose.

It is known that the Bavarian Forest National Park has 1.3 million visitors annually. One can get an idea about user satisfaction based on the site comments on the internet. Each year, by bringing together the information recorded by travelers from all over the world, all the comments and ratings they share; TripAdvisor gives the Travellers' Choice Award (TripAdvisor, 2020). One of the destinations that deserved the Travellers' Choice award in 2020 is the Treetop Walkway Observation Tower.

Figure 36. *Travellers' Choice 2020 (URL-13)*

4. CONCLUSION

Using hardscape elements that are functional, durable, with an aesthetic value and most importantly provide user satisfaction will positively affect the relationship of user-activity-space. It is a known fact that design elements with either of high aesthetic value-low functionality or high functionality-low aesthetic value are not preferred by users.

If the perspective of the local user, national visitors and potential international users is taken into account during the design process of hardscape elements for recreational areas; the designers can create timeless places that offer unique experiences to the users.

REFERENCES

Akça, Ş. B., & Ankaya, F. (2020). Rekreasyonel Alanlarda Kullanılan Donatı Elemanlarında Kullanıcı Memnuniyetinin Belirlenmesi Tokat Yeşilırmak Çevresi Örneği. ISPEC Journal of Agricultural Sciences, 4(3), 565–580.

Aksu, O., V., 2015, Design of hardscape elements in protected natural recreation areas: The case study of Altındere Valley National Park, *Kastamonu University Journal of Forestry Faculty*, 15 (2): 267-278 p.

Ankaya, F., Gülgün, B., & Türkyılmaz, B. (2017). An Investigation of Determination ofEnvironmental Awareness Level A CaseStudy in the City of Izmir. Ege Ziraat Fakültesi Dergisi, 54(4), 419–427.

Bekci, B. and Taskan, G., 2012, The effect of urban facilities in open green spaces on personal space distance: The case of Bartın, *The Journal of Bartın Forestry Faculty,* 14 (22): 61-71 p.

Birişçi T., Kalaycı Önaç A., Karcı Demirkol A.,(2018). Bölüm Adı:Turizm Bölgelerinde Kentleşmeye Bağlı Doğal Ve Kültürel Peyzaj Değişimleri Kuşadası Örneği, Yayın Yeri:Tmmob Peyzaj Mimarları Odası, Basım Sayısı:1, Sayfa Sayısı:240, Isbn:978-605-01-1236-8, Bölüm Sayfaları:167 -179

Gulgun, B. and Turkyilmaz, B., 2001, The importance of ergonomics in landscape architecture and human life: A study on the example of Bornova, *Ege University Journal of Faculty of Agriculture,* 38 (2-3): 127-134 p.

Hudson, D., 2012, *«44 metre high tree top walkway in bavarian forest national park»* https://www.designboom.com/architecture/worlds-tallest-tree-top-walk-by-the-bavarian-forest-national-park/ (Retrieved 24 January 2021)

Kalaycı Önaç, A., Birişçi, T., Gündel, H., Işıkel, N., & Çalışkan, E. (2018). Üniversite Öğrencilerinin Rekreasyonel Eğilimleri Üzerine Bir Araştırma. Ege Üniversitesi Ziraat Fakültesi Dergisi, 55(1), 1–9.

Karayilmazlar, S., Cabuk, Y., Atmaca, A. and Aşkın, A., 2007, Lamination technique and its importance in the forest industry, *ZKU Journal of Bartın Forestry Faculty,* 9 (11): 78-86 p.

Nationalparkverwaltung Bayerischer Wald, 2021, «*Bavarian Forest National Park in portrait»,* https://www.nationalpark-bayerischer-wald.bayern.de/english/about_us/portrait/index.htm (Retrieved 24 January 2021)

Netinbag.com, 2021, *"What is wide flanged beam?", https://www.netinbag.com/tr/manufacturing/what-is-a-wide-flange-beam.html* (Retrieved 24 January 2021)

Temizel, S. Kılıç T.,Yazici K.(2017). Research Reviews in Architecture, Planning and Design, Bölüm Adı:Chapter 4:Determination of Use Active Green Areas of Urban Public And Requirements of Open- Green Area İn Yozgat City/, Basım sayısı:1, ISBN:978-605-7631-55-

Yazici, K., Gülgün, B., & Ankaya, F. (2017). Potential of Rural Tourism and Ecotourism and SWOT Analysis Case of Başkale Van Turkey and Its Surroundings. Karabuk University Journal of Institute of Social Sciences, (3), 131–144.

Yazici, K., & Akça, Ş. B. (2019). Determination of Suitable Recreational Areas Based on Expert Opinion With Q Sort Analysis Boraboy Lake Natural Park Amasya Turkey . Fresenius Environmental Bulletin, 5(2), 3778–3786.

Yazici, K., & Temizel, S. (2020). Kentsel Peyzaj Tasarımlarında Aydınlatma Donatı Elemanlarının Kullanımı Yozgat Spor Vadisi Örneği. ISPEC Journal of Agricultural Sciences, 4(4), 952–971.

URL-1. https://www.designboom.com/design/robert-stadler-inside-street-furniture-paris-10-15-2019/ (Retrieved 30 January 2021)

URL-2. https://www.designboom.com/architecture/schemata-hay-store-tokyo-01-18-2019/ (Retrieved 30 January 2021)

URL-3. https://www.designboom.com/architecture/pavilion-on-europaplatz-j-mayer-h-freiburg-germany-11-21-2019/ (Retrieved 30 January 2021)

URL-4. https://www.designboom.com/art/mezzo-atelier-landscale-the-azores-01-08-2017/ (Retrieved 30 January 2021)

URL-5. https://www.archdaily.com/801956/uwo-by-workshop-woven (Retrieved 30 January 2021)

URL-6. https://archello.com/project/lookout-tower-in-poznan-Poland (Retrieved 30 January 2021)

URL-7. https://www.designboom.com/architecture/effekt-the-treetop-experience-camp-adventure-denmark-06-16-2017/ (Retrieved 30 January 2021)

URL-8. https://www.trendhunter.com/trends/viewing-tower (Retrieved 30 January 2021)

URL-9. Yandex Maps, 2021, https://yandex.com.tr/ (Retrieved 24 January 2021)

URL-10. Google Maps, 2021, https://www.google.com/maps/ (Retrieved 24 January 2021)

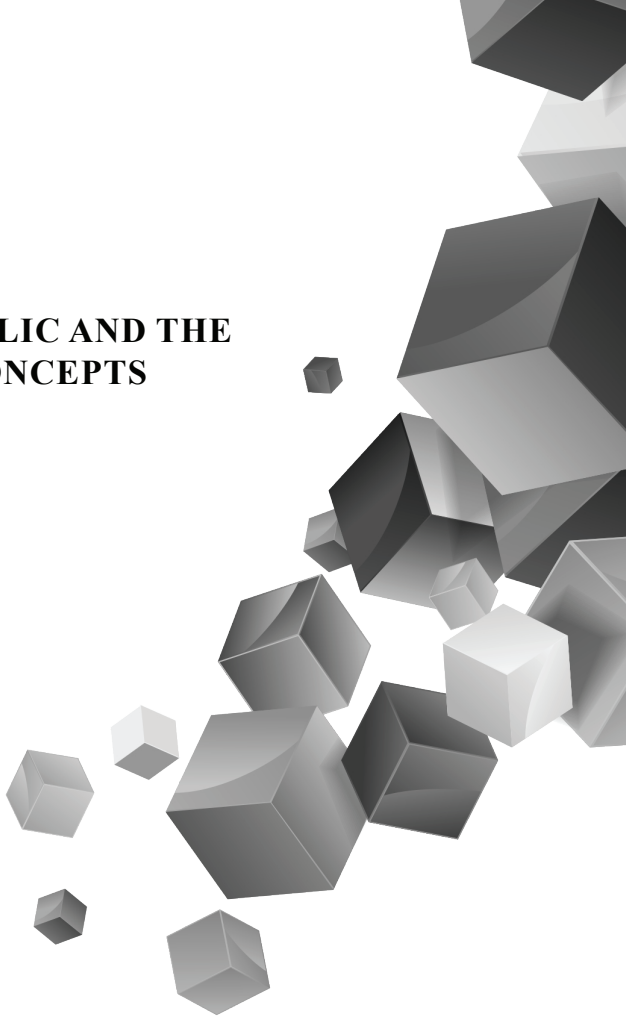
URL-11. https://inhabitat.com/worlds-longest-egg-shaped-treetop-walkway-rises-in-germany/ (Retrieved 24 January 2021)

URL-12. https://www.tripadvisor.com.tr/Attraction_Review-g660474-d1905858-Reviews-Baumwipfelpfad_Bavarian_Forest-Neuschonau_Lower_Bavaria_Bavaria.html (Retrieved 24 January 2021)

URL-13. TripAdvisor, 2020, *«Travellers' Choice» https://www.tripadvisor.com.tr/TravelersChoice* (Retrieved 24 January 2021)

Chapter 6

REVISITING THE PUBLIC AND THE PUBLIC INTEREST CONCEPTS



Assist. Prof. Dr. Dr. Şirin Gülcen EREN[1]

1 Assist. Prof. Dr. Dr. Şirin Gülcen Eren. Süleyman Demirel University, Faculty of Architecture, Department of City and Regional Planning, sirineren@sdu.edu.tr

INTRODUCTION

For the institution of urban planning, the concept of the public interest (Alexander, 2002; Held, 1970, Howe, 1992, Starr, 1988; Moroni, 2004), in combination with the precepts of urban planning and the principles of urbanism, is the most fundamental principle invoked in the implementation of planning interventions. It determines what approaches to urban planning consist of and what limits apply to the (re)production of space. The public interest, moreover, is the principle that defines the boundaries between administrative actions and the market. It serves to define the aims of actions taken, thus ensuring a healthy process of urbanisation, so that the planning institution can maximise social benefit.

It seems unlikely that a fixed definition of the public interest can ever be given, since the concept has developed in response to social conditions. Various definitions have been suggested in the past, each of them consistent with the conditions existing at the time. The concept is always shaped by the current environment or the general situation. It is also affected by issues of scale and relations with the state. All these shifts and consideration have implications for the contents and aims of urban planning. Moreover, since the public interest is a concept that is used in connection with problems, it is defined through justifications, and cannot have a stable purpose. The concept has to be justified, in terms of planning principles, acccording to every new situation, condition or environment.

To give a very brief definition, the public interest is the benefit of society (the public), a specific subject within a defined space. For Tait (2016), the public interest arises from a democratic process. This process enables people to express their concerns and knowledge of place. This also provides justification for a particular position (Tait, 2016). Duvarcı (2014) describes the public interest as a concept which supervises the free market and protects the happiness of all segments of society, the ecological balance and the rights of minorities.

The public interest is essential for social consensus and sustainability in a welfare society. It forms the justification upon which basic rights and private benefits and interests with respect to property and property rights are based, including land rent acquisitions (Gültekin et al., 2014; Keleş et al., 1999; Ülkenli, 1999; Tekeli, 1991; 1992; Beşiktepe, 1997; Union of Bar Associations of Turkey, 1975) is controlled. It is these characteristics that make urban planning a public service.

The concept of the public interest has always been important for the institution of urban planning. Today, the concepts of the public interest and the public have changed in ways that weaken their moral and political authority. A renewed, normative conception of the public interest and the

public sphere has been emerging in the light of Habermas's approach to the problem of the public interest, the theory of discourse ethics and the ideas of communicative action and communicative rationality (Dahlberg, 2004; Habermas, 1991). There is a need to explore why the concept of the public interest is still important for urban planning. This can be done via an explanation of the changing concepts of the public and the public interest that defines the major approaches and definitions that have been used up to now. Such an approach will help the reader to grasp the interplay between ideas, institutional norms and planning practice, and contribute to the study of the crisis of the planning institution (Eren, 2007).

From the planning point of view, besides understanding the implications of public actions, it would be unrealistic to expect to be able to determine the future expectations of the institution of planning, or to be able to assure its legitimacy, without explaining the role of the public interest and renewing the classification of the public interest. Consequently, the author does not consider it possible to overcome the crisis of legitimacy in which the institution of planning currently finds itself, or to strengthen the role of planning, without bringing into focus the benefits (hidden benefits) and interests concealed by both concepts.

Many recent tendencies in various societies suggest that urban planners (public and professional planners) and the planning institution should revisit the concept of the public interest. The aim here, therefore, is to offer a general knowledge of the concept and a normative argument about the meaning and value of its variations. The question of why the public interest is related to the planning institution and urban planners is also discussed here. This has the objective of underlining the role of the urban planner in determining or maintaining the concept, and of rehabilitating it as a useful concept.

In this purview, the concepts of the public and the public interest on which the implementation of planning interventions is based are described, with explanations of how they differ from the universal approach. In addition, the general definitions and classifications which it has been possible to identify in specified disciplines are presented, together with contemporary modern and post-modern alternatives to the classifications made by the author. The discussion of approaches to the public interest starts from the recognition that there are several influential typologies of the concept of the public interest that are relevant to planning. A descriptive classification method is used to establish the meanings and transformations of the two terms from the point of view of the urban planning discipline.

It should be noted that there are vast areas of practice across the globe and that offering generalizations about the use of these concepts represents a challenge. Existing explorations by the author into the way in which the

public interest should be defined for the purposes of planning may prove inadequate. The public interest is used to justify individual decisions and actions as well as the positions of the planners who identify and serve the needs of the society (Tait, 2016). Therefore, the commonly accepted classification made in this chapter and the generalizations made about the use of the concept respect the conventions of theoretical discourse in the disciplines of planning and law. Definitions and arguments are based on practical experiences of the changing nature of urban planning in some specific contexts. An attempt is made to determine which classification forms the foundation for the principles, assumptions and practices of urban planning. This is to help us focus on how we might now conceive the public interest in a more relevant and vital fashion for specific urban planning issues or cases.

In this regard, some proactive proposals are made from a critical perspective based mainly on Turkish practice. The discussion is structured for the wisdom of urban planners and decision makers, as Plato (1974) has stated, as a guide and authority for governing or planning to be accepted by the public. It is believed that this discussion is needed in order to define the public benefit in a way that includes the ideas of universal and social benefit, with a view to strengthening urban planning as an institution. It is also intended to explain how the concepts of 'the public' and 'the public interest' have deteriorated. Identifying the periodic changes in the scopes of the definition will also make it possible to spell the basis of the legitimacy of the institution of planning and to interpret the aims of administrative actions that are implemented today or will be implemented in future.

In this context, the chapter begins by considering the distinction between the private and the public, then goes on to examine the meaning of the public interest and the various approaches to the public interest are also described. The relationships in which these approaches stand to the idea of the common good are also clarified, and the importance of the meanings attached to the public and the public interest for the activity of planning are underlined. Subsequently, a typological classification is goven of the concept of the public interest. Considering the different approaches is viewed as important, since they may clarify for the urban planner what constitutes the intention or the result of any activity. The institution of planning and its benefit-interest relationship with the (re)production of space is described in conjunction with the roles of the urban planner and the related bodies and institutions. The concluding section stresses the changing meaning of the 'public' and make a critical assessment that includes proactive proposals centred on social consensus for the conduct of urban planning activities in harmony with a concept of the public interest based on universal and social benefit.

PRIVATE /PUBLIC DISTINCTION

The concepts of public and private are generally used for goods and services. There is a dialectical relationship between them. Other than legislative definitions, the boundaries between these concepts are unclear. Many things can be termed as public and private at the same time. Starr (1988) claims that issues related to the distinction between public and private have led to certain conflicts in defining the boundaries of the state and to the public-private distinction that is sharpened by the rise of the liberal state.

Purcell (2016) states that the State is a necessarily oligarchical arrangement and a guarantor of the public interest. He argues that people tend to equate the public with the state in daily life (Tait 2016). For Alexander (2002) and Moroni (2004), the public has some degree of independence from the state. The concept of the public sphere concept generally indicates state affairs and sometimes refers to the general public (Purcell, 2016). When urban planners speak of pubic participation within the planning process, they are referring to people, not the state (Purcell, 2016).

There are two ideas here that can be summed up as follows: 'Public is to private as open is to closed' (e.g.: a public place), and 'Public is to private as the whole is to a part' (e.g.: public interest) (Starr, 1998). While private interests can affect the conduct of the state and its agencies, the state may reach across the public private boundary to regulate private contracts and the conduct of private companies and other associations. The two terms do not have consistent meanings from one institutional sphere to another (Starr, 1998) or from one country to another. Starr further notes the polarities of public (the state) and private (the individual) in liberal thought.

PUBLIC AND PUBLIC INTEREST

The public refers to the community or the people, as a whole of a neighborhood, city, region or nation. It is also a group of people sharing a common interest. The number of individuals in the public may vary. It refers to the people as a whole and in general. The interests of minority groups are characterised as private interests. The rhetoric of serving the interests of the public is central for the planning institution (Champbell and Marshall, 2000).

Historically, the concept of the public interest is based on Roman law. The concept was used in Roman Law with respect to the taxation of settlements and individuals or to legitimise social and military obligations; later it came to be referred to using the terms 'common benefit', 'general

benefit', common good' and 'public benefit' (Akıllıoğlu, 1991; Sarıkaya Levent, 2011). In the Middle Ages, the concept of the public interest (utilias publica) lost its importance for a long time. After the French Revolition of 1789 it re-emerged as a reaction to the idea of the common good. The public interest was turned from a moral and abstract idea to a rational, comprehensible and worldly value. The public interest was defined not as the sum of individual interests but as a concept in its own right that was over and above them (Sarıkaya Levent, 2011).

While the concept of the public interest – also referred to at times using terms such as the general interest, the public benefit or social utility – is frequently used in administrative sciences, public law and political science, there is no consensus about its meaning or definition (Keleş, 2000). In this sense, the public interest is a guiding principle and a general precept that constitutes the purppose of public activities.

Urban planning is a public action and service carried out to secure public interest and ensure the quality of life human settlements. Historically, public interest has been the only common concept of planning interventions and forms (Moroni, 2004). Public interest has also functioned to justify actions in situations of disagreement.

The concept of public interest varies according to different social conditions (Eren, 2007). That is why the law has to define the concept of public interest mainly through court decisions (Akıllıoğlu, 1991). Every action of the state, if the reverse is not proved, is considered to be in public interest with social interest objectives (Akıllıoğlu, 1991). The concept of the public interest can also be used to correct the actions of the state (Eren, 2007). Consequently, all the actions of the state are actions that can be contested in court.

To understand the concept of the public interest, the meanings of interest and benefit, and the difference between public interest and social benefit, must be clarified. Interest results from human needs (Savran, 1997). Interest should be equal and for all where the results have qualitative (non-measurable) or quantitative (measurable as Bademli (1999) states) social and physical costs and risks. Benefit is an act of advantage on goods and services directly or indirectly provided. An action undertaken for benefit may have negative and/or positive results (Keleş, 1993) which are also sometimes called interests.

Another characteristic of the public interest is that it has narrow and broad meanings. The public interest in the narrow sense might simply be termed the public interest whereas the public interest in the broad sense might be defined as social benefit. For Bademli (1999), in the planning process, public interest and social benefit (normative) are complementary

concepts, immeasurable, and parallel. Public interest and social interest are also unequal (Eren, 2007).

The concept of the public interest in the narrow sense emerges as a feature of administrative justice and refers to the realisation of the public interest that constitutes a general aim of procedures in the field of public law. In the narrow sense, the public interest requires that public services should be conducted continuously in an impartial manner to meet the needs of society without seeking profit and in accordane with the principle of equality. In the broad sense, the public interest refers to the social benefit that encompasses the common interests of all the people in the country and thereby reflects the ideological principles of the Constitution. As a concept related to the political and social principles on which the Constitution is based, the social benefit is therefore a moral concept that reflects the common values necessary for living together, adds quantitatively to the scale of the public interest, and encompasses value judgements relating to the duties which constitutions have imposed on the social state.

The narrow meaning of the public interest is generally used for limiting property rights and is a measure in any intervention (Keleş, 1993). When public refers to the public administration, the public interest signifies the interventions of the state (Ülkenli, 1999). In the same line of thought, Keleş (1993) defines the broad public as society and the narrow public as public institutions. Ünal, Duyguluer, and Bolat (1998) make a similiar differentiation between public interest and public benefit (social benefit).

Social interest is the sum of all individual interests in a society, which is something mundane, rational, and understandable. And, it shows the reasons and the competence forming the content of rights which private property can be used for (Eren, 2007). In its broader meaning (political, ideological), it refers to the political and social principles on which constitutions are based. For Keleş (1993), Doğanay (1974), and Bademli (1999), this is social benefit and represents the benefit of society. It is also seen as a reflection of common interests.

Akıllıoğlu (1991) stresses that the difference between the public interest and social interest has been neglected and that both terms have come to be accepted as a reflection of the common interest of society. Keleş et al. (1999) further claim that the social interest reflects the common interest within a country and corresponds to the needs of the individuals and the actions, approved by all, which make living conditions easier and are for the welfare of the community. It aims to protect, organize and develop the public order and has a function of establishing social justice (Keleş, 1993; Keleş et al., 1999). On the other hand, the public interest can be the interest of the hegemonic powers. The same can be said of private

interests versus state interest (Eren, 2007). In the same vein, Starr (1988) notes public interest as the interest of the whole people.

For Akıllıoğlu (1991), the rule of law is designed to control every kind of right in order to achieve the public interest. The use of rights cannot be contrary to the social interest. The public interest is also a means of limiting rent (Eren, 2007). Keleş (1993) states that the public interest, as a measure in public law, is a form of reasoning. It is a measure that is used to define the limits of administrative activities and of the scope of legislation. It strengthens, delimits and/or enhances the powers of the state and hence those of urban planners.

The legitimization of urban planning rests on the proposition that the state's intervention in land and property development is necessary to protect the public interest against private interests (Campbell and Marshall, 2000). Alexander (2002) notes that the rational approach to planning and the traditional comprehensive planning model prioritise the idea that there is a public benefit in the implementation of urban planning. The public authority is responsible for preparing urban plans in the public interest, preventing speculative actions and determining the course of urbanization, and it has to implement the related legislation in order to fulfil this (Eren, 2007).

APPROACHES TO THE PUBLIC INTEREST

In order to classify the concept of the public interest typologically, a description of the various approaches to the concept is required. The various approaches to the public interest are set out here in order to help to clarify how the meaning of the concept has changed and what kind of definitions have been proposed in the course of time. Specifying these approaches will make it easier for us to understand the changing meanings and classifications referred to in the following section.

In the course of history, efforts have been made to define the concept of the public interest, and a variety of approaches have come into being. The first of these belongs to Howe. Howe (1992) offers four ideas about the role of the planner and his views on the public interest are integrated into these ideas: Pluralist Aggregation, the Economic/Analytical approach, the Common Interest, and the Good Reasons approach.

The public interest approaches given in Keleş et al. (1999) are as follows:

- The Individualistic Approach (Utilitarian / Aggregationist): The sum of individual interests. (Hobbes, Hume, and Bentham)
- The Common Approach: The common interest is the sum of the community interests. This kind of interest is not the sum of the

individual interests of the members of the community, but something that is inherent in its nature (Gedikli 1998). It is to be found in the areas of defence, security and minimum health and living standards (J.J.Rousseau, W.Pareto, B.Barry, R.Keleş, and C. Geray).

- The Unitary Approach: The unitary interest is a normative political decision or choice and is based on value judgments (Plato, Aristotle, Hegel and Marx, C.W.Casinelli).

Tezcan and Poyraz (2013) provide a different classification of approaches to the public interest which is rather similar in content:

- Preponderance theories (Hume, Hobbes, Bentham).
- The Common Interest Approach: This consists of interests that are in the interests of all the individuals in a society and which take precedence over their individual interests.
- Monistic Approaches: These approaches address the public interest from a normative perspective and are grounded in value judgements. Within a given time and place, all individuals, whether they are aware of it or not, are guided by a single set of moral values (Aristotle, Hegel and Marx).

According to Champbell and Marshall (2000), in the relationship of individual interests and preferences, there are two contrasting conceptualisations of what forms the public interest. The first one is rooted in liberalism and Benthamite utilitarianism. The public interest is either the summation of all the individual interests in a community or the maximum thatc an be achieved for the greatest number. Individual preferences cannot be judged morally and the role of the government is to maximise opportunities for individual choice in a free market. Moreover, in the public sphere, the provision of services should approximate as closely as possible to market conditions. The second conceptualisation is based on the idea of shared values formed by the sum of individual preferences. It states that there are circumstances in which market processes are not the best means of determining some questions of social choice. Citing Flathman (1966), Champbell and Marshall (2000) note that in this interpretation of the public interest, individual interests are still important.

Champbell and Marshall (2000) propose a third way of defining the public interest. In this case, the subject is the rightness or fairness of the procedures used in determining or implementing a public policy or decision. In relation to the planning process, public interest is procedural and may be defined with reference to rights or with reference to openness and participation. That is why normative planning theories from the 1960s onwards have largely been concerned with procedural questions. This has

been called the communicative turn in planning theory, as Champbell and Marshall (2000) state.

Another classification is grounded in the distinction between individual interests, the common interest, the social interest and recent new approaches (Eren, 2007) (For other approaches related to planning, See also Duvarcı, 2014). This classification of approaches is summarised in the following sections.

Individual Interests

The individual interests approach argues that the public interest is the sum of individual interests and does not conflict with individual private interests. In a society made up of individuals who know and do what is good for themselves, the best possible outcome will come about of its own accord, and the public interest will be achieved. Here, Tekeli (1988a) comments, the human being has started to be regarded as a subject that controls his/her material environment and feels an obligation that goes beyond respect for the freedom of others.

This approach assumes that society and the state will move in the same direction. It also presupposes that activities of all kinds have a common purpose (Akıllıoğlu, 1991; Tombaloğlu, 2014). Thomas Hobbes, David Hume and Jeremy Bentham are the thinkers who have defined and discussed this concept (Tombaloğlu, 2014).

Hobbes supports the primacy of authority (Korkut, 2006). He asserts that individuals acting with a view to ensuring peace within a society and a common defence would transfer their rights and responsibilities to a single person or body. The authority to determine the public interest would then be used by this sovereign power (Korkut, 2006). In this line of thought, the public interest, defined by the sovereign power, may clash with the individual interest. In such cases, the individual interests preserve their legitimacy. However, it would be to the benefit of individuals to abide by the decisions of the sovereign power. Otherwise, individual interests could be damaged due to the weakening of the sovereign power (Korkut, 2006).

Hume supports the primacy of choice (Korkut, 2006). He states that if the will of the majority of individuals is in line with the decision taken, then the action, policy or regulation in question may be considered to be in the public interest. He is against determining the public interest by means of reason, argument and debate, arguing that reason cannot suppress an action or an effect (Korkut, 2006).

Bentham, for his part, speaks of the primacy of numbers (Korkut, 2006). He takes the view that the public interest, as an imaginary instrument consisting of the individuals who are the founding element and members

of society. Moreover, the public interest is founded on objective benefit (Korkut, 2006).

The Common Interest

The common interest is the interest which individuals cannot achieve by themselves and is the interest of a community. It is a general or common interest that exists over and beyond the separate interests of individuals. Individuals are expected to dissolve their own interest into the common interest. It also envisages that individuals will be able to obtain interests which they would not be able to obtain in other ways were individual interests to be encouraged and not suppressed (Tombaloğlu, 2014).

The achievement of individual interests does not necessarily mean that the public interest has been maintained. However, the achievement of the common interest ensures that individual interests are achieved. Elements such as justice, security, defence and public health are included in the interest of the community. According to Thomas Aquinas, the common interest is the benefit and will of everybody (Bal, 2006; Tombaloğlu, 2014). This idea is based on the acceptance of the view that human beings formed society and established the state in order to achieve their common interest. It is assumed that the individuals in the society will have equal shares in the benefit generated as a result of the interests they have contributed to society, and that the partnership will continue in this way.

Jean Jacques Rousseau supports the idea of the general will (Korkut, 2006): The common interest of the individuals in a society. Rousseau also accepts that the general will is always, continually right and that it seeks for social benefit (Tombaloğlu, 2014).

The Social Interest

According to the social interest approach, the interest of the individual cannot be contrary to the interest of society (Tombaloğlu, 2014). To explain from a deductive perspective, what is of benefit to society is of benefit to the individual. The primacy of the social interest over the individual interest is the foundation of the social (welfare) state under the rule of law (Tombaloğlu, 2014). The goal targeted as a result is the happiness of the individual.

For Plato (1974), in the Republic, the work of the legislature should be directed towards the prosperity of the whole of society and not just that of a certain class. He argues that the best can be achieved for society when the individuals in that society share their joys and griefs, and that there can be no valid individual benefits that conflict with what is good for society; however, arrangements may not be made for the sake of the public interest that are contrary to individual interests. Plato (1974) defends the common good: what is of public interest should be considered right and good, and

what is of benefit to the state is also of benefit to the citizen (Tombaloğlu, 2014; Korkut, 2006). The public interest is a goal which people seek to achieve together, but it is difficult to determine whether this goal is good or not (Korkut, 2006).

Aristotle argues that humans are social-political animals that cannot live alone, and that come together to form a society and a state in order to meet their needs and to reach what is good (Korkut, 2006). *Ethos*, or common morality, is the relationship between society and the individual and the foundation of social relations. Aristotle indicates that the constitutions produced when a person, minority or majority governs the state with the aim of ensuring the common benefit will be appropriate. He states that a constitution which seeks to achieve the interest of one person or one segment of society alone would not be right. A political entity that does not protect the common interest cannot legitimise itself. What is good for the individual is good for society and individual interests cannot conflict with the interest of society. The real problem issue is to decide on what is good at a specific time and in a specific place (Korkut, 2006).

For Hegel, the interests of the individuals in society are closely entwined with those of other individuals; the state guarantees these interests, but the interests of the state do not clash with the interests of the individuals (Tombaloğlu, 2014). In fact, this amounts to a system of mutually consistent values that is not in conflict with individual interests. Marx argues that real interests need to be in conformity with a consistent and unifying social order (Korkut, 2006). Cicero speaks of the social interest and accepts the social nature of humans who have become a 'people'. Cicero states that a people is not a random mass, and defines a people as a community of humans who live in conformity with a common interest and are united by legal ties (Tombaloğlu, 2014).

New Approaches

Today there are various new approaches drawing on the argument that readings based on the assumption of conflict between the interest of the individual and the public interest may not always be valid. In these approaches, the existence of the public interest does not require the interest of the individual to be overlooked, and it may be possible to understand whether a legal arrangement or policy is in the public interest or not from the interest it provides to the whole of society. Arguably, the public interest can also be achieved through the acquisition of individual interests. However, the public interest should not be thought of as an interest which is opposed to individual interest (Tombaloğlu, 2014).

The 'Public Choice Theory' (James M. Buchanan and Gordon Tullock) indicates that when an individual in society maximises his or her

own benefit, this need not result in harm to other individuals; indeed, this situation could have a positive effect on the whole of society (Tombaloğlu, 2014; Korkut, 2006). It is also argued that the ideal public interest can be achieved if all individuals act in unison (Tombaloğlu, 2014; Korkut, 2006).

In Pareto's 'Pareto-Optimality' theory, in order to speak of a public interest, it is necessary for the welfare of at least one group member to increase without the welfare of any of the other members of the group declining (Korkut, 2006). Here, the public interest in sense of social benefit is not the total of the benefits of the individuals who make up society. Rather, the question of whether a new arrangement is in the public interest or not is determined according to the impact it has on the whole of society, based on individual benefits (Tombaloğlu, 2014; Korkut, 2006).

For an activity to be acknowledged as being in the public interest, it has to provide for the personal benefit of every individual in society. The public interest cannot be regarded as separate from the benefit of the individuals who form the society (Tombaloğlu, 2014). The public interest is defined as the shared interests of the community which they cannot obtain in any other way and which does not damage their individual interests (Korkut, 2006).

One of the most significant approaches of recent years is the Habermasian idea of 'generalisable interests'. Habermas has explained personal and group identity through the construction of universal norms. The public sphere is bound to the market for communication where formal rules and informal practices exist (Mattila, 2016). For Habermas, institutions play a vital role in managing formal and generalised obligations against particular and local practices and the point of view of the 'generalised other' must be assumed (Tait 2016). Habermas (1991) explains the issue of the public interest using the concept of the public sphere. The public sphere is a sphere that mediates between civil society and the state and one within which citizens can leave behind their roles as private people and engage freely in rational, noncoercive discussion concerning the matters of their common interest (Habermas, 1991). Habermas' understanding of practical discourses refers to discourses where the generalisability of interests can be tested and where the subjects are supposed to abstract from their cultural capacity, adopting the perspective of the 'generalised other' (Mattila, 2016).

Although there are varying views concerning the public interest, the concept of the public interest and its sub-categories allow for a typological classification.

PUBLIC INTEREST TYPOLOGIES

In the past few decades, various efforts have been made to re-define the public interest in line with changing market conditions and views of the public and public benefit. This section contains a different outcome, which incudes an assessment by areas of implementation. Typologies of the public interest can be divided into three main groups in line with the changes that have occurred over time in the meaning of the concept:

The Modern Public Interest Concept

One of the conceptual foundations of the nation state, which was shaped by a modernist approach, is the public interest. The limits and bases of the public interest are determined by the nation state. The nation state, based on the rule of law, is the *raison d'être* of the public interest and exists in order to protect it (Tombaloğlu, 2014). The distinction between the public interest and private interest is clearly present in the actions of the administration, the use of space and the property rights. The concept of the public interest functioned as a doctrine giving legitimacy and authority to urban planning as a government institution in cases where urban planning was a state activity.

Society believes that the public administration always makes use its powers of discretion for the sake of the public interest, directing its actions to this end (Gül, 2014), and agrees that the public interest has primacy over private interest. However, it has to be emphasised that this primacy is an opinion. The individual also believes that s/he will have the opportunity to be represented by the concept of the public interest. The existence of this belief may make it unnecessary to provide a definition (Tombaloğlu, 2014): The legislature can conduct its supervisory activities within the meaning and limits of this general concept.

The concept has both narrow and broad meanings, and as one moves down the vertical scale, its scope narrows from the idea of universal benefit to the idea of public interest (administrative benefit)).

Public interest concept can be described as a common denominator that holds true in different conjunctures of time and space. The public domain is regarded as a homogeneous structure with certain basic standards (Bal, 2006). According to Tekeli (1991), the planner believes that s/he offers superior professional expertise that the ethics of planning will protect the public interest, planning aims for social benefit, and that planning is above politics. In all of the planning approaches associated with the period of the nation state, the planner considers that, by virtue of technical experience and acquired knowledge; s/he takes rational and comprehensive planning decisions that maximize the achievement of the public interest and so turns

the public interest into something concrete. The critical point about this period is that society itself is not allowed to form these norms, which are determined by the power that holds authority (Bal, 2006).

From the point of view of urban planning, the sub-typologies of the modern concept of the public interest can be listed as follows:

1. **Universal Benefit,**
2. **Social (Common) Benefit,**
3. **Multiple Public Interest,**
4. **Public Interest**,

- Public interest,
- Limited public interest (Social),
- Superior public interest (Among administrative actions),
- Administrative interest (Corporate public interest (Interest of the state)).

The first three typological categories (universal benefit, social benefit and multiple public interest) fall within the realm of social benefit.

The Postmodern Concept of the Public Interest (Fragmented Public Interest)

Postmodernism is the period of fragmentation, globalization, de-identification and the others. During this period, fragmented approaches to planning have emerged, plans and structures have gone unsupervised, and the uncontrolled growth of cities had accelerated. Keleş (2000) stresses that we are confronted with a new concept of the public interest in this period. This change in the meaning of the term stems from the neoliberal policies espoused after 1985. While the distinction between the public interest and the private interest has persisted, the question of whose benefit the public interest refers to has started to arise. The role of public interest has shifted by the involvement of private interests or partnerships in administrative actions, in line with the fragmented structure of authority. The establishment of new or alternative public bodies and institutions with responsibilities for planning, the confusion of authority and inadequacies and mistakes in practice have led to a crisis.

According to Eren (2007), urban planning with market-led approaches emerged from the 2000s onwards. The typologies of the public benefit are as follows (Eren, 2007):

1. **Universal Benefit,**
2. **Social (Common) Benefit,**
3. **Multiple Public Interest,**
4. **Public Interest**,

- Public interest,
- Limited public interest (Social),
- Superior public interest (Among administrative actions),
- Administrative interest (Corporate public interest (Interest of the state/Interest of the public institution)).
- Personal interest of the administrator (Interest of the representative/ Interest of the decision-maker),
- Interest of the bureaucrat (Personal benefit or technical interest (For individual administrative actions)),
- Group interest (Simultaneous interest of public and private institutions)

The distinction between the public interest and private interest is generally present. This is between the narrow and broad senses of the concept also persists, as does the vertical scale. The discourses of the rational approach to planning are still observed in court decisions and the resolution of disputes. The concept of the superior public interest has sometimes been implemented wrongly in this period. This distinction of precedence between the services and actions of public bodies and institutions has been misinterpreted to refer to the superiority of public bodies and institutions over individuals, and this interpretation has even found its way into judicial verdicts. Privatization, public-private partnerships and fragmented urban developments arising from partial planning are some of the interventions that are leading to a change in the meaning and the objective of the public interest.

The EBK Slaughterhouse privatization (GİMAT) case in Ankara (Turkey) is a good example to illustrate the changing meaning of the concept of the public interest (Eren, 2007), with neoliberalism undermining both the legitimacy and the authority of urban planning as a government institution. Privatization has been supported on the grounds that it is in the public interest. The GİMAT case has proved its role as a private investment. The production and management functions of a public establishment on public land came to an end. However, this was a nodal and direct partial planning activity and had impacts on the Central business district development process.

Privatization and market-led urban planning ideologies were implemented together in the GİMAT case. This was done in order to maximise private interests, but it has been proved by Eren (2007) that it has had negative impacts on the related urbanization processes (negative tendenzia) (Eren, 2007). Firstly, the investment generated externalities for the surrounding areas. Secondly, in terms of urban infrastructure, no public value was created. Thirdly, the power of market forces in directing urban growth accelerated. Urban development plan objectives such as green corridors or the zoning of production were overruled in favour of areas of consumption by a process managed and directed by market mechanisms. The case also demonstrates that if urban planning and the transfer of public production facilities and lands are open to market mechanisms, then the public suffers a financial loss due to loss of ownership, the closure of the production functions, and low price evaluation. In other words, urban plans cannot be implemented for the public interest.

This partial urban intervention breaks down the unity of urban plans and their parts and ignores the dialectical relation between parts and wholes (Eren, 2007). Urban planning becomes an act of legitimising private interests. And as the public interest is neglected, the urban planning institution loses its character as an institution critical of the market.

The Vague Concept of the Public Interest (Fluid Public Interest)

In situations where the existence of the public interest is unclear, once might speak of a vague idea of the public interest that shifts away from the goal of social benefit in each and every case. In the political environment that has arisen since 2010, mainly in the developing nations, the tendency for the decision-making authority to become increasingly monolithic and anti-democratic, coupled with the change in the system of public administration, has called the existence of the public interest into question. Institutions and their roles and rules have changed. Hence the context for government urban planning in a specific place before and after the neoliberal shift has also changed. The tendency of neoliberalism has been to minimise the role of the public interest in planning practice. However, national politics and planning practices vary too widely for the outcomes to be generalised or for specific practical recommendations to be widely relevant. A vague concept of the public interest which departs from the ideas of social consensus, universal social benefit and public benefit may be invoked to interpret and explain this change.

Public authorities are increasingly hiding the private interests behind actions and activities that are said to be in the public interest. Representatives of public authorities behave as if these public properties are their own and that they should make some sort of gain from every public service provided. Examples are numerous and presented in corruption and

sustainability rankings. They include sales of properties at below-market prices, the distribution of public tenders to the same companies, secondary housing construction on newly-burned forest areas, and the issue of mining licences on private properties which are constitutionally protected.

As a result, the public bodies and institutions of the modern era that were responsible for the existing legislation and its implementation have become obsolete. Since, as Moroni (2004) claimed, the concept of the public interest is 'non-existent', it remains unachieved by many public interventions and urban planning activities in different countries. Partial and fragmented planning is the end-result of the market-led planning approach. Practices that are contrary to adopted urban plans and the provisions of the related legislation have been granted legal recognition and have led to the creation of a parallel implementation environment alongside the existing legal system.

As occupations have increased and more and more public resources have been transferred to certain segments of society by various means, social tensions have started to be observed, along with practices which are unfair and contrary to social equality, erroneous court decisions and chaos in the practice of the profession. In addition, during the (re)production of urban space, conflicting interests mean that spaces cannot be created for the public interest. Market-critical planning approaches and actors aiming to protect the public interest are excluded from the related processes (Schubert, 2019; Eren, 2007).

A limited number of developed nation states, mainly located in Europe, still continue to pursue comprehensive, rational, strategic, collaborative and communicative urban planning practices and to conduct administrative actions and activities in line with the modernist public interest approach. Besides differences in the practices of different countries, institutional or individual practices that reflect different viewpoints may also occur within countries.

The typologies of public interest in this period may be classed as:

1. **Private Benefit,**
2. **Universal Benefit,**
3. **Social (Common) Benefit,**
4. **Multiple Public Interest,**
5. **Public Interest,**

- Personal interest of the administrator (Interest of the representative/ Interest of the decision-maker),
- Interest of the bureaucrat (Personal benefit or technical interest (For individual administrative actions)),

- Group benefit (Simultaneous benefit of public and private institutions)
- Public interest,
- Limited public interest (Social),
- Superior public interest (Among administrative actions),
- Administrative interest (Corporate public interest (Interest of the state)).

The distinction between the narrow and broad senses of the concept of the public interest, the differentiation between the public interest and private interest, and the vertical scale all persist in legislation and in practice. However, private interest is now placed above the public interest and takes precedence over it. Universal benefit and social (common) benefit are disregarded in practice. All public services and actions in this period are conducted in such a way as to maximise private interest, and all public property may be made available to the private sector in line with private wishes. 'Vested interests' have taken the place of the public interest and communities of interest have taken the place of public administrators.

In this period, the principles of the public interest show signs of deformation. Private interest is concealed in the public interest, which then circumscribes the private property of other persons. However, since administrative actions are assumed to be for the public interest, public administrators do not regard such actions (e.g.: the opening of mines through urgent nationalisation orders, or the construction of tourist facilities following the burning of forests) as contrary to the requirements of the democratic social order, and may even support them. As services and actions of this kind are not specifically addressed in the law, they are endowed with a legal footing.

The public interest has lost its faculty of curbing rights so that they are not absolute. Urban transformation schemes can be taken as an example of this trend. Property is taken away from the people whose ownership of it is recognised on paper, the space is reproduced and its ownership is registered in the names of other private individuals, thus creating property for other people (particularly political supporters). It has to be added that the people whose property is taken away from them are either kept waiting with the promise that they will be given property later or else provided with property elsewhere – a sign that the action taken by the state in the name of the public interest has become a form of theft. Similar practices include urgent privatisation orders, compulsory relocations or enabling local administrations or others to acquire shares in property through repeated alterations to settlement plans.

The point has been reached at which the balance between the public interest and private interest cannot be preserved. As a result, social and common rights and properties cannot be used. This adds to the vagueness of the concept. Relations between society, property and ownership are being reset by *de facto* means, property is being developed illegally, contrary to the law, planning is increased conducted in a fragmented (project-based) manner, the market is allowed to take decisions in the name of public administrations. And, there is a lack of communication with professional organisations and the segments of society concerned. All these have become standard practices. In addition, the conditions for the implementation of the profession are increasingly damaging to the principles and precepts of professional practice and to essential rights.

In this process, the concept of 'public' has changed as well. The administrators of a nation state are transferring public assets and resources and tenders into the hands of a specific clique and segment of society. The persons who derive gain and benefit are certain individuals or segments of the nation state (real or legal persons, factions or cliques) and foreign real and legal persons. In the new public order, the nation state still appears to exist but foreign real and legal persons are accorded a higher and more privileged position than the real and legal persons of the nation state. The subject of the nation state –the new 'public'- can be said to consist of the section of society that represents the dominant way of thinking within the whole.

Since a new definition of public appears, consisting of foreign citizens and political adherents, the other citizens of the nation state are being disregarded. In the face of each new development, the excluded citizens of the nation state appear to retain their belief that the nation state will determine the limits and bases of the public interest, that – as Gül (2014) puts it – the administration always acts and makes use its powers of discretion for the sake of the public interest, that the individual will have the opportunity to be represented, and that the legislature will perform its monitoring and protective role. Due to these beliefs, citizens are also observed to remain silent in the face of the usurpation of property and property rights and accelerating totalitarianism.

The granting of citizenship to foreigners in return for a fee is another practice that reinforces this process of change and transformation and serves to redefine the 'society' for which 'social benefit' is intended. The provision of national security, public health and public security services and construction works increasingly enriches the clique referred to, and it acquires the ownership of rights of public use, while the remainder of society is made to bear the costs, resulting in a transfer of resources that creates long-term sustained wealth for the clique. Clearly, what comes about as a result is not the smart and healthy urbanisation proposed by

the planning community but a new social order and space defined by the others.

In order to ensure the legitimacy of a planning institution capable of conducting spatial planning in harmony with a concept of public interest based on universal and social benefit, proposals must be made that correspond to new conceptual definitions and centre on social consensus. These proposals must address the law of the profession, the principles and precepts of urban planning and the drafting of legislation on administrative actions and their supervision, and must differentiate the role of the urban planner.

CONCLUSIVE REMARKS

Historically, there has been various meanings of public interest. The urban planner must understand the meaning and value of the variety of public interest concepts. Even though the concept of public interest is still important for urban planning, the public interest concept has changed recently in ways that weaken its moral and political authority.

In any society, the freedom of private benefits and private property tends to plunge the society and economy into crisis and to prevent the implementation of spatial planning (Eren, 2007). For this reason, the public interest must always take precedence over these interests. A balance between public and private interests can only be assured through spatial planning that is rooted in the public interest. Hence, the institution of urban planning stands between the market and the public interest, and is a constant source of debates and disputes with private benefits and interests, and undergoes crises as an institution.

Supporters of globalisation have blurred the concept and emptied it of its meaning. In the implementation of policies for land and real estate, housing, urban transformation and investments (such as transport, energy, mining and infrastructure investments), and *de jure and de facto* privatisation, the tendency of administrative actions to circumscribe private interests has been questioned, and such actions have faced objections for doing so. In short, the attack on the concept (Moroni, 2004) is a problem that all countries in the global order have experienced to varying degrees.

There appeared conceptual confusion and the desire to preserve the concept of the public interest may be opposed or its very existence rejected. Interest is provided to a certain segment of society at the expense of the remaining segments, so it is only possible to speak of the benefit of a specific segment. The use of a space or a piece of property by a certain group, clique or community is presented to society as public use, and the perception is created that the space has been made available for public

use. The justification of such actions as being in the public interest serves to legitimise the conduct of public services and administrative acts for the sake of private interests. In line with this way of thinking, moreover, services and actions of this kind are endowed with legality through court decisions, and the private interest is provided with protection.

While the urban planning community maintains a critical attitude towards this process, however weak, the number of project-based, piecemeal interventions made by local and global capital organisations affecting cities, coastal zones, other natural resources and preservation areas has increased (Bademli, 1992; Sarıkaya Levent, 2011; Eren, 2007). As a result of these developments, the services and actions that constitute the practice of urban planning have changed (Suher, 1998). In a vicious circle, these interrelated changes, and the shift in the (re)production of space in favour of the production of consumption spaces, have combined with the slide towards totalitarianism in politics from the 2010s onwards mainly in developing nations to increase the conceptual chaos further.

Meanwhile, as the structure of the public administration has changed, the possibility of implementing spatial planning with the public interest objective has disappeared. The crisis of the planning institution and the market has deepened. Furthermore, the effects of this process can be observed in the disappearance or destruction of public assets including natural, cultural and historical assets and national treasures. Universal, national and local assets, resources and treasures face an unmitigated risk of extinction.

Together with the crisis of the market, the growing crisis of legitimacy of urban planning and an alternative form of government have brought with them a crisis of the nation state (Hay, 1999). Change in the meaning of 'public' and 'the public interest', and in the way in which these concepts are implemented, is inevitable. Recovering the public interest concept tied to a universal social benefit along with administrative institutional reforms that will both authorize and legitimize a renewed government urban planning seems hard to achieve. Than there appear questions of how much urban planning should be a state action and could urban plans made by the private sector with market-led objectives achieve public interest?

To put it another way, it is private benefits and interests which now determine approaches to planning and the processes by which urban space is (re) produced. The development and transformation of space can go uncontrolled by the planning institution. The aims and instruments of spatial planning are also changing (Ersoy, 2007; 2017; Schubert, 2019). The new responsibilities of the public administration in some countries, where nation states are dissolving, are creating a different idea of the

public (mainly structured by migration), with a different subject, and are supporting the (re)production of space for the use of the new public. In these countries, as a result of the decline in the quality of education, the quality of the plan production process is also in decline (Schubert, 2019). Meanwhile, constant amendments are spoiling the logic, principles and assumptions of plans and their implementation is going unsupervised.

However, a second line of thought protects the public interest in the same process – namely, the idea that the public interest should be a concern of professional organisations. In the United Kingdom, the Royal Town Planning Institute's Code of Professional Conduct obliges urban planners to serve the public (Tait, 2016; Champbell and Marshall, 2000). Somewhat differently, the American Institute of Chartered Planners note that their members both the public and the public interest (Tait, 2016). Thus it may be said that two different practices are apparent in the same globalised neoliberal world.

As a result of the neoliberal policies implemented in nation states from 1985 onwards, the nature of public actions and decisions, and of private services that ought to be produced for the public interest, have changed. Rational and communicative planning practices based on the public interest have increasingly been abandoned, together with the ideas of universal benefit and social benefit. Urban planners and decision-making institutions and bodies defending these practices have been excluded from the related processes, and institutions and organisations responsible for planning have either been closed or their functions have been altered (Schubert, 2019, Eren, 2007). Related legislation has also been amended (Kaypak and Bimay, 2019; Doğan, 2017). As a result, the crisis of the planning institution deepened (Eren, 2007).

The public interest is a vitally important concept not only for the urban planning profession and for urbanisation but also for the general sense of health, safety and justice in society, and for the spaces that create and sustain these perceptions. The public administration has the responsibility of carrying out urban planning for the public interest, preventing land speculation, ensuring that urbanisation is liveable and sustainable, and drafting and implementing the related legislation correctly. This responsibility is to be carried out in the name of the public, and for the general benefit of society.

For the past forty years, a process of change and transformation has been taking place in society and in cities, and consequently in the fields of the planning profession, under the influence of neoliberal policies. Recent work in planning theory, which builds upon the Habermasian ideas of communicative rationality or the strategic planning approach,

aims to redescribe planning in terms of feasible projects and partial spatial interventions. In the practices of nation states, this has led to a shift in the meanings of the concepts of 'public' and 'the public interest'– concepts associated with the nation state on which the institution of planning is based. As the institutions of the state, planning and the market move away from the focal point of the public interest, they find themselves in crisis. The covid-19 Pandemic is making the situation harder and is changing our dreams, understandings and practices as urban planners.

Today, private interests have taken precedence over the public interest in the area of urbanisation and urban planning, and individual interests and gains are determining what actions are taken. The public interest is no longer the interest of everybody, or the common good or social benefit. In its current state, the concept of the public interest remains a part of the public order, but it is grounded in private interests and is reproducing social inequalities. Furthermore, private interest is being concealed in the actions and services which public institutions perform. Administrative and judicial decisions are being taken for private interest while those concerned behave as if all this were being done for the public interest.

This situation also creates conceptual confusion and uncertainty about the public interest conceptual content. In the fields of urbanisation, planning and legal practice, every institution or individual understands something different by the concept of the public interest or expects something different from it, regardless of the place or the time. Dominant ideologies produce their own concepts or redefine existing ones (Doğanay, 1974). For this reason, urban planners must be careful about which notions of the public interest and the public they serve.

Whatever its nature or dimensions, any action or service of the public administration which does not incorporate the public interest, and which serves to conceal private interests, is a defective action and this plunges the planning institution into crisis. The rule of law is also called into crisis. It is a basic principle of the rule of law that no provision may be adopted for the benefit of specific individuals, groups, cliques, institutions or organisations. Since the actions of the state are not in the public interest, the foundations of the welfare state and the rule of law have been undermined. In these circumstances, the assumption that legislation is in line with legal principles is no longer valid either. This contradiction therefore needs to be overcome so that the public administration can take action for public interest and protect the public and the institutions of planning and the market can claim legitimacy.

The dilemma is mounting with the ongoing increase in the number of services and actions that benefit administrators and private individuals.

The concept of the public interest today is not a common denominator for all aspects of different temporal and spatial relationships. In order to strengthen the institution of planning, the conflict between public and private rights needs to be reduced and a balance must be established between the two. But what is really important is to develop legislation that specifies the types of public service and action from which administrators profit and prevent them from occurring.

Concerning the concept of the public interest, some authors have raised the question of the conditions in which the relationship between urban planning and the market can be regenerated (See: Campbell and Marshall, 2002). The discussions in question conclude that the conditions necessary for effective urban planning cannot be put in place, since conditions are determined by the forces of globalisation, and that the current primacy of private interest over public interest will therefore persist. Here, the current crisis of legitimacy of the institutions that shape the professional and social environment and the conceptual confusion that surrounds the public interest are subjected to a further evaluation.

Tekeli (1988b; 1991) states that the success of planning is measured by the contribution it makes to the establishment of a free and fair social order. It follows that arrangements need to be made to be able to measure the outcomes of planning actions. In situations where the state and the institution of planning are in crisis, the results of these actions cease to be measurable and are generally contrary to the public interest. The administrative courts can halt the actions to some extent, but are far from repairing the damage done.

Given the uncertainties in which the crisis of planning is steeped, it is unlikely that the problems surrounding the public interest can be overcome or the crisis of the planning institution eliminated completely, whatever proposals may be made or actions taken. Today, it will be difficult to support or achieve a common recognition of the absolute value of the public interest. There is therefore no point in expecting the unfair consequences to be put right in the near future. Nevertheless, short-, medium- and long-term goals should be identified for the profession, work should be carried out on these points with the participation of the parties concerned and the field of practice should be monitored. The parties concerned need to be clear in their minds about which perspective and definition is to be adopted.

This must be unexpected from the developing countries in the short term. In these countries in particular, it can be observed that no administrative action or precaution is currently being taken to reverse or manage the crisis of the nation state. The powers wielding public authority are responsible for doing so are themselves exploiting the vague concept

of the public interest to derive advantages from the ongoing trend. Legal arrangements upholding the public interest are being infringed by the public administration itself.

The threshold has been passed in the acceptance of the assumption that the public administration as a whole is always right, and that it continuously seeks the benefit of the public. And, the adoption of various measures and practices in cases where there is a public interest or a just reason to the contrary will never be considered to conflict with the principle of equality enshrined in constitutions. In countries where legislation is no longer binding, the excluded sections of society acquire a right of disobedience. Hence for the continuity of the rule of law too, it is important that a legal order should be set out to safeguard the wealth of society and that all parties should abide by it.

The concept of the public interest must be defined once again with respect to its aim, scope, cause, authority, form and measurement, together with its dimensions of scale and time. The essence and meaning of the concept and the forms it takes need to be determined and the welfare of the public ensured. Rights and limits need to be redefined on the basis of the authorities to obstruct, use and benefit from rights which constitute the criteria that circumscribe the establishment or requirement of the public benefit. Once one defines the public interest as a principle that will be of benefit to the whole of society, the limits of the aggrievement and interests of individuals will have been determined as well.

The principles and conditions governing criteria, norms, just reasons, equality and primacy with regard to the public interest and the arrangements to be made should set out the corresponding meanings present in other, similar concepts. Specific sanctions of planning amendments, a monitoring mechanism and instruments should also be developed for the timely, on-the-spot inspection of business and procedures with regard to the public interest, and details should be given of the envisaged administrative mechanisms.

Legislation should have the purpose of defining the public interest in public goods and services and identifying the extent to which it is to be protected or required. It should be drafted in such a way as to eliminate overlaps and conflicts between the public interest and private interest, to define the content of public interest and benefit, social benefit and universal benefit, and to uphold the primacy of the public interest. Bearing in mind the requirements of services and actions which are performed for the public interest, the legislation should make it possible to establish a realistic, objective and inevitable relationship of cause and effect between the specifications and restrictions foreseen in the arrangement being made

and the service or action which it is intended to provide. With respect to revisions, it is important to identify and delete those items of legislation that do not serve the public benefit.

Consequently, all these should be given shape under the leadership of professional organisations or academies but also under the umbrella of preferably an international legal and institutional body in a mutually consistent manner. One might also consider drawing up an action plan to determine the active roles and responsibilities to be taken by planners or by the related public institutes, organisations and professional associations. And, ensure that these are fulfilled.

In order for any proposal to be adopted and put into practice in the course of this process, the profession will need to act in unity and solidarity, while the limits and principles governing any intervention in the professional field and the terms and conditions for the practice of the profession, will need to have been defined, along with new sub-areas of the profession.

It must be underlined that in the absence of the institution of urban planning for public interest, none of the actions of the market will be legitimate or reliable (Eren, 2007). If the legitimacy of the institutions of planning and the market is to be secured, and cities consisting of liveable spaces are to be created, then the modern concept of the public interest and the strategic planning approach should not be rejected altogether. There should be consensus on a rational, inclusive approach to planning which respects social benefit and prioritises the public interest. In spite of all the global developments, there are still countries in which rational and inclusive planning is practised, whether in full or to a declining extent. Even if it is taught and supported in academic institutions, communicative and strategic planning cannot be implemented properly in the context of planning practices due to piecemeal interventions.

In short, if today we are unable to create and maintain healthy and sustainable cities, and if urban sprawl has got out of control, then this situation is a result of the changing concept of ‘the public interest’. In the current circumstances, any proposals or ideas regarding these cities and their decision-makers it may be perceived as utopian. It is important for such proposals to be developed, added to or restructured through discussion, but the key issue if they are to be implemented is not to be prepared to counter demands based on private interests, or to provide an alternative to these, but rather to make proposals that envisage the design and elaboration of a new system.

The public interest should be reinserted into public administrative and planning activities from which it has gone missing. Once the public interest

has been specified concretely in the public service of spatial planning, it will be possible for it to take precedence over private interest, and to stand up for it again. First, all parties must display a common will and commitment. The professional field lacks a proper structure. If this continues, then in future, just like today, it will only be possible to monitor the various *de facto* and *de jure* developments taking place in contravention of the public interest and to record them for the history of planning.

In his *The Threepenny Opera*, Bertolt Brecht stated in verse that however many plans you make your plan will never come right. Where the environment in the planning system is similar to that in which Brecht completed his work, one can make many spatial plans, it will be common knowledge that these plans are not in or for the public interest, and their appropriacy will be constantly open to question. Pandemic free, sustainable and liveable cities and planning for the public interest and benefit will continue to be considered utopias, and the outcomes of this situation will continue to be talked about. Moreover, in the long term, the results of the practice of the fluid approach to public interest that is widespread in some countries will inevitably transfigure the practices of nation states with an experience of urban planning focused on the public interest.

REFERENCES

Akıllıoğlu, T.(1991). Kamu Yararı Kavramı Üzerine Düşünceler, *Amme İdaresi Dergisi*,24(2):3-15.

Alexander, E. R. (2002). The Public Interest In Planning From Legitimation to Substantive Plan Evaluation, *Planning Theory*, 1 (3): 226–249.

Bademli, R. R. (1992). Kent Planlamasında Yeni Gündem, Kentsel Proje Vurgulu Eylemli Planlama, Türkiye Kent Kooperatifleri Merkez Birliği, *Kent Kooperatifçiliği Altıncı Teknik Semineri (Sarıgerme: 30 Ekim-03 Kasım 1991): Kentsel Arsa Üretimi Açısından İmar Planları, Kentsel Yenileme Projeleri ve Kent Kooperatifleri Taşınmaz Mülkiyeti Konusunda Yeni Eğilimler*, Türkkent Publications, No: 4. Ankara: 60-69.

Bademli, R. R. 1999. Informal Discussion Note with the author, 16 May 1999.

Bal, E. (2006). İdari Yargının Üç Temel Bileşeni Olarak; Kamu Yararı, Planlama Esasları ve Şehircilik İlkeleri, *Planlama,* 2006/3: 27-34.

Beşiktepe, C. (1997). *Kent Rantının Topluma Geri Döndürülmesi, Özelleştirme Değil Kamulaştırma. Kamulaştırma Forumu*, 27-28 Mayıs 1995. Petrol-İş Headquarters, İstanbul, 187-203.

Campbell H. and Marshall R. (2000). Moral Obligations, Planning and the Public Interest: A Commentary on Current British Practice. *Environment and Planning B*. 27.2: 297-312.

Campbell, H. and Marshall, R. (2002). Utilitarianism's Bad Breath? A Re-Evaluation of the Public Interest Justification for Planning, *Planning Theory*, 1 (2): 163-187.

Chettiparamb, A. (2016). 'Articulating 'public interest' through complexity theory', *Environment and Planning C: Government and Policy*, 34 (7): 1284–1305. doi:10.1177 /0263774X15610580.

Dahlberg, L. (2004). The Habermasian public sphere: Taking difference seriously? *Theory and Society*, 34 (2): 111–136.

Doğan, K. C. (2017). Postmodern Kamu Yönetiminin Kuramsal Temelleri Çerçevesinde Yönetişim Yaklaşımı: Literatür Taraması, *Ömer Halis Demir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, Year: January, 10 (1): 27-45. 308-4216 http://dergipark.gov.tr/ohuiibf/

Doğanay, Ü. (1974). Toplum Yararı ve Kamu Yararı Kavramları, *Mimarlık Dergisi*: 5-7.

Duvarcı, Y. (2004). Planlama Mesleğine ve Planlama İlkelerine Etik Açıdan Eleştirel bir Bakış, *Planlama*, 2004/2: 14-27.

Eren, Ş. G. (2007). *Impacts of Privatization on Urban Planning: The Turkish Case (Ankara)*, METU Department of City and Regional Planning, Unpublished Ph. D. Dissertation, July, Ankara.

Ersoy, M. (Ed.) (2007). *Kentsel Planlama Kuramlarına Eleştirel Bakışlar, Kentsel Planlama Kuramları*. İMGE Books, Ankara. 279-306.

Ersoy, M. (2017). *Planlama Kuramları, Kent Planlama*. S.S. Özdemir, Ö.B.Ö. Sarı and N. Uzun (Eds.) Ankara. 127-164.

Flathman, R. E. (1966). *The Public Interest: An Essay Concerning the Normative Discourse of Politics* (John Wiley, New York).

Gedikli, B. (1998). Kamu Yararı ve İmar Afları, *Ada Kentliyim*, 4: 81-83.

Gül, İ. (2014). Danıştay Kararlarında "Kamu Yararı" Kavramı. *Ankara Barosu Dergisi*, 2014/ 2: 535-550.

Gültekin, M. C., Çocuk, S. and Aksöz, K. (2016). Rant Teorileri ve Toprak Rantı Kavramı Üzerine Bir İnceleme. *Iğdır Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi* (IUJEAS) 1(1).

Habermas, J. (1991). *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* (trans. T Burger). Cambridge, MA: The MIT Press.

Hay, C. (1999). Crisis and the Structural Transformation of the State: Interrogating the Process of Change, *The British Journal of Politics and International Relations*, 1 (3): 317-344.

Held, V. (1970). *The Public Interest & Individual Interests*. Basic Books: New York.

Howe, E. (1992). Professional Roles and the Public Interest in Planning, *Journal of Planning Literature*, 6 (3): 230-248.

Kaypak, Ş. and Bimay, M. (2019). Küreselleşme Sürecinde Kamu Politikalarında Yaşanan Değişimler, *ASSAM-UHAD,* 6 (15): 21-38.

Keleş, R. (1993). Kamu Yararı Kavramı (Bölüm III), *Kent ve Siyaset Yazıları (1975-1992)*, İULA-EMME: 94-119.

Keleş, R. (1998). *Kentbilim Terimleri Sözlüğü*, Ankara, İmge Yayınları.

Keleş, R. (2000). *Kent ve Çevre Değerleri Bağlamında Kamu Yararı Kavramı, Mekân Planlama ve Yargı Denetimi*, Der. Melih Ersoy, H. Çağatay Keskinok, Yargı Publications, October, Ankara. 1-13.

Keleş, R., Geray, C., Emre, C. and Mengi, A. (1999). *Kentsel Toprak Rantının Kamuya Kazandırılması*, Türkiye Kent Kooperatifleri Merkez Birliği, Ankara, Öteki Publications, January. 23-45.

Lennon, M. (2017). 'On 'the subject' of planning's public interest', *Planning Theory*, 16 (2): 150–168. doi: 10.1177/1473095215621773.

Union of Turkish Bar Associations (TBB), (1975). Minutes of the Economy and Law Convention (28-30 November 1975), Kentleşme ve Kamu Yararı. Publication No: 21. Ankara

Korkut, L. (2006). Temel Hak ve Özgürlüklerin Bir Sınırlama Nedeni olarak Kamu Yararı Kavramı. *Liberal Düşünce*, 11 (44): 77-78.

Mattila, H. (2016). Can collaborative planning go beyond locally focused notions of the "public interest"? The potential of Habermas' concept of "generalizable interest" in pluralist and trans-scalar planning discourses. *Planning Theory*, 15 (4): 344-365.

Moroni, S. (2019). Constitutional and post-constitutional problems: Reconsidering the issues of public interest, agonistic pluralism and private property in planning, *Planning Theory*, 18 (1), pp. 5–23. doi: 10.1177/1473095218760092.

Moroni, S. (2004). Towards a Reconstruction of the Public Interest Criterion, *Planning Theory*, 3 (2): 151-171.

Plato (1974). *The Republic*. Penguin Classics. Second Edition.

Purcell, M. (2016). For democracy: Planning and publics without the state. *Planning Theory*, 15 (4): 386-401.

Savran, S. (1997). Devlet Mülkiyeti: Toplumsal Mülkiyete Giden Yol (State Ownership as the Road to Socialized Property), *Dünyada ve Türkiye'de Kamu Girişimciliğinin Geçmişi ve Geleceği Sempozyum Bildirileri*, TMMOB Elektrik Mühendisleri Odası (EMO) İstanbul Şubesi, 1. Cilt, 06-07 Ekim 1997. Lütfi Kırdar Konferans Merkezi, Harbiye İstanbul: 38-54.

Sarıkaya Levent, Y. (2011). *Kent Planlama ve Kamu Yararı, Toplum ve Demokrasi*. Presentation. 5 (11): 1-4.

Schubert, D. (2019). Cities and plans – the past defines the future. *Planning Perspectives*, 34 (1): 3-23.

Starr, P. (1988). The Meaning of Privatization, *Yale Law and Policy Review*, 6-41.

Suher, H. (1998). *Kent Planlamada Kamu Yararı Kavramı, Bodrum Revizyon Nazım İmar Planı*, Panel, TMMOB Chamber of Architects Bodrum Representative, Bodrum.

Tait, M. (2016). Planning and the public interest: Still a relevant concept for planners? *Planning Theory*, 15 (4): 335-343.

Tekeli, İ. (1988a). Mülkiyet Kurumu, Kamu Yararı Kavramı ve İmar Planları Üzerine, *Planlama,* 1988-2. 67-87.

Tekeli, İ. (1988b.) Mülkiyet Kurumu, Kamu Yararı Kavramı ve İmar Planları Üzerine, *Türkiye 12. Dünya Şehircilik Günü Kolokyumu: Şehircilik, Hukuk ve Yönetim İlişkileri*, Ankara University, Faculty of Political Sciences, 16-18 Kasım, 37-46.

Tekeli, İ. (1991). Mülkiyet Kurumu, Kamu Yararı Kavramı ve İmar Planları Üzerine, *Kent Planlaması Konuşmaları*, TMMOB Chamber of Architects Publications, Ankara, October. 113-135.

Tekeli, İ. (1992). Kentsel Topraklarda Mülkiyet Kurumunun Varlığının Toplumsal Sonuçları ve Yeniden Düzenleme Olanakları Üzerine. *Planlama*, 92/1-4: 48-57.

Tezcan, A. M. and Poyraz, U. (2013). Kamu Yararı Kavramının ve Türkiye'deki Yasal Dayanaklarının Kentsel Politikalar Açısından Değerlendirilmesi. *Çağdaş Yerel Yönetimler*, 22 (1): 1-21.

Tombaloğlu, N. (2014). Anayasa Mahkemesi Kararlarında Kamu Yararı Kavramı. *İnönü Üniversitesi Hukuk Fakültesi Dergisi*, 5 (1): 353-388.

Ülkenli, Z. (1999). *The Concept of Public Interest in the Turkish Planning Experience with Reference to Tourism Centers*, Unpublished Doctorate Thesis, Department of City and Regional Planning, Middle East Technical University, Ankara.

Ünal, E., Duyguluer, F. and Bolat, E. (1998). *İmar Terimleri Sözlüğü*, TODAİE Yayınları. Ankara.

Chapter 7

TOURISTS' PERSPECTIVE OF CULTURAL HERITAGE AREAS: IMPORTANCE-PERFORMANCE ANALYSIS OF SAFRANBOLU

Sevgi OZTURK[1],
Oznur ISINKARALAR[2],
Dilara YILMAZ[3],
Esra CICEK[4]

1 Associate Professor, Kastamonu University, ORCID ID: 0000-0002-3383-7822
2 Research Assistant, Kastamonu University, ORCID ID: 0000-0001-9774-5137
3 Postgraduate Student, Kastamonu University, ORCID ID: 0000-0002-9151-0529
4 Graduate Student, Kastamonu University, ORCID ID: 0000-0002-2591-1092

1. Introduction

Significant changes occur in tourism together with the rapid economic, political, technological developments and changes in the world (Cengiz, 2012). However, areas with cultural heritage have long been in the nature of a special attraction center for people. According to Richards (2018), cultural sights, attractions, and events that are part of culture and tourism promote travel and therefore have always been inextricably linked. Sustainable tourism approaches to prevent the negative environmental effects of mass tourism have affected cultural tourism activities worldwide. As the work, Eser et al. (2013) mentioned, in the modern world, cultural heritage sites and the evaluation of such sites through tourism have gained importance during the last twenty years.

In terms of cultural tourism, Turkey, which hosted many civilizations throughout history, is a country with many historical and important, tangible and intangible cultural heritage elements in every direction (Kocoglu and Boztepe). The city of Safranbolu, registered by UNESCO in 1994, is an important part of the world's historical heritage. The architectural structure and preservation process of the city have been investigated frequently, and much research has been conducted on the tourism potential of the area. According to Lichfield (1988), the economic and social characteristics of historic urban areas should be maintained and the existing buildings should be used actively to meet today's needs. However, increasing visitor pressure and unplanned tourism development (Ceylan and Somuncu, 2016) have made it necessary to address service delivery.

In this respect, it is stated that the primary management criterion and satisfaction level should be defined (Bultena and Klessig, 1969; LaPage, 1963; Baker and Crompton, 2000). It has been pointed out in many discussions that it is very important for a company's competitive advantage to ensure superior user value and satisfaction (Deng, 2007; Kotler and Armstrong, 1997; Weitz and Jap, 1995). It is often stated that customer satisfaction increases profitability (Anderson, Fornell and Lehmann, 1994; Deng, 2007; Eklof, Hackl and Westlund, 1999; Hallowell, 1996; Johnson, Nader and Fornell, 1996; Zeithaml, 2000). It is argued that tourists' satisfaction with a destination positively affects the behavior that occurs after the visit (Engel et al., 1993; Yoon and Uysal, 2005; Demir, Kozak and Correia, 2014).

Numerous researchers use importance-performance analysis (IPA) to identify critical performance factors in customer satisfaction survey data (Chu and Choi, 2000; Deng, 2007; Enright and Newton, 2004; Hawes and Rao, 1985; Huana, Beamanb and Shelbyc, 2002; Nunkoo and Ramkissoon, 2009; O'Neill and Palmer, 2004; Smith and Costello, 2008; Tikkanen,

Alajoutsijarvi and Tahtinen, 2000; Yavas and Shemwell; 1997; Zhang and Chow, 2004). In this study, IPA is used as a method to identify the improvement opportunities of Safranbolu city.

2. The implementation of IPA

2.1. Importance-Performance Analysis (IPA)

The importance-performance analysis is a method of analysis, which is used to determine the performance observed in the current situation with value perceptions about specific issues. Originally used by Martilla and James in 1977, the IPA was developed to reveal which products and services the focus should be on to improve customer satisfaction (Oh, 2001). This method has taken its place in tourism literature over time and has been used to examine managerial initiatives and practices.

IPA, which is actually an analysis technique used to facilitate efficient resource allocation and prioritization of regulations, was developed to evaluate service quality and to propose management strategies (Deng, 2007). Each area in a 2x2 matrix, represented by the intersection of the importance and performance axes, represents different managerial practices (Martilla and James, 1977). Its main purpose is to make administrative recommendations for implementation while determining the performance of certain qualities of various products and services facilitating the interpretation of data (Dwyer et. al., 2012). The matrix in Figure 1 shows four IPA strategies (Martilla and James, 1977; Albayrak, 2014; Tekin et.al., 2014).

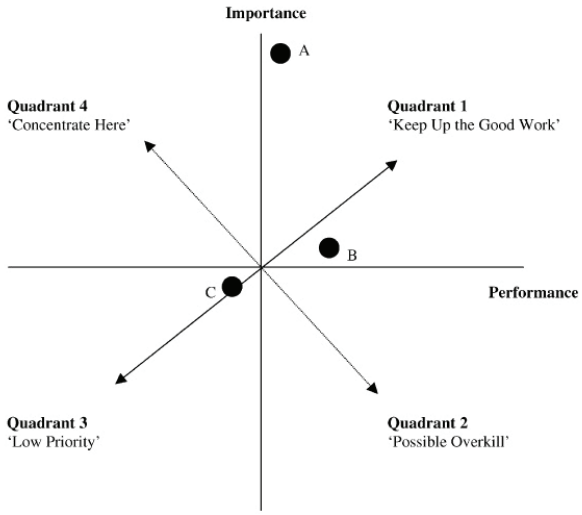


Figure 1. IPA Matrix (Oh, 2001)

2.2. Study Site

Safranbolu district where the study was conducted is located in 41° - 15' North parallels and 32° - 42' east meridians (Kaya and Kurt, 2011). The history of Safranbolu is assumed to date back to 3000 BC. Hittites, Paphlagonia, Kimers, Lydians, Persians, Seljuk Empire, and Ottoman Empire dominated the region throughout history (Figure 2) (Ruge and Bittel, 1949).

Figure 2. Location of the study area

It was included in the World Heritage List in 1994 by UNESCO with its many historical and cultural values that conserved the Ottoman-Turkish architecture until today (Gurbuz, 2002). However, the studies that will direct tourism about cultural heritage areas in Turkey are very limited.

2.3. Survey Design

In the study, it is aimed to determine the satisfaction levels and thoughts of visitors to Safranbolu, an important historical and cultural settlement. In this direction, the city of Safranbolu was chosen as the main universe for field research. After that, survey questions were developed by using the literature as a data collection tool, and the number of people to be surveyed was determined. The survey was conducted randomly in a 3-month period (June-July-August) when the season was observed to be the most crowded.

The survey consisted of three parts, each of which contained 5-point Likert type questions. It was conducted with the visitors to Safranbolu on a voluntary basis. The first part consisted of questions inquiring about the participants' gender, education, and occupation as well as their thoughts about Safranbolu visits. In the second part, 24 criteria evaluations (1: not at all important, 2: not very important, 3: partly important, 4: important, 5: very important) were asked in order to measure their expectations and importance levels from a touristic area. In the last part of the survey, the participants were asked to evaluate the performance of Safranbolu within the context of 24 criteria (1: poor, 2: fair, 3: good, 4: very good, 5: excellent). In order to find out the number of people to be surveyed, the cross-sectional method calculation was used (Ozdamar, 2001). According to this calculation, the number of people to be surveyed was 96 but a total of 100 people were surveyed;

$$n = \frac{(Z^2 NPQ)}{(ND^2 + Z^2 PQ)}$$

where;

n: Sample size

Z: Confidence coefficient (1.96 for 95% confidence)

N: Population size (Total number of tourists visiting in 2018 is 315.842)

P: Probability of the feature we want to measure in the main body (50%)

Q=1–P, D: Accepted sampling error (10%)

3. Results

3.1. Visitor profile

Data were obtained by surveying the domestic tourists visiting Safranbolu. The demographic characteristics of the participants are given in Figure 3. According to this, 35% of the participants were female and 65% were male. Most of the participants (73%) were university graduates and university students. Also, 46% were employed in the public sector, and 39% were students.

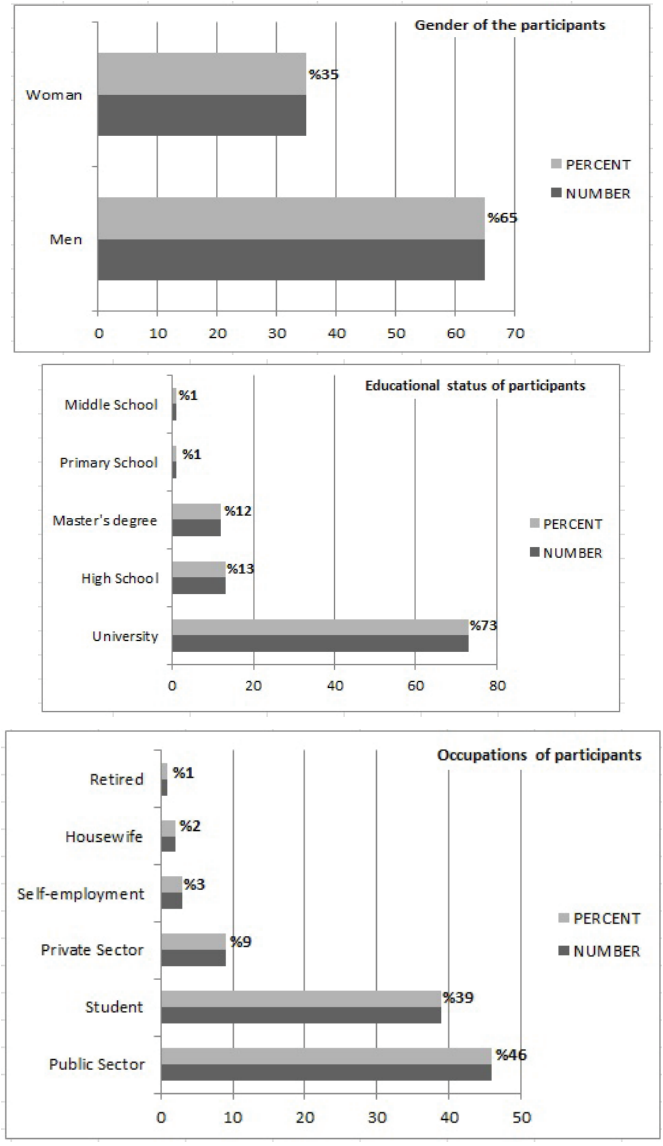


Figure 3. *Demographic Features*

3.2. Importance-Satisfaction Analysis And The Gap Method

After obtaining the demographic data, the participants were asked whether they had come to Safranbolu before. It was determined that most of the participants had visited Safranbolu before. When the proportional distribution is examined, it is seen that the purpose of the visits to the area is mostly family trips and social activity with friends. They stated that Safranbolu was their hometown and that they came for business or technical trips. Finally, when it is asked if they will stay for the night or not, 48% answered: "Yes" and 52% answered: "No" (Table 1).

Table 1. Data related to participants' visits to Safranbolu

Question	Answer	Person	Percent (%)
Whether participants had visited Safranbolu before	**Yes**	**93**	**93**
	No	**7**	**7**
With whom the participants visited Safranbolu	**Alone**	**9**	**9**
	Family	**47**	**47**
	Friend	**44**	**44**
The number of times they visited Safranbolu	**First time**	**5**	**5**
	Once	**2**	**2**
	Twice	**7**	**7**
	Three times and above	**86**	**86**
How they decided to visit Safranbolu	**Tourism agencies**	**0**	**0**
	Friend recommendation	**30**	**30**
	Brochures, magazines	**3**	**3**
	Wanted to visit for a second time	**29**	**29**
	Other	**38**	**38**
Accommodation for the night	**Yes**	**48**	**48**
	No	**52**	**52**

According to the IPA matrix, the importance and performance of Safranbolu city in accordance with the determined criteria were demonstrated (Figure 4; 5). After the IPA matrix study, the expectations-perception table was prepared from the answers given to the criteria in the survey applications, and the references used were indicated (Table 2).

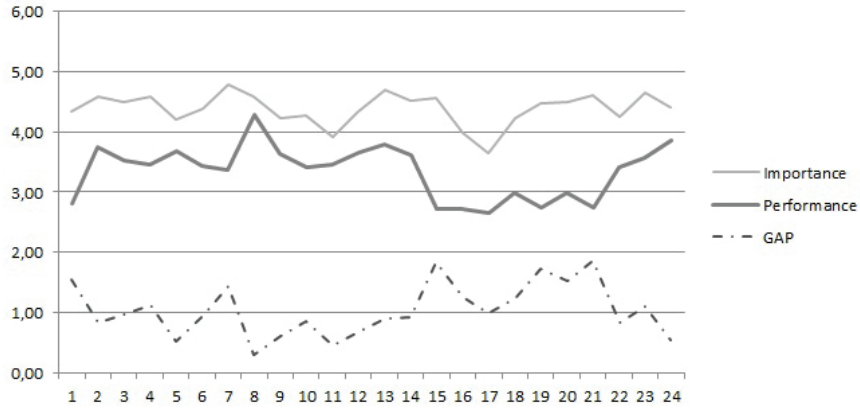


Figure 4. GAP Values

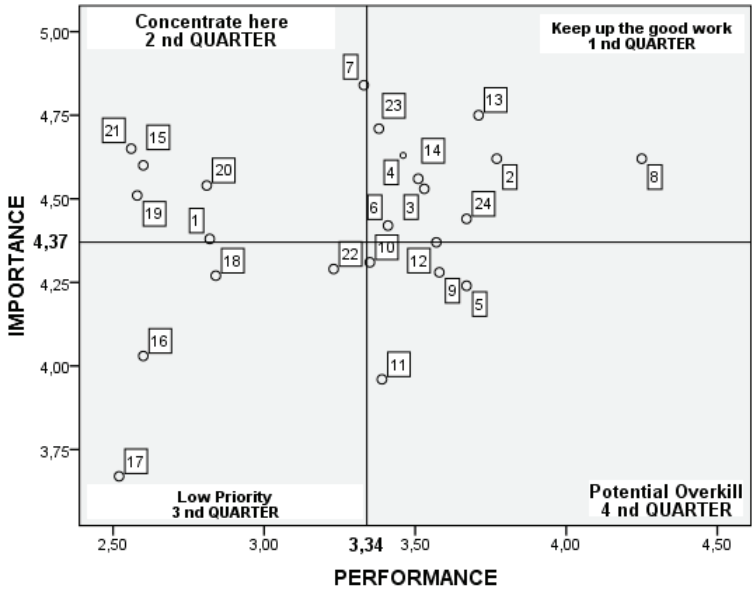


Figure 5. IPA Matrix in the scope of the study

Concentrate Here 2nd QUARTER **1. Transportation infrastructure.** **7. Environmental cleaning.** **15. Designs for the use of people with disabilities.** **19. Appropriate food and beverage prices.** **20. Garbage collection units should be sufficient.** **21. Adequate availability of WC areas.**	**Keep up to good work 1st QUARTER** **2. Visiting historical and cultural places in tranquility** **3. Giving quality service to tourists.** **4. The attitude of local vendors and shopkeepers towards visitors.** **6. Traditional products and local dishes.** **8. Symbolic buildings (mosques, tombs, castles, residences, etc.) specific to the region should be present.** **13. Protection of natural and cultural heritage.** **14. Security and safety services.** **23. Maintaining the historical and cultural environment** **24. Improving the quality of life with the contribution of tourism to the region.**
Low Priority 3rd QUARTER **16. Activities for children.** **17. Finding entertainment venues.** **18. Finding eating and drinking areas.** **22. Accommodation facilities are comfortable.**	**Potential Overkill 4th QUARTER** **5. Finding shopping areas that reflect the character of the region.** **9. The presence of museums that reflect the culture, traditions, and crafts of the region.** **10. Finding guiding signs and information boards.** **11. Cultural interaction between locals and tourists.**

Table 2. Expectation and Perception Criteria

Expectations		Perceptions	References
1	Transport infrastructure should be of sufficient level and quality.	Transport infrastructure is partly adequate and of quality.	Akbulak, C. (2016) - Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016) -Cibinskiene, A., and Snieskiene, G. (2015)- Colak,O. (2009) - Genc, K., Atay, L., ve Eryaman Y. (2014)– Hossain, Md. (2019)- Ipar, M. S. ve Dogan, M. (2013)-Khadaroo, J., Seetanah, B. (2008)- Kuter, N , Unal, H . (2013) – Merdan, K. and Okuroglu, M.S. (2016)- M.A. Kozak, S. Eren, and O. Cakir (2013)-Sengul, S., Yucel, R.(2018)-Tapur, T. (2009)-Yildirim, H.(2019).
2	Visiting historical and cultural places in tranquility.	Historical and cultural sites can be visited in tranquility.	Cibinskiene, A., and Snieskiene, G. (2015)-Gurbuz, A. (2009)- Kilic, I , Secilmis, C . (2018)- Sevim, B.,Secilmis, C. ve Gorkem, O. (2013)- Uslu, A. ve Kiper, T. (2006)-1st Internatıonal Sustaınable Tourısm Congress November 23-25, (2017).
3	Quality service should be given to tourists.	Quality service is given to tourists.	Cibinskiene, A., and Snieskiene, G. (2015)-Gunduz, E., Yuksel, B., Avci, M., (2017)- Gurbuz, A. (2009)- Hossain, Md. (2019)- Ipar, M. S. ve Dogan, M. (2013)-Sengul, S., Yucel, R.(2018)-Sevim, B.,Secilmis, C. ve Gorkem, O. (2013)- Yasarsoy,A., Karaset, S. (2017)-Yildirim, H".(2019)-1st Internatıonal Sustaınable Tourısm Congress November 23-25, (2017).
4	Security and safety services should be adequate.	Security and safety services are adequate.	
5	Accommodation facilities should be comfortable.	Accommodation facilities are partly comfortable.	
6	The attitude of local vendors and artisans towards visitors should be appropriate.	The attitude of local vendors and artisans towards visitors is appropriate.	Avcikurt, C., Soybali, H. (2002)- Gurbuz, A. (2009)-Deng, W. (2007)- Haznedar, H.(2016)- Lopez-Toro, A.A., Diaz-Munoz, R. and Perez-Moreno, S. (2010)- Nunkoo, R. and Ramkissoon, H. (2009)- Ozturk,S., Umdu, D.(2017)-Reisinger, Y. and Turner, L. (1998)- Sezer, I. (2017).
7	Shopping areas reflecting the character of the region should be included.	There are shopping places that reflect the character of the region.	Akgoz, E., (2017)-Avan, A. (2010)- Emir, O., - Sevim, B.,Secilmis, C. ve Gorkem, O. (2013)- Gurbuz, A. (2009)- Ipar, M. S. ve Dogan, M. (2013)-Noor, N., (2017)-Sezgin, A., Eren, F., (2017)- Sengul, S., Yucel, R.(2018)-Uslu, A. ve Kiper, T. (2006)-Yildirim, H. (2019).

8	**Traditional products and local dishes should be available.**	**Traditional products and local dishes are partially available.**	**Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016)-Erdem, O., Mizrak, M., ve Kemer, A. K. (2017)- G.Gunes ve S.Akgul. (2017)-Gurbuz, A. (2009)- Hossain, Md. (2019)- Oter, Z., Ozdogan, O., (2005)- Sevim, B.,Secilmis, C. ve Gorkem, O. (2013)-Sezgin, A., Eren, F., (2017)-Sengul, S., Yucel, R.(2018)- Uslu, A. ve Kiper, T. (2006)-Yildirim, H.(2019).**
9	**There should be eating and drinking areas.**	**Eating and drinking areas are partly sufficient.**	
10	**Food and beverage prices should be affordable.**	**Food and beverage prices are partly reasonable.**	
11	**Environmental cleanliness should be given importance.**	**Environmental cleanliness is partly adequate.**	**Akova, O. (2006)- Cibinskiene, A., and Snieskiene, G. (2015)- Ceken, H. (2004)- Cetin, T. (2009)- Dolmaci, N., Bulgan, G. (2013)- Gurbuz, A. (2009)- Sengul, S., Yucel, R.(2018)- Uygur, S. M. ve Baykan, E. (2007) - Yavuzcehre, S. Pinar ve Sulun E. Torlak (2006).**
12	**Symbolic buildings and structures (mosques, tombs, castles, dwellings, etc.) specific to the region.**	**Symbolic buildings and structures (mosques, tombs, castles, residences, etc.) that are unique to the region are certainly present.**	**Avci, N. (2018)- Cibinskiene, A., and Snieskiene, G. (2015)- Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016)- Hossain, Md. (2019)-Sevim, B.,Secilmis, C., Gorkem, O. (2013)- Sezer, I. (2017)- Surucu, O., Kargiglioglu, S., Ak, S. (2017)-Sengul, S., Yucel, R.(2018)- Uygur, S. M. ve Baykan, E. (2007).**
13	**There should be museums that reflect the culture, traditions, and crafts of the region.**	**There are museums that reflect the culture, traditions, and crafts of the region.**	**Akgoz, E., (2017)-Albayrak, A. (2014)- Cibinskiene, A., andSnieskiene, G. (2015)- Emekli,G.,(2006)- Gurbuz, A. (2009)- Icellioolu,C.,(2014)- Kilic, İ , Secilmis, C . (2018)- Oter, Z., Ozdogan, O., (2005)-Surucu, O., Kargiglioglu, S., Ak, S. (2017)-Uslu, A. ve Kiper, T. (2006).**
14	**Guidance signs and information boards should be available.**	**Guidance signs and information boards are partially available.**	**Akgoz, E., (2017)- Albayrak, A. (2014)-Cibinskiene, A., and Snieskiene, G. (2015)-Emekli,G.,(2006)- Gurbuz, A. (2009)- Icellioglu, C.,(2014)- Kilic, I , Secilmis, C . (2018)- Oter, Z., Ozdogan, O., (2005)-Surucu, O., Kargiglioglu, S., Ak, S. (2017)-Uslu, A. ve Kiper, T. (2006).**

15	**There should be cultural interaction between locals and tourists.**	**There is cultural interaction between locals and tourists.**	**Akova, O. (2006)- Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016)- Cetin, T. (2009)- Emir, O., Avan, A. (2010)-Gurbuz, A. (2009)-Hossain, Md. (2019)- Oter, Z., Ozdogan, O., (2005)-Reisinger, Y. and Turner, L. (1998)- Sevim,B.,Secilmis, C. ve Gorkem, O. (2013)- Turker O., Turker A., Guzel O. (2014)-Uygur, S. M. ve Baykan, E. (2007).**
16	**Local people should be hospitable to visitors.**	**Local people are hospitable to visitors.**	**Bicici, F. (2013)-Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016) – Cetin, T. (2009)- Gurbuz, A. (2009)-Hossain, Md. (2019) - Oter, Z., Ozdogan, O., (2005) - Ozturk,S., Umdu, D. (2017) – Reisinger, Y. and Turner, L. (1998)-Sevim, B.,Secilmis, C. ve Gorkem, O. (2013) - Sezer, I. (2017).**
17	**Natural and cultural heritage must be preserved.**	**Natural and cultural heritage is being protected.**	**Cibinskiene, A., and Snieskiene, G. (2015)- Cetin, T. (2009)- Hossain, Md. (2019)- Kuter, N., Unal, H.E., (2009)- Sevim, B.,Secilmis, C. ve Gorkem, O. (2013)-Sengul, S., Yucel, R.(2018)- Uslu, A. ve Kiper, T. (2006)-Uygur, S. M. ve Baykan, E. (2007)-1st Internatıonal Sustaınable Tourısm Congress November 23-25, (2017).**
18	**There should be plans suitable for the use of people with disabilities.**	**Planning suitable for the use of people with disabilities is partly sufficient.**	**Akinci, Z. ve Sonmez, N. (2015)- Darcy, S., (2010)- Dogru, H., Kaygalak, S., Miral, Cavdirli C. ve Bahceci, V. (2014)- Kocan, N., Ruzgar, H., (2016)- Pehlıvanoglu, B. (2012)- Tozlu, E., Mercan, S. O., Atay, L. (2012)- Yenisehirlioglu, E. (2013)-Yilmaz, A. Tuncer, M. ve Zorlu. K. (2016)-Yuksel, S.(2016)- Zengin, B., Eryilmaz, B.(2013).**
19	**There should be activities for children.**	**Activities for children are partially sufficient.**	**Cibinskiene, A., and Snieskiene, G. (2015) - Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016) – Cetin, T. (2009)-Gurbuz, A. (2009)-Sevim, B.,Secilmis, C. ve Gorkem, O. (2013)- Sezgin, A., Eren, F., (2017)-Yildirim, H. (2019).**
20	**Entertainment venues should be available.**	**There are no entertainment venues.**	

21	**Garbage collection units should be at sufficient levels.**	**Garbage collection units are partly adequate.**	**Altanlar, A., Enlil, Z. (2016)- Cibinskiene, A., and Snieskiene, G. (2015)- Cavus, A., Altas, N.T.,(2010)- Gunduz, E., Yuksel, B., Avci, M., (2017)- Kizilirmak, I. (2011)- Oktay, K., Ipek, K. (2017)- Ozturk,S., Umdu, D.(2017)- Seyhan, G., Yilmaz, B. (2010)- Sengul, S., Yucel, R.(2018)- Yuksek, F., Yuksek, T., Cengiz, T., (2008).**
22	**Wc areas should be sufficient.**	**WC areas are partially sufficient.**	**Akten S., Gul A. (2014)-Altanlar, A. ve Kesim, G. A.(2011)-Ozgen, N., (2010)- Sengul, S., Yucel, R.(2018)-Sen, G. and Bugday, S.E. (2015)-Simsek DS.,Korkut AB. (2009)- Tasligil, N. (2008)-Turker O., Turker A., Guzel O. (2014)-Yildirim, H.(2019) - Yuksek, F.,Yuksek, T.,Cengiz, T., (2008).**
23	**The historical and cultural environment should be well-maintained.**	**The historical and cultural environment is partly well-maintained.**	**Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016)- Dogan, A. (2006)- Gurbuz, A. (2009)- Ipar, M. S. ve Dogan, M. (2013)- Kocan, N., Ruzgar, H., (2016)- Sevim, B.,Secilmis, C. ve Gorkem, O. (2013)-Sengul, S., Yucel, R.(2018)- Uslu, A. ve Kiper, T. (2006)-Yilmaz, A. Tuncer, M. ve Zorlu. K. (2016).**
24	**Quality of life should increase with the contribution of tourism to the region.**	**Quality of life has increased with the contribution of tourism to the region.**	**Akgoz, E., (2017)- Akova, O. (2006)- Avci, N. (2018)-Gunduz, E., Yuksel, B., Avci, M., (2017)- Gurbuz, A. (2009)- Gurbuz, A. (2002)- Hossain, Md. (2019)- Sengul, S., Yucel, R.(2018)- Uygur, S. M. ve Baykan, E. (2007)-Yavuzcehre, S. Pinar ve Sulun E. Torlak (2006)- Yuksek, G., Dincer, F., Dincer, M.,(2017).**

In the last part of the survey, the participants were asked four questions to determine whether they were satisfied with their visit to Safranbolu. The first question *was, "Will you tell about your visit to Safranbolu to the people around you?"* to which 94% of the participants answered yes. The second question was, *"Will you visit Safranbolu again?*" to which 90% of the participants answered yes. The third question was, *"Will you recommend visiting Safranbolu to your friends?" to* which 88% of the participants answered yes. The final question was, *"Are you satisfied with your visit to Safranbolu? If not, what is the reason?*" While 85% of the participants stated that they were satisfied, 15% stated that they were not satisfied. The reasons they stated as to why they were not satisfied were mostly traffic shortages, environmental pollution, and the cost of accommodation. 94%

of the participants stated that they would tell about their visits to Safranbolu to the people around them, 90% stated that they would visit Safranbolu for a second time, 88% stated that they would recommend visiting Safranbolu to the people around them, and 85% stated that they were satisfied with their visit.

4. Discussion And Conclusion

The place of tourism in the regional economy and development is well known. In this context, the management of the presented tourism performance has a very important place. The aim of this research is to contribute to the decision-making process by the IPA method. Firstly, studies on transportation infrastructure and environmental pollution-free design, proper food and souvenirs, adequate waste collection units, and WC are needed.

Similar to previous studies, it was found that accommodation facilities in Safranbolu cannot provide many opportunities for disabled individuals (Diker and Cetinkaya, 2016), and that roadside parking, which has been continuing for years, is no longer sustainable (Donmez et.al., 2016). Other problems include a lack of publicity for Safranbolu, that Safranbolu museums and historical sites are difficult to access, and that there are not sufficient alternatives for children (0-10 years) in Safranbolu. To overcome these problems, Turker et al. (2016), in their study investigating the role of stakeholders in the development of sustainable tourism in Safranbolu, have stated that the role of the stakeholders should be addressed since local authorities have the most important responsibility for sustainable tourism development.

Frosty et al. (2015) and Gurbuz (2002) have stated that it is necessary for the local people to get an education about tourism in order to eliminate the negative situations arising between the locals and tourists visiting Safranbolu. It is, therefore, necessary to start tourism education at the primary school level (Karakus et al., 2011). Kocoglu and Boztepe (2017) have emphasized that cultural destination image has an important role in Safranbolu's perception of tourism. Increasing service quality increases tourist satisfaction. In this way, more systematic process management of service quality in cultural heritage areas can contribute to sustainable tourism development.

This research shows that even in a UNESCO protected area, more comprehensive strategies should be produced for the sustainable use of cultural heritage sites. At this point, determining the factors that users care about is a great guide. Appropriate policies should be implemented to address the problems and to find solutions. Local people should be informed about cultural heritage. In further studies, the importance-performance elements can be detailed to guide decision-makers.

REFERENCES

Akbulak, C. (2016). Evaluation of Rural Tourism Potential by Digitalized SWOT Analysis in Ardahan. *Humanitas, 4 (7), 1-30.*

Akgoz, E., (2017). The impact of sustainable tourism on the development of rural areas and the case of Sonsuz Sukran Village, 1. International Sustainable Tourism Congress, Kastamonu.

Akinci, Z. and Sonmez, N. (2015). A Qualitative Research for Evaluating Accessible Tourism Expectations of Disabled Individuals Anatolia, *Journal of Tourism Research, 26 (1): 97-113.*

Akova, O. (2006). A Study on Local People's Perceptions and Attitudes of Tourism, *Journal of Academic Studies, 2 (1).*

Akten S. and Gul A. (2014). Determination of possible impact levels and standards of visitors in protected natural areas: Example of Golcuk Nature Park, *SDU Journal of the Faculty of Forestry, (15), 130-139.*

Albayrak, A. (2014). Culture of peace in urban museums: The Islands Museum example, Master's thesis. Yildiz Technical University Institute of Social Sciences, Istanbul.

Albayrak, T. and Caber, M. (2011). Importance-Performance Analysis: An Example of Destination Management, Ege Academic View, 11 (4), pp.627-638.

Altanlar, A. and Kesim, G. A. (2011). A Research to Understand the Behavior and Expectations of Local People and Domestic Tourists for Sustainable Tourism Planning: The Case of Akcakoca, *Ankara University Journal of Environmental Sciences, 3 (2), p. 1-20.*

Altan, A. and Enlil, Z. (2016). A Research on Measuring the Tourism Support of the Residents of the Bosphorus Region, Megaron, 11 (3), 382-397.

Anderson E. W., Fornell C., Lehmann D. R., (1994). Customer satisfaction, market share and profitability: Findings from Sweden, *Journal of Marketing, 58 (2) (1994), pp. 112122*

Avci, N. (2018). Effects of Tourism on the Quality of Life of Local People: The Case of Çeşme District, Anatolia, *Journal of Tourism Research, Vol. 29, No 2, Fall: 164 - 174.*

Avcikurt, C. and Soybali, H. (2002). Residents Attitudes towards Tourism in Ayvalik, Turkey. Tourism Analysis, An Interdisciplinary Journal, 6 (3/4), 259-265.

Ayaz, N. and Demirkol, Ö. (2016). Destination Management in Culture Tourism: The Case of Safranbolu. C. Avcikurt, M. S. Dinu, N. Hacioglu, R. Efe, A. Soykan and N. Tetik (Editors). Global Issues and Trends in Tourism (pp. 296-308). Sofia: Klimment Ohriddski University Press.

Baker D. A. and Crompton J. L., (2000). Quality, Satisfaction and Behavioral Intentions, *Annals of Tourism Research, Volume 27, Issue 3, July 2000, Pages 785-804.*

Bicici, F. (2013). Attitudes of Datca Local People towards Sustainable Tourism Development and Tourism Enterprises, *Journal of Travel and Hotel Management, 19-36.*

Cengiz, 2012. Residents' Perceptions of and Attitudes Toward Sustainable Tourism Planning and Management in Amasra (Turkey), Landscape Planning, Chapter:8, p:195.

Ceylan S. and Somuncu M., (2016). Safranbolu UNESCO World Heritage Site, *International Journal of Turkish World Tourism Research, April, Volume 1.*

Chien-Minn C., Sheu-Hua, C., Hong-Tau, L. and Tsung-Hsien, T. (2016). Exploring destination resources and competitiveness e a comparative analysis of tourists' perceptions and satisfaction toward an island of Taiwan, Ocean Coast. Manag. 119, 58e67

Chu, R. K.S. and Choi, T. (2000), An Importance-Performance Analysis of Hotel Selection Factors in The Hong Kong Hotel Industry: A Comparison of business and leisure travelers, Tourism Management, Volume 21, Issue 4, August 2000.

Cibinskiene, A. and Snieskiene, G. (2015). Evaluation of city tourism competitiveness, Procedia-Social and Behavioral Sciences, 213, 105-110.

Cavus, A. and Altas, N.T., (2010). A Developing Tourism Center in Trabzon: Kayabası Plateau, East Journal of Geography, Issue: 23, Erzurum.

Ceken, H. (2004). A Theoretical Study on the Impact of Tourism on Regional Development, *Afyon Kocatepe University, İ.İ.B.F. Journal, 10 (2): 293-306.*

Cetin, T. (2009). Tourist-Local People Interaction in Beypazarı and Social, Cultural and Economic Impacts in Tourism, *Journal of Turkish World Studies, 9 (1): 15-32.*

Colak, OR. (2009). *Rural Tourism and Rural Tourism Management in the Scope of Touristic Product Diversification: The Case of Sirince,* Unpublished master's thesis, Adnan Menderes University, Institute of Social Sciences, Department of Tourism.

Darcy, S. (2010). Inherent complexity: Disability, accessible tourism and accommodation information prefences. Tourism Management, Elsevier.

Deng, W. (2007). Using a revised importance-performance analysis approach: the case of the Taiwanese hot spring tourism. *Tourism Management, 28 (5), 1274-1284.*

Diker, O. and Cetinkaya, A. (2016). Evaluation of Suitability of Safranbolu Tourism Destination in terms of Accessible Tourism. *Karabuk University Journal of the Institute of Social Sciences, (Special Issue II): 111-125.*

Dogan, A. (2006). *The Effects of Urban Texture, Traditional Local and Cultural Properties on Tourism Space and Type: Ayvalik Case.* Master Thesis, Yildiz Technical University, Institute of Science and Technology, Istanbul.

Dogru, H., Kaygalak, S., Miral, Cavdirli C. and Bahceci, V. (2014), E-Complaints of Disabled Individuals Towards Tourism Services, *Gazi University Journal of Tourism Faculty, 2, pp.33-47.*

Dolmaci, N. and Bulgan, G. (2013). Environmental awareness in tourism ethics. *Journal of Yasar University. 29 (9): 4853-4871.*

Donmez Y., Cabuk S., Ozturk M. and Gokyer E., (2016). Parking Problem and Solution Alternatives in Safranbolu Urban Protected Area, *Journal of Bartin Faculty of Forestry, 18 (2): 137-145.*

Dwyer, L., Knezevic Celbar, L., Edwards, D. and Nihalic, T. (2012). Fashioning A Destination Tourism Future: The Case Of Slovenia, *Tourism Management, 33, 305-316.*

Eclof J. A., Hackl P. and Westlund A., (1999). On measuring interactions between customer satisfaction and financial results, *Total Quality Management, 10 (4/5) (1999), pp. 514-522.*

Emekli, G., (2006). Evaluation of Kula-Manisa surroundings in terms of tourist attraction and touristic product diversification. Kula Symposium From Past to Future 3 September, Proceedings Book, 321-332, Kula, (2006).

Emir, O. and Avan, A. (2010). The Effect of Cultural Assets on the Buying Decision Process of Foreign Tourists: The Case of Konya, *Selcuk University Journal of Social Sciences Institute, 24: 203-220.*

Engel, J. F. Blackwell, R. M. and Miniard, I. (1993), Consumer Behavior. International Edition, Orlando, The Dryden Press.

Enright M. J. and Newton J., (2004). Tourism destination competitiveness: A quantitative approach, *Tourism Management, 25 (6) pp. 777-788.*

Erdem, O., Mizrak, M., and Kemer, A. K. (2017). The use of regional dishes in the restaurants of the region: Mengen example. 1st International Sustainable Tourism Congress Proceedings Book, Kastamonu: Kastamonu University, 18-33.

Eser S., Dalgin T. and Ceken H. (2013). Culture Tourism as a Sustainable Tourism Type: The Ephesus Example, Sociali Mokslai., ISSN: 1392 - 0758, Nr.1.

Gunes, G. and Akgul, S. (2017). Sustainable Tourism as a Tool for Local Development: Konya-Sille Case / Sustainable Tourism as a Tool for Local Development: The Case of Konya-Sille.1st International Sustainable Tourism Congress / I. International Sustainable Tourism Congress.

November 23-25, 2017, Proceedings Book, ISBN: 978-605-4697-14-4, Kastamonu, pp. 631-644.

Genc, K., Atay, L., and Eryaman Y. (2014). The Importance of Organization in the Process of Creating a Sustainable Destination: A Research on Canakkale Tourism Anatolia, *Journal of Tourism Research, 25 (1), 49-61.*

Gunduz, E., Yuksel, B. and Avci, M., (2017). The place and importance of tourism in sustainable development: Kastamonu case. 1st International Sustainable Tourism Congress Proceedings Book, Kastamonu: Kastamonu University.

Gurbuz, A. (2002). A Research on the Impact of Tourism on Social Environment. *Journal of Technology, (1-2): 49-59.*

Gurbuz, A. (2009). According to the demographic characteristics of tourists visiting Safranbolu the status of detecting tourist products. *Journal of Dogus University, 10 (2), 217-234.*

Hallowell R., (1996). The relationship of customer satisfaction, customer loyalty, and profitability: An empirical study, *International Journal of Service Industry Management, 7 (4) (1996), pp. 27-42.*

Hawes J. M. and Rao C. P., (1985). Using importance-performance analysis to develop health care marketing strategies, *Journal of Health Care Marketing, 5 pp. 19-25.*

Haznedar, H. (2016). Potential of Ecotourism and The Kona Towards a Research: Nazarköy Example, Master's Thesis, Department of Ecotourism, Institute of Science and Technology, Izmir Clerk Celebi University, Izmir, Turkey.

Hossain, Md. (2019). An Analysis of Destination Attributes to Enhance Tourism Competitiveness in Bangladesh. *African Journal of Hospitality, Tourism and Leisure, Volume 8 (2) - (2019) ISSN: 2223-814.*

Huana T.C., Beamanb J. and Shelbyc L.B., (2002). Using action-grids in tourism management, *Tourism Management, 23 (3) pp. 255-264.*

Icellioglu, C., (2014). Urban Tourism and Brand Cities: SWOT Analysis of Istanbul in terms of Tourism Potential, *Istanbul University Journal of Social Sciences, Issue: 2014/1, 37 55.*

Ipar, M. S. and Dogan, M. (2013), Evaluation of Destination with Importance Satisfaction Model for Tourist, An Application on Edremit, *Adiyaman University Journal of Institute of Social Sciences, 13 (6), p. 129-154.*

Johnson M.D., Nader G. and Fornell C. (1996). Expectations, perceived performance, and customer satisfaction for a complex service: The case of bank loans, *Journal of Economic Psychology, 17 (2) pp. 163-182.*

Karakus, U., Cepni, O. and Kilcan, B. (2011). Investigation of Secondary School Students' Views on Tourism in Terms of Various Variables (A Quantitative Study in Safranbolu). *Pegem Journal of Education and Training, 1 (4): 85-95*

Kaya, H. and Kurt, H. (2011). Contribution of the cultural potentials of the tourism potential of Safranbolu, *Procedia Social and Behavioral Sciences 19 (2011) 225–230.*

Khadaroo, J. and Seetanah, B. (2008). The Role of Transport Infrastructure in International Tourism Development: A Gravity Model Approach. *Tourism Management, 29 (5): 831-40.*

Kilic, I. and Selected, C. (2018). Evaluation of the carrying capacity of the tourist destinations from the eyes of local people and tourists: The case of Eskisehir, *Journal of Travel and Hotel Management, 15 (3), 506-522.*

Kizilirmak, I. (2011). Applications for environmental protection in tourism enterprises in the world and Turkey: Purpose and importance, *Journal of Social Sciences (2), 1-12.*

Kocoglu C. M. and Boztepe B.O. (2017). Investigation of Safranbolu's Perception of Cultural Tourism in Terms of Travel Behavior of Domestic Tourists, *International Journal of Contemporary Tourism Research, 2 (2017), 44-54.*

Kocan, N. and Ruzgar, H., (2016). Kuzguncuk (Üsküdar) Historical Tissue Conservation and Pedestrianization Project, *International Journal of Cultural and Social Studies, 2, 125-134.*

Kuter, N. and Unal, H. (2013). Importance of rural tourism in rural development, *Kastamonu University Journal of Forestry Faculty, 13 (2), 192-201.*

Kuter, N. and Unal, H. E., (2009). Environmental economic and socio-cultural effects of ecotourism within the scope of sustainability, *Kastamonu University Faculty of Forestry Journal 9 (2): 146- 156.*

Lopez-Toro, A. A., Diaz-Munoz, R. and Perez-Moreno, S. (2010). An assessment of the quality of a tourist destination: the case of Nerja, Spain Total, Total Quality Management, vol. 21. 2, pp. 269-289.

M. A. Kozak, S. Eren, and O. Cakir (2013). Tourism paradigm in historical process, *Anatolia: Journal of Tourism Research, 24 (1), 7-22.*

Martilla, J. A. and James J. C. (1977). Importance-Performance Analysis, *Journal of Marketing, 41 (1), pp. 7-7-79.*

Merdan, K. and Okuroglu, M.S. (2016). A Research on the Effect of Alternative Tourism Types on Gümüşhane Tourism, *Ataturk University Journal of the Institute of Social Sciences, 20 (3), 961-984.*

Noor, N., (2017). Sustainable cultural tourism in Malaysia.

Nunkoo, R. and Ramkissoon, H. (2009). Applying the means-end chain theory and laddering technique to the study of host attitudes to tourism. *Journal of Sustainable Tourism, 17 (3): 337–355.*

Neill M. A. and Palmer A., (2004). Importance – performance analysis: Quality Assurance in Education, 12 (1) pp. 39-52.

Oh, H. (2001). Revisiting importance-performance analysis, *Tourism Management, 22 (2001): 617-627.*

Oktay, K. and Ipek, K. (2017). A model proposal for the development of sustainable tourism point of view of the consumer in Turkey. 1st International Sustainable Tourism Congress November 23-25, 2017 Kastamonu / Turkey Proceedings Book.

Oter, Z. and Ozdogan, O., (2005). Destination image for tourists traveling for cultural purposes: The example of Selcuk-Ephesus. *Anatolia: Journal of Tourism Research, 16 (2), 127-138.*

Ozgen, N., (2010). Determining the natural tourism potential of Eastern Anatolia Region and suggestions for planning. *International Journal of Human Sciences. 7 (2), 1407- 1438.*

Ozturk, S. and Umdu, D. (2017). The concept of ıt Cıttaslow Sef in the case of Seferihisar: Visitors' impressions. 1 st International Sustainable Tourism Congress / November 23-25, 2017 / Kastamonu-Turkey.

Pasquinelli C., 2016. Building from scratch? An "inner connectivity" framework for soft urban tourism development, International Journal of Tourism Cities, Vol. 2 No. 3, pp. 248-256

Pehlivanoglu, B. (2012). Interior Design Criteria for Disabled People in Tourism Buildings. APGEM Barrier-Free Tourism Symposium, Akdeniz University, Antalya.

Reisinger, Y. and Turner, L. (1998) Cultural differences between Mandarin-speaking tourists and Australian hosts and their impact on cross-cultural tourist-host interaction, *Journal of Business Research, 42 (2), pp. 175-187*

Richards G., 2018. Cultural Tourism: A review of recent research and trends, Journal of Hospitality and Tourism Management, Volume 36, September 2018, Pages 12-21.

Ruge W. and Bittel K., (1949). Paphlagonia, Pauls Real Encyclopedia Der Classischen Altertumswissenschaft, Neue Bearbeitung, XVIII / 4.

Ruzgar, H. (2016). A study on the determination of recreational landscape potential of Adiyaman province and its vicinity for tourism. Master's thesis. Bartin University Institute of Science and Technology. Bart.

Sevim, B., Secilmis, C. and Gorkem, O. (2013). The effect of perceived destination image on recommendation behavior: A research in Safranbolu", *International Journal of Economics and Business Administration, 9 (20).*

Seyhan, G. and Yilmaz, B. (2010). Green Marketing in Hospitality Establishments within the Scope of Sustainable Tourism: Calistas Luxury Resort.

Sezer, I. (2017). Evaluation of accommodation facilities and their close environment within the scope of sustainable tourism: SÜLLÜ Chalet. 1st Internatıonal sustaınable tourısm congress (Full Text Paper / Oral Presentation) (Publication No: 3911281)

Sezgin, A. and Eren, F., (2017). Evaluation of local products in terms of sustainability of gastronomy tourism: Pestil and Kome case.

Smith, S. and amp; Costello, C. (2009). Culinary tourism: Satisfaction with a culinary event. *Journal of Vacation Marketing, 15 (2), 99-110.*

Somuncu, M. and Yigit, T. (2008). Evaluation of Tourism in the World Heritage Site of Göreme National Park and Cappadocia Rock Sites from the Sustainability Perspective ', V. National Geography Symposium Ankara, Proceedings, p. 387-402.

Surucu, O., Kargiglioglu, S. and Ak, S. (2017). Reflection of traditional culture in rural tourism and women's employment: The case of Beypazari.

You, G. and Bugday, S.E. (2015). Areas designated for protection and use in various statuses in Kastamonu Province. *Kastamonu University Journal of the Faculty of Forestry, 15 (2), 218.*

Sengul, S. and Yucel, R. (2018), Evaluation of importance and performance in sustainable tourism initiatives: Goynuk historical mansions, *GUSBEED, Gumushane University Institute of Social Sciences Electronic Journal 9(23).*

Simsek D.S. and Korkut A.B. (2009). Application of a Method for Determining the Recreation Potential of the Coastline: Tekirdag Central District, *Journal of Tekirdag Faculty of Agriculture, 6 (3): 315-327.*

Tapur, T. (2009). Culture and faith tourism in Konya. *International Journal of Social Research. 2.9, p. 473-492.*

Tasligil, N. (2008). Datça-Bozburun special environmental protection region and tourism, Aegean *Geography Journal 17 / 1-2, 73-83.*

Tekin, OA, Kalkan, G. and Duman, H. (2014). Measurement of Service Quality by Importance-Performance Analysis: An Application on Accommodation Units of University Social Facilities, *International Journal of Social Research, 7 (31), ss.751-770* .

Tikkanen H., Alajoutsijarvi K. and Tahtinen J. (2000). The concept of satisfaction in industrial markets: A contextual perspective and a case study from the software industry, *Industrial Marketing Management, 29 (4) pp. 373-386.*

Tozlu, E., Mercan, S. O. and Atay, L. (2012). A Study on Determining and Planning the Situation of Çanakkale Regarding Disabled Tourism. *Aksaray University Journal of Economics and Administrative Sciences, 4(1).*

Turker N., Alaeddinoglu F. and Can, A. S. (2016). The Role of Stakeholders in Sustainable Tourism Development in Safranbolu, Turkey, HLST-Summer July 12-14, 2016, Kyoto, Japan.

Turker, O., Turker A. and Guzel, O. (2014). Evaluation of recreation potential of Dalyan destination within the scope of touristic product diversification. *International Journal of Science Culture and Sport, August 2014: Special Issue 2, 70-86.*

Uslu, A. and Kiper, T. (2006). Effects of Tourism on Cultural Heritage: Awareness of Local People in Beypazarı / Ankara Case. *Journal of Tekirdag Faculty of Agriculture, 3 (3), 305-314.*

Uygur, S. M. and Baykan, E. (2007). Cultural Tourism and Effects of Tourism on Cultural Assets. *Journal of Commerce and Tourism Education Faculty, Issue 2, 30-49.*

Weitz, B. A. and Jap, S. D. (1995). Relationship marketing and distribution channels, *Journal of the Academy of Marketing Science, 23 (1995), pp. 305-320.*

Yasarsoy, A. and Karaset, S. (2017). Sustainable tourism as a managerial phenomenon: views of local government and non-governmental organizations in Kastamonu. 1st International Sustaınable Tourısm Congress November 23-25, 2017 Kastamonu / Turkey Proceedings Book.

Yavas U. and Shemwell D. J., (1997). Analyzing a bank's competitive position and appropriate strategy, *Journal of Retail Banking Services, 19 (4) pp. 43-51.*

Yavuzcehre, S. P. and Sulun E. T. (2006), entsel Quality of Urban Life and Municipalities: Denizli Karsiyaka Neighborhood Example ", Suleyman Demirel University Journal of the Institute of Social Sciences, Year 2, Number 4, p. 184-207.

Yenisehirlioglu, E. (2013). *Perception and Problems of Acceptance Level of Disabled Tourists in Hospitality Establishments: A Comparative Qualitative Research,* Master Thesis, Sakarya University, Sakarya.

Yildirim, H. (2019). Using importance performance analysis (KPA) in measuring visitor satisfaction: Gallipoli historical area example of the Gallipoli Wars, *Journal of Travel and Hospitality Management 16 (1), 2019, 154-166.*

Yildirim, M. and Tayfun, A. (2010). Does consumption behavior of tourists differ according to culture / nationality? A research on German and Russian tourists, *Journal of Business Research, 2 (2), pp.43-64.*

Yilmaz, A. Tuncer, M. and Zorlu. K. (2016). A research on the determination of the slow city (sustainable local development) potential Guz: Guzelyurt, Aksaray. *Studies of the Ottoman Domain. 6, (10), 1-18.*

Yoon, Y., and Uysal, M. (2005), An examination of the effects of motivation and satisfaction on destination loyalty: a structural model, *Tourism Management, 26 (1), pp.45-56.*

Yuksek, F., Yuksek, T. and Cengiz, T. (2008). Evaluation of festival activities in terms of conservation and use in natural areas: An example of the Kafkasor culture, art and tourism festival.

Yuksek, G., Dincer, F. and Dincer, M. (2017). Sustainable Tourism Awareness of Stakeholders of Seyitgazi District. 1st International Sustaınable Tourısm Congress November 23-25, 2017 Kastamonu / Turkey.

Yuksel, S. (2016). Architectural design principles that should be considered for the elderly and physically disabled in interior and exterior spaces for tourism, *City Academy, 9 (25), 19-25*.

Zeithaml V.A. (2000). Service quality, profitability, and the economic value of customers. *Journal of the Academy of Marketing Science, 28 (1) pp. 67-85.*

Zengin, B. and Eryilmaz, B. (2013). Evaluation of Disabled Tourism Market in Bodrum Destination. *International Journal of Economic and Administrative Studies, 6(11).*

Zhang, H. Q. and Chow, I. (2004), ‘‘Application of Importance–Performance Model in Tour Guides’ Performance: Evidence From Mainland Chinese Outbound Visitors in Hong Kong’’, *Tourism Management, 25 (1), p. 81-91.*