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CONTENTS

ANIMATED MOVIE SCENES AS THE METAPHORS OF CREATIVE THINKING:SCAPING THE PLAY DESIGN STUDIO

CHAPTER 1

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The Critical Threshold in the Beginning of Design

There is no doubt about that design education is relatively complex for the instructor while it is difficult or even chaotic for designer candidates, mainly because there is a critic threshold in learning and teaching how to transform a thought into drawing. No matter how the design students are familiar with drawing, they have to perceive the world in a new way of seeing and to create their products by giving special meanings to what they perceive by means of a new language which has specific features (Antoniades, 1992). Moreover, they have to challenge with this process in a new world they have just entered without any experience, which means that they have to find the right way with a trial and error approach.

Many researches discussing the first steps of design education confirm that the process is basically an experiencing process rather than a thinking one. For the first year design students, it is a challenging process as they have to improve their physical knowledge and their mental constructions simultaneously through direct experience of complex architectural issues (Subotincic, 2007). Even a term like drawing though its meaning is very clear, might be very chaotic for a design student, who has not yet grasped the idea of drawing as a form of experiencing. Moreover, the students are in the beginning of the process, and they cannot figure out what they need, where to start to search for it, and how to use what they find, yet they have to seek it out by themselves (Schön, 1984). At this point, design studios with their own reality create the space in which games are played (Yürekli, 2007), communication, interaction, and sharing are spontaneously achieved by knowing-in-action, the process is managed, examined and criticized by an instructor, and thoughts can flow freely (Schön, 1988). So, the question is where a design student in such a study environment starts the design? Although I previously mentioned that first-year design students should try to begin with experiencing rather than listening and watching the process, starting with a blank page causes discouragement for both the design students and instructors (Arnheim, 1970) because they need some tips such as ‘shape and conceptual reminding’, which are derived from their life experiences so that they can do ‘visual/spatial reasoning’, which can be defined as basic part of design process (Suwa et al., 1999). Do and Gross (1995) suggests it is quite important to find visual references for design process and these references can easily be explained within two groups: ‘designers look for forms that are similar in shape to what they have in mind’ and conceptual reminding ‘designers think of forms that are linked through some concept about the design at hand’ (Do and Gross, 1995, 40). Therefore, once a design student discovers a way to see his design problem as a problem which he already encountered with, this design student is sucked in design process.

Meaning of being a part of design process is a maturation period, in which one develops a designerly way of knowing (Cross 1997), within a huge consideration from 'visual thinking' process of Arnheim (1970) to 'courage to create' of May (1994). The process has some special sections such as thinking eye (Oxman, 2002), Mind's eye (Purcell and Gero, 1998), thinking with pencil (Do and Gross, 1996), and drawing thoughts. After the developing of a special type of seeing, another process, in which the data are transformed into creative designs, starts for the designer. Once one crossed this period, sections of 'unexpected discoveries (to detect hidden features of a visual and spatial representation)' (Suwa et al., 1999), 'sudden mental insight or aha! Response (universally considered as a reference to the moment when a creative flash arrives)' (Akin, 2008), 'creative leap (in which a novel concept emerges - perhaps quite suddenly - as a potential design solution)' (Cross, 1997) and 'the creating process of a creative thought by the combination of imagination and fantasy' (Antonaides, 1992) occur.

Exaggeration and Creativeness as a Distortion Style

Among the definitions of creativeness, there is no doubt; the most expanded one is giving character to a new thing by May. Specific indicator of this process is a jump and when this jump occurs, a comprehension, which destroys all mental processes, comes forward. Suddenly everything gets a spirit, and it raises awareness. It should not be thought that this awareness comes from nothingness. On the contrary, it comes out as a result of a systemic and deep concentration (May, 1994). Actually, our concentration is mainly on changes of the main topic which is identified as the target, just like Arnheim (1970) says physical changes of the object are deviations from a norm shape and like a concentration which defines a continuum identifying the various views of an object.

Regarding that 'Scaping the Play' was our first design studio, it was important for us to remove all affects that limit creativity and imagination of students. That is why main aim of the studio was established as exaggeration in every stage. Main reason that we used exaggeration of characteristics of both the design subject and its source produced as a metaphor, by metaphorical thinking is to achieve continuous sequences defined by Arnheim (1970). It is 'the way of a kind of adaptation' which students 'generate new re-combinations of what currently exists'. This is more than of 'flash-of-inspiration movements or the radical invention of something out of nothing' (McWilliam and Dawson, 2008, 640). Besides, in a process such as metaphorical thinking it is the analogical link (resemblance) between the target and the source. Here metaphors act as models mentioned by Lindstörm (2006) which improve conditions for creative work. Consequently exaggeration of possible new re-combinations in metaphorical

process seems to be a useful design tool when finding links between these models and one's own design work.

My students tried to do every kind of exaggeration to maximize their limits in every step of the process throughout their design process. In the conceptual level exaggeration was used to collect and gather the necessary knowledge varying from data directly related with the design concept, to the ones having analogically bound even have no relation with the concept. Then they picked some parts of this knowledge to build relations using exaggeration. Even when there was lack of relation, they were encouraged to use unlimited number of parts with the combination of unlimited relation styles so that they could try to put many different parts into together by using the most abnormal relations. Therefore they created a new game in a game, of which the rules had identified by themselves.

'Scaping the Play' Landscape Design Studio

The main purpose of the 'Scaping the Play' studio, which was held in Landscape Architecture Design Studio 1, is to create a road map showing where to start the process, during which the design students learn visual thinking, improve their production and choosing ability in a creative manner. Therefore, we defined the topic of the first year design studio as the forming and constructing game, which is one of the most creative spontaneous developing processes to be able to convert this difficult process into naturally developing one. Six instructors managed six squads, each of which had five design students, in Karadeniz Technical University, Department of Landscape Architecture. We asked design students to create a playscape depending on a theme in which they are free to choose any game or activity and to create any topography they want on a 25x50 cm studying space. After these main suggestions were given to the design students, each instructor led his/her group in a direction regarding their own design styles. I constructed the study which we held with my group on the integration of the process called as the solving of the design problems with metaphorical thinking approaches into design studies and its usability in teaching visual thinking and creativity. In 'Scaping the Play' design studio, it was aimed to design a conceptual playground; therefore, a schedule, consisting of four steps, was conducted (Table 1): General information, metaphorical process, design concept process including shape and concept investigation with feedback from metaphorical process, modeling process in which the final model was produced.

PHASE 1:General Info: Information Gathering Process

'Scaping the Play' design studio program given in Table 1 starts with inquiry process which has topics such as evaluation of game and children and game groups considering age levels, in order to figure out the best answer to the question of 'What is game?' Afterwards, the design students collected data about the games which they used to play when they were children, the way of their playing, and the places where the games are played in order to merge the literature knowledge with their life experiences; and they created a poster using some photographs and notes. By doing these, we defined our frames for game and children.

PHASE 2: Metaphoric Process: Metaphorical Thinking Approach

From that point, metaphorical thinking that I tried to use for my design group was intended to lead the design process which was nearly the same with all the studies in the studio, in a different way. It also means the improving of visual thinking in the conceptual process. In metaphoric process, the second phase of the schedule, the game concept was defined through metaphors, and used to produce creative games. Metaphorical process including metaphors and analogies is a result of metaphorical thinking approach. In their study, Peter J. Aubusson and his friends define the terms metaphor and analogy as 'two things are compared as one is said to be similar to, though it is different from, another: A familiar entity used to provide information about, interpret or communicate ideas about a less well known entity.' They also state that according to Lakoff and Johnson, this cooperation is just because 'we understand the world, think, and function in metaphorical terms' (Aubusson et al., 2006, 3).

Table 1. *Phases and definitions of 'Scaping the Play' design studio program*

GENERAL INFO	METAPHORIC PROCESS			DESIGN CONCEPT		FINAL MODEL
• CHILDREN Needs Development (age, gender, etc.) • PLAY Definition Types Play areas (playgrounds, equipments etc.)	Movie Extraction • Splitting a video into scenes. • Choosing a sequential scene series of different activities that can be defined as plays.	Defining the Scenes • Defining the activity given in the chosen sequential scene series.	Creating Games • Chancing the defined activity into a creative play	Shape Investigation • Collecting visual images related with concepts. • Choosing the most significant visual image. • Copying it as a plan drawing of the Project. • Rearranging the shapes according to the created games.	Context Investigation • Production of concept by rearranging the games coming from the metaphoric process.	MODEL

In another research study, Hernan Casakin and Gabriela Goldschmidt (1999) report that visual analogy is more important for novice designers to improve the design quality comparing with the experts in their experimental study, which discusses if visual analogy can be used as an effective problem solving mechanism. Considering analogical similarities, it can be said that the same situation is also valid for metaphorical approach.

One of the most important research studies suggesting metaphorical thinking as the most effective tool that can help the first year design students to establish a new way of seeing is the study by Richard Coyne et al. (1984). In their study, they claimed that there was a strong relation between design and metaphor. Thus understanding metaphor gives a rise to possibilities which designer can understand their own design practice with a huge prevision. According to them, a design approach such as 'kind of seeing' by Schön and Wiggins can be created by a metaphor game (Coyne et al., 1984). Our 'Scaping the Play' study also has a similar metaphor game. Here, what I mean by metaphorical thinking is related with defining all the possible relations which metaphor can construct between two different objects such as 'the variations of a conceptual theme' by Arnheim (1970). At this point, we defined the benefits of metaphor including 'conceptualizing our experiences' and 'choosing the most significant one among these concepts' through an interaction with the design students in 'Scaping the Play' studio. Namely, the first year design students, who are supposed to establish the game, are going to play a kind of metaphor game by making variations of two components (source and target) of the metaphor and constructing numerous relations between the variations in different combinations.

The components of source and target in the schedule are considered as animated movies and games produced through metaphorical analysis (Table 1). In this respect, metaphorical process was constructed in three steps. First of all, an animated movie was divided into scenes by a movie extraction program, and sequential scenes including activities that can be transformed into games were chosen. Then, first year design students defined activities in these scenes, and the last step of metaphorical process was to produce new games by the activities in the animated movies related with the main concept of their design projects.

Animated movies, with their easily perceived visual characteristics, were seen as the most suitable starting points for the design students to develop a visual thinking style of architectural design using metaphorical thinking (Ritchie et al., 2006). That is why I asked the design students to watch their favorite animated movie, in which they could find some creative actions and spaces, and then to chose the best one to use. The selection of the movie scenes which can be used as games, creating games

from each chosen scene, and definition of how to play each game were the first steps of metaphorical thinking approach. Afterwards, each student identified the most significant concept derived from animated movies to use it for main theme of their design projects. Mustafa's favorite animated movie, Ice Age (directed by Chris Wedge and Carlos Saldanha, Blue Sky Studios, 2002), definitely gave him an easier way to choose the concept. Then he decided to use 'prism/crystal' concept, which reflects crystal characteristics of ice best. Merve evaluated her favorite animated movie more philosophically. She would reach the 'mirror' concept, as she thought the upper side and underground of the city as the reflection of each other in the animated movie Flushed Away. Aslıhan defined the concept 'balloon' as a metaphor of the swamp in the forest in the animated movie The Emperor's New Groove. At the second level, the design students changed and transformed the scenes from the movies considering their concept. They defined suitable games related with their concepts, which means that they 'made up' new games. Therefore, they reproduced the term 'game' which became more perceptible and definable by visual data, metaphorically. Mustafa's studies with his movie Ice Age are good examples of metaphoric process of producing games (See in Figure 1 and Figure 2).

PHASE 3: Design Concept Process

It is essential that the metaphorical process was evaluated uninterruptedly not only in movie analysis and in transforming the chosen themes into games but also in producing new games defining the main design concepts using analogy from the games produced before. This continuity is also very important for formal development of designs. This continuity is also very important for the feedback between metaphorical process and design concept process. Therefore, data obtained from the metaphorical process was used directly as the data in design concept process as well. This means that the building of the game was started from using the main concept of 'style of establishing imagination', which was learnt from the animated movies, to produce original games, and it continued to that design students transform 2D plans into 3D models.

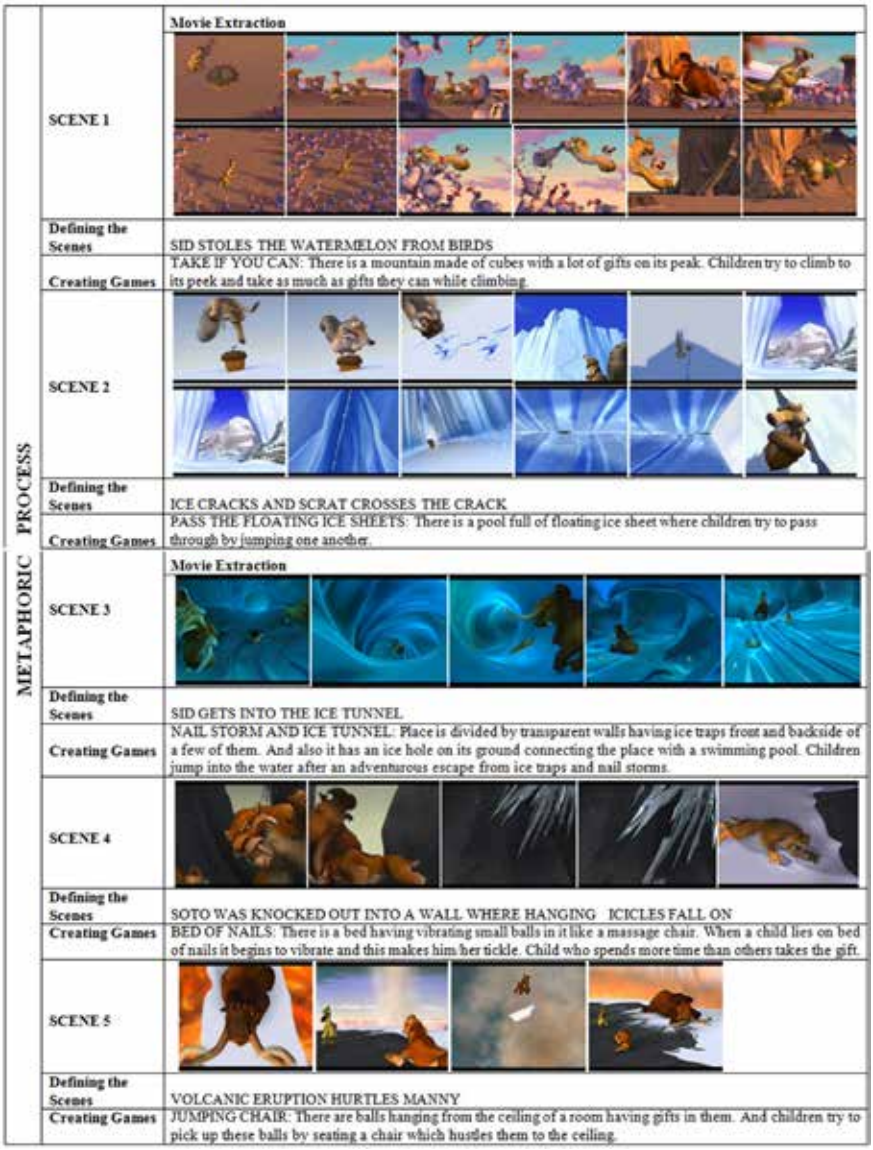

Figure 1. *Analysis and game creation process of Mustafa Dayıoglu's movie, Ice Age, including scene selection, transforming the activities into games.*

In the light of this definition, the design concept process was conducted in two steps: shape investigation and context investigation. The level of shape investigation contains the most suitable formal configurations related with games which were produced from metaphorical process. Context investigation is game production process using both the outputs of metaphorical process of animated movie extraction and main concept of the project.

Figure 2. *Analysis and game creation process of Mustafa Dayıoglu's movie, Ice Age, including scene selection, transforming the activities into games.*

Therefore, the design students, who created their own concepts and their own game activities, made a comprehensive research on the internet to be able to improve their formal approaches reflecting the concepts in their design. It can be thought that readymade shapes and forms might be limiting or might not be creative enough. However, it should be taken into account that they can be very useful sources for the design students as well. In fact, we saw that these formal compositions, used as main design concepts, were evaluated by design students as suitable starting points to be able to learn how to transform a 2D design into 3D in our study of 'Scaping the Play' design studio.

In the process of design concept, each student tried to copy the material that reflects the main concepts of their designs by putting a tracing paper on it. Therefore, photographs were transformed into sketches, used as plan drawings. Two of the most significant projects in this process were Merve's mirror (Figure 3) and Aslıhan's balloon (Figure 4). In the process of shape investigation, both students searched their concepts in the internet comprehensively. They copied the most suitable visual images for their concepts as plan drawings, and developed one of them. In context investigation of both projects, the games, produced from animated movies metaphorically, took place.

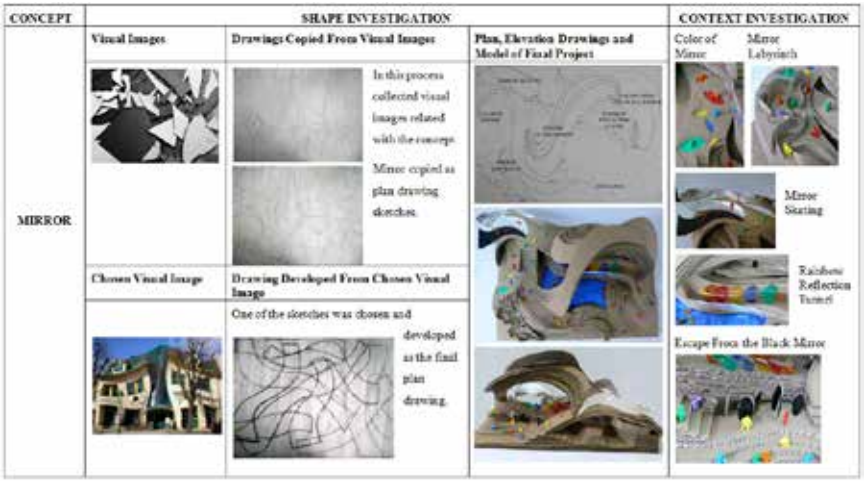

Figure 3. *Merve Uzunoğlu's example of shape and context investigation processes. She chose two examples from internet search (Images were taken from Rain reflections (2009), and All property management (2008) and copied them as design plan drawing).*

Different way of shape investigation was applied by Nilay, one of the students who preferred to reflect the 'spiral' concept using curly hair. She decided to develop her design with an association of 'blowing hair in the wind' as a result of her visual researches. To be able to create the model of what she did as the preliminary sketch, she transferred modular plan parts into 3D objects and tried to put them together on the plan (Figure 5).

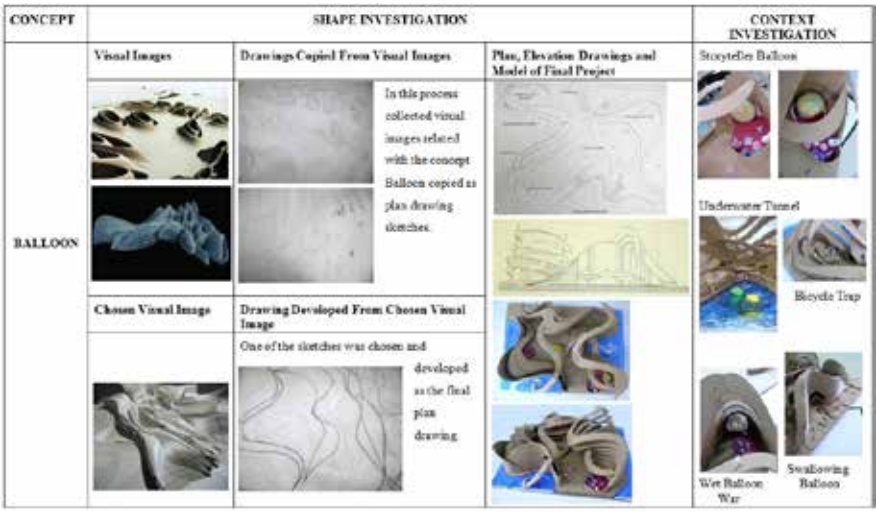

Figure 4. *Aslıhan Acar's example of shape and context investigation processes. She chose three examples from internet search (Images were taken from Paul Preissner Architects Limited 2008a, Kovac 2007 and Paul Preissner Architects Limited 2008b respectively) and copied them as design plan drawing. Later she developed the last one, as the final model.*

Another remarkable example regarding the same process, Mustafa, decided to use 'square' based plan to develop his design, of which the main concept was 'prism' (metaphor of ice) coming from Ice Age animated movie. He started to develop his square based plan with cubes by putting the similar ones very close to each other on his study area. In the next levels, owing to the main concept, he decided to put the cubes more freely, which means different sizes were close to each other and a solid-void balance was created (Figure 5).

One of the most important components that led 3D modeling studies depending on the concept was putting the created games on the suitable places. This was also another way of shape and context investigation applied through the design process. Mustafa tried to use the void spaces that were created by taking out of some cubes from the system or he preferred to maximize some cubes' sizes so that they could be used as a game area (Figure 6).

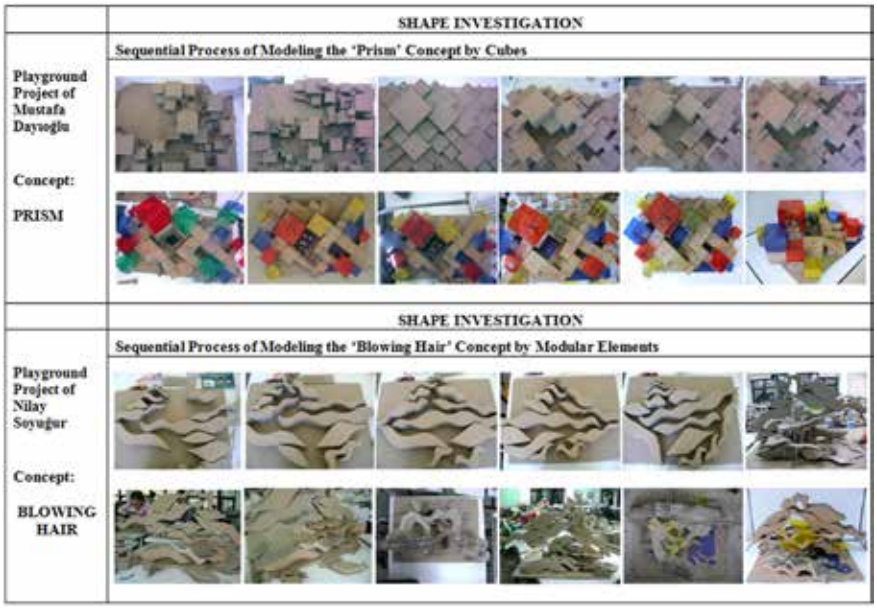

Figure 5. *Shape investigation processes of Mustafa Dayıoğlu's and Nilay Soyuğur's playground projects.*

PHASE 4: Modeling

A feedback mechanism was used when modeling studies were being managed up to a specific level. After basic structure of the model was created, the design students complete their designs by developing activities (each game), forms of the spaces, and furniture details.

Crossing the Threshold

We will discuss when a sketch pencil starts to draw by itself without listening to our hands during the process from crossing to design. In spite of the fact that design process makes its black box more transparent according to many research studies, a novice designer will always define new directions on the way to his/her expertise. However, we will never give up preparing new formulas on how to be a designer. Although the road map that I hope to find out in 'Scaping the Play' studio is likely to be ambiguous, it will be useful to underline some facts.

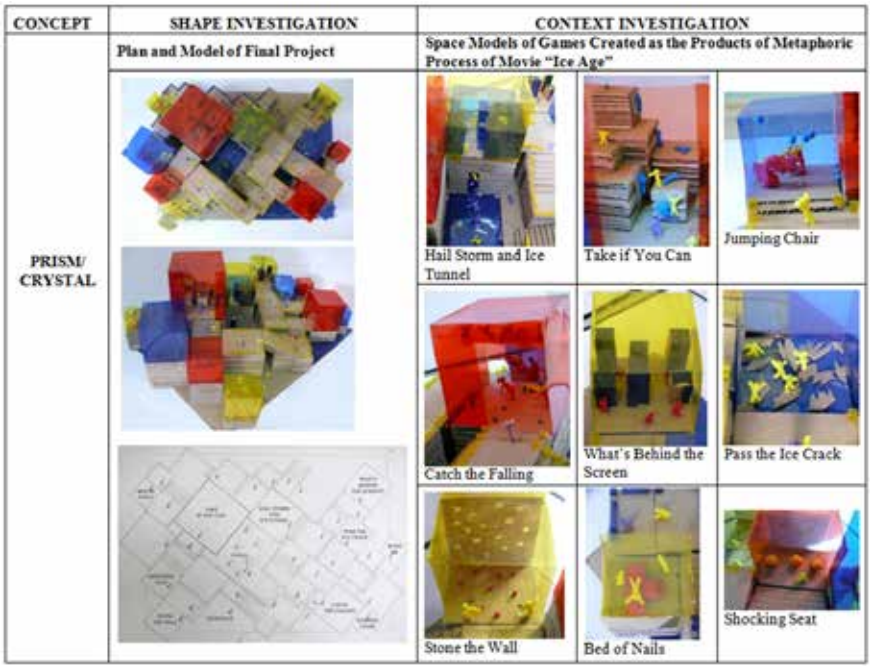

Figure 6. *Context investigation process of Mustafa Dayıoğlu's playground project.*

First of all, like many other disciplines related to design, one of the most important handicaps is to reshape the design students' seeing, perceiving and interpreting mechanisms. One should not forget the most effective vehicle which allows us to cross the threshold is imagination. We try to get the source to improve imagination from endless dynamism coming from metaphor. As Picasso said, we destroy continuously before building up till we reach the relations which have never been reached before. This choice can be considered as successful since the process is continuous and the results are authentic.

Another important thing that I would like to underline is that the metaphorical thinking approaches, that we tried to use in each important level of design process, have always led us to productive thought. While combining the two different concept groups, each of the concepts has been deeply analyzed, and analogical relations have been defined for different levels. This means that the design students could learn types of looking, seeing, and analyzing the relations with visual data. Moreover, they have developed the ability to produce suitable visual data by relating verbal knowledge to visual sources.

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ECOLOGICAL PLANNING APPROACH FOR SMART CITIES

CHAPTER 2

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INTRODUCTION

Future-oriented academic-scientific studies reveal that global problems such as climate change, consumption of natural resources, natural disasters, overpopulation, and unplanned urbanization will be the main factors in that our world will be different in the future than today. As a matter of fact, it is emphasized that "urbanization" is the primary source of the increase in temperature, which is defined as global warming, based on carbon and other harmful emission increase. In this respect, it is possible to say that the reflections of the increase in the number of cities and urban population experienced during the urbanization process on the natural environment are in the form of climate change and natural disasters. Accordingly, it can be stated that the cities of the future are currently in an ecological crisis due to the economic, geographical, political, and cultural transformation process. Therefore, sustainable urbanization and the search for sustainable cities are at the focal point of global debates on the preservation of ecological balance.

At this point, the expression "*We have lived beyond our possibilities for a very long time*" can be seen as an emphasis on the effects of human-made actions in the urbanization process on the natural environment [1]. From this point of view, it can be expressed that as the primary consumer of natural resources and the primary producer of environmental damages, cities should be handled within the framework of the phenomenon of sustainable development, i.e. providing the transition from "*using nature for human*" to "*how to live together with nature*" approach and making cities livable are extremely important and necessary. At this point, the concept of the smart city is regarded as an essential tool for guiding and remodeling urban development.

This study hypothesizes that it is crucial and necessary to base land use on ecological grounds and to provide environmentally sensitive urban development for a healthy and livable city within the scope of the smart city theme. As a matter of fact, the widespread use of urban information systems and technologies, especially the reduction of carbon emissions originating from the use of individual vehicles, can be regarded as a significant gain for healthy urbanization.

In this respect, in the planning of ecologically smart cities, to ensure equal living chances for present and future generations, there are ecological objectives in cities such as reducing energy consumption, preventing habitat fragmentation, producing solutions for water management and waste management, increasing biodiversity, balancing resource use, and climate control (prevention of the heat island effect) for bio comfort.

This study aims to put forward the tools aimed at protecting nature as a whole and improving the quality of urban life at a social, cultural, and spatial level. For this purpose, an ecologically smart city approach, which would contribute to the rational, holistic and sustainable development of cities affected by climate change, resource usage, and demographic change, was attempted to be put forward. For this aim, a framework was established to identify strategies and principles for environmental infrastructure, economic infrastructure, social infrastructure and planning and management infrastructure at the intersection of the subjects of information and communication technologies, actors and finance, and the need for supervision of them with control mechanisms and monitoring systems was revealed.

In this context, for sustainable urban city vision, a rational and holistic planning-design approach based on the vision of "smart city with an ecological basis" envisages balanced development in environmental, social and economic fields (**Figure 1**).

Figure 1. *The concept of sustainable city*

BACKGROUND: SEEKING FOR SOLUTIONS FROM THE PAST TO THE PRESENT

From the beginning of human history to the present, the struggle between human and nature can be said to follow a process in the form of obeying nature, the effort of adapting and controlling, and seeking for

shaping and directing. In this process, technological developments are observed to provide an essential advantage for human beings in the struggle against nature. As a matter of fact, the historical origins of environmental destruction are dated to the 15th-16th centuries, when a new understanding of human-nature accompanied by the concept of Scientific Renaissance, mechanical thought, and anti-ecological world view emerged [2].

In the 19th century, especially with the Industrial Revolution and the age of early mechanization, it is observed that human-nature struggle reached a different dimension, with the support of science and technological development, the self-confidence of humans increased and humans began to see themselves as the only power which could dominate nature and could control the environment [3], in parallel to this, destructive problems related to the environment, including soil, air, and water came to the agenda [4].

As a matter of fact, the first environmental protection laws are known to be enacted to prevent and control the environmental impacts of the urbanization process, which is accompanied by industrialization activities and overpopulation created in cities by the Industrial Revolution. On the other hand, planning movements related to the search for healthy cities are observed to be discussed [5], [6], [7]. Among these debates dated between the end of the 19th century and the beginning of the 20th century, the most important ones in terms of finding the application opportunity are the Beautiful City Movement (Beaux de Arts) and the Garden City Movement.

In the last quarter of the 20th century, the increase in global environmental problems due to rapid population growth and excessive urbanization brought the necessity of institutional organization and legal arrangements at the international level to the agenda. The concept of sustainability, which was first brought to the agenda in 1987 in the Environmental Conference final declaration Brundtland Report and which was stated as "*meeting the needs of the present without compromising the ability of future*," was started to be discussed globally with the Rio Environment Conference of 1992. In the ongoing process, the concepts of a sustainable city, sustainable urbanization, and sustainable urban development have been the focus of planning and implementation discussions at the level of both academic-scientific studies and institutional efforts. In particular, as stated at the Habitat-2 City Summit (1996), the principle of sustainability and the aim of creating a livable environment necessitate the sustainable urban development's being based on an ecological ground nowadays, which will ensure the protection of nature, as well as the increase in the social, cultural and spatial quality [8].

In the world, in the context of reducing the ecological footprint in human settlements and changing the human behaviors damaging natural resources, innovative approaches in terms of spatial planning and design have come to the forefront, and eco-cities, eco-technological cities, and smart cities have been developed as ecology-based settlements where natural resources are not depleted and where both human ecology and urban ecology are considered [9], [10], [11], [12].

Nowadays, the cities of 'Arcosanti' in Arizona (USA), 'Dongtan' in China, 'Masdar' in the United Arab Emirates, 'Eco-Viikki' in Helsinki Finland , 'Bo01' in Malmö Sweden, 'Milton' in the Ontario region of Canada, 'Integer' in England, and 'Waitakere' in the Auckland region of New Zealand can be seen as examples of the eco-city and eco-tech city that integrate technology and ecology. In Italy, the environmental quality of the Italian NUTS3 state capitals was determined according to the ranking of the XIX Ecosistema Urbano. In this context, the city of Verbania was evaluated as the most "green-friendly city," based on air, water, energy and waste management, transportation and mobility, green spaces, and environment and mobility policies, as urban environmental performances [13].

However, as of 2010, the European Commission organizes the European Green Capital Competition every year in order to promote environmentally friendly city life. In the competition, climate change, local transport, urban green spaces covering sustainable land use, nature and biodiversity, local air quality, environmental noise quality, waste generation and management, water management, wastewater management, eco-innovation and sustainable employment, energy efficiency, and integrated environmental management were taken as twelve evaluation criteria. According to these evaluation criteria, Stockholm (Sweden) became the first European Green Capital in 2010, then, Hamburg (Germany) in 2011, Vitoria-Gasteiz (Spain) in 2012, Nantes (France) in 2013, Copenhagen (Denmark) in 2014, Bristol (England) in 2015, Ljubljana (Slovenia) in 2016, Essen (Germany) in 2017, Nijmegen (the Netherlands) in 2018, and Oslo (Norway) in 2019 were awarded with the European Green Capital title.

At the same time, in many cities, different initiatives were taken to become a sustainable city. For example, in Freiburg city of Germany, strategies were developed for the use of solar energy, energy saving, developing new technologies, establishing new ecological settlements, landscape plan, new environmental plan, urban climate plan, waste management, and increasing biodiversity. In Linz-Pichling, Austria, Solarcity was planned as a city, which has solar energy, energy savings in housing and other buildings, waste and environmental management, and public transport and bicycle use. Kazakhstan-Astana was planned as a forest city with a green network

which consists of eight separate axes. In Australia-Sydney, the "Sydney Olympic Village" focused on environmental issues such as global warming, the ozone layer, biodiversity, toxic materials, toxic waste, water, and energy [14]. In order to cope with the rapidly increasing population in London in recent years and with the transportation, waste, health services and energy resources problems developing accordingly, investments are made in sustainability with the "smart city" approach which prioritizes the people. As one of the smart cities of Asia, Tokyo has smart mobile applications developed for its citizens. Barcelona has the vision of being self-sufficient, having productive districts, and being a rapidly developing city that can meet the increasing needs of individuals. There are also other applications. For example, the city of Vancouver aims to use 100% green energy within the city by 2050, and with the Virtual Singapore project, the city of Singapore is creating a simultaneous database that extends from infectious diseases to disaster risk, from the care of the elderly to the provision of cleaning services. In connection with applications in Europe, Turkey municipalities have begun to develop sustainable urban living models. Bursa Nilufer Municipality Health City, Gaziantep Ecological City Project, and Kastamonu-Cide may be given as examples. The projects of municipalities, which focus on developing projects related to renewable energy sources, are generally realized with the funding support of international organizations and with private sector collaboration. Bursa Metropolitan Municipality's Eco-City initiative included in the project prepared in 2012, Bursa Gürsu Municipality's solar energy project, Kırşehir Municipality's wind turbines project are examples in this area. In the study of Bostancı (2014), he stated that Gaziantep Metropolitan Municipality prepared an action plan for the fight against climate change from his meeting with S. Müftüoğlu Güleç (2014), who is Gaziantep Municipality Development Manager and Ecological City Design Manager. In the action plan, the creation of an eco-zone, the creation of an 'Energy Information Point' for local residents and a 'Local Energy Agency' for institutions, the development of public transportation using the current transport infrastructure, providing incentive and support for the use of energy-efficient vehicles in conjunction with the transition to advanced green technologies, increasing energy efficiency for sewage water treatment plants and sludge treatment projects are dealt with. In line with these evaluations, nowaday's search for sustainable cities can be said to focus on two basic settlement models. The first one is the compact city model, of which theoretical origins date back to the 1970s and which points to the reduction of individual vehicle use and the implementation of the high-density mass settlement order. The second one can be expressed as the low-density green city approach, which gives priority to green space uses and natural habitats. At this point, the ecologically smart city phenomenon is regarded as an important approach

aided by information systems in the search for sustainable urban life in a field ranging from strategies for reducing carbon emissions by considering social rights, economic security and ecological balance, to the development of scientific and academic infrastructure, from artistic and cultural activities to the regulation of urban living spaces. As a matter of fact, both in Turkey and abroad, local administrations can be stated to have recently started to raise awareness about the environment with smart city applications aided by information systems and technologies, and entered into competition in branding from this aspect.

ECOLOGICALLY SMART CITY: PLANNING APPROACH

Cities can be defined as densely populated settlements with a certain population size, which are designed with four basic functions: shelter, work, recreation – entertainment, and transportation [16]. From another aspect, it can be expressed with the concept of "urban metabolism" as a whole of organic systems in a dynamic structure which is in continuous development and change and which can become integrated with biotic and abiotic elements [17]. In order for urban metabolism to survive and to maintain its existence, it is vital to develop strategies aimed at addressing the unique natural and cultural values of cities within integrity-continuity, which is harmonious with their ecosystem. It is necessary to evaluate the impact of smart and eco-technological solutions, which will be developed for the sustainability of cities, on urban metabolism and to ensure the functioning of urban metabolism in a way that will preserve the balance of the urban ecosystem in terms of urban ecology [18]. More clearly, cities should be addressed with the vision of "sustainable city" or "ecological city" where the natural, cultural, economic, and social environment is evaluated as integrated. Furthermore, to create ecologically livable cities, natural resources, and urban ecology need to be taken into account when deciding on land use in settlements [19]. At this point, for the vision of sustainable urban development, which is expressed as an ecological planning approach, planning, and design strategies based on ecological concerns can be seen as an essential tool. The ecological planning approach can be defined as shaping the natural and cultural authenticity of the region, where the city is located, in the context of the balance between conservation and use with a rational and holistic perspective. From this point of view, the ecological planning approach should be based on environmentally sensitive strategies to develop a lifestyle that can offer spatial solutions/alternatives based on the principle of sustainability to ecological, cultural, social, and economic problems. At this point, it should not be ignored that in addition to developing ecologically-based spatial strategies, interactive

applications aided by information technologies offer/will offer important advantages in creating global awareness. Accordingly, it is aimed to meet the needs of today's generation in a way that future generations will have the right to live in healthy and quality living environments, to develop a lifestyle with sustainable environmental (natural and built environment), social and economic solutions integrated with information technologies, to address the natural environment and built environment, which are affected by urban development and which affect urban development, in a socially and economically interrelated manner, to plan with an approach that predicts balanced development, and to design also ecologically and technologically. The ecological design reveals an approach that includes a series of decisions to be adapted in new development areas, based on the existing traditional settlements [21]. Cities, developed as a result of ecological planning prepared with land-use decisions appropriate to all social, economic and ecological expectations, are human settlements that provide life quality to people while using natural resources at a minimum level.

This study aims to present an ecologically smart city perspective for planning and designing cities affected by climate change, resource use, and demographic change with a rational, sustainable, and holistic approach. For this goal, an ecologically-based urban development foresight-vision, which includes shaping strategies and principles aimed at ***environmental infrastructure*** (natural environment and built environment), ***economic infrastructure*** (use of natural resources, production and service activities and employment), ***planning and management*** (built environment, physical environment and urban development, security, environmental management, e-government), and ***social infrastructure*** (social programs, education, health services) at the intersection of information and communication technologies, actors' (personal participation, management, political groups, press [digital, written], science, research and development, non-governmental organizations [associations, foundations, chambers, clubs], economy [trade, industry, enterprise-investment groups]) knowledge-experience-ideas, and finance issues, and their control mechanisms, monitoring systems and supervision, has been developed (Figure 2). In this context, a holistic and rational planning-design approach based on the vision of "ecologically smart city" for sustainable city envisages balanced development in environmental, social, and economic fields. In this regard, the principles and strategies related to ecologically smart cities were dealt with under four headings as environmental infrastructure, social infrastructure, economic infrastructure, and planning and management, and stated below.

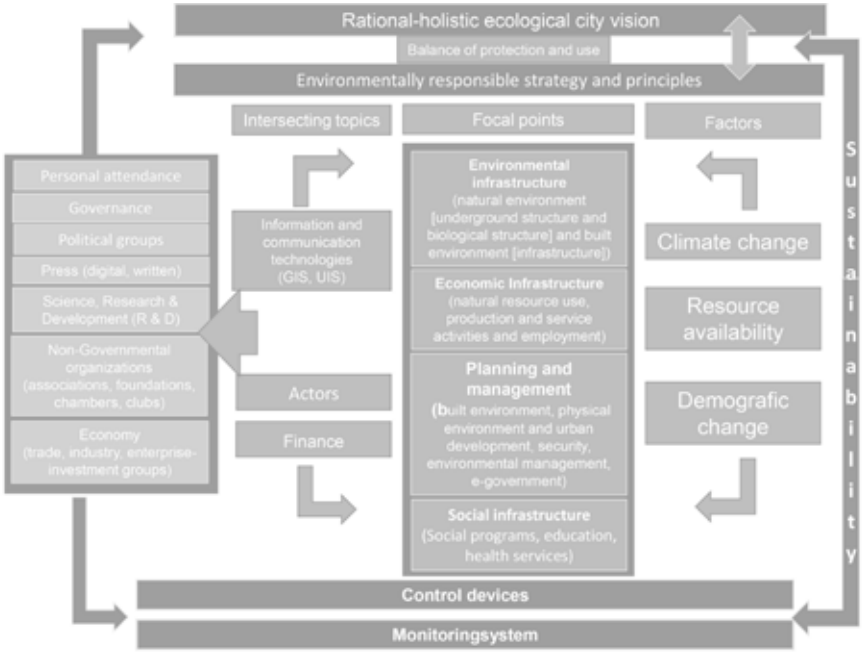

Figure 2. *Rational, sustainable and holistic ecologically city vision (Rödig 2015 [22] personal fiction on the basis of change-development)*

A. Environmental Infrastructure

Environmental infrastructure within the scope of the planning-design approach based on ecologically smart city vision was dealt with under two headings as the natural environment and built environment. The natural environment is directed to using values and resources that constitute the underground structure, biological structure, agricultural resources, forest resources, landscape values and aesthetic qualities, underground resources and environmental problems more effectively and more rationally, while the built environment evaluates the planning, design, and management of infrastructure and superstructure.

Natural environment

The planning approach, in which values and resources that constitute the underground structure (geology and geomorphology, hydrology, hydrogeology), biological structure (biogeography, ecosystems and habitats, vegetation, flora, fauna), agricultural resources, forest resources, landscape values and aesthetic qualities, underground resources (mines, quarries, water), and environmental problems (erosion, natural disasters, air, water and soil pollution, climate change) are used more effectively and more rationally and which can balance the resource use, is stated below.

✓ Sustainable natural resource management,

✓ Protection, planning, and management of the landscape,

o Producing landscape atlases for the integration of landscape planning with spatial planning,

o Ecologically-based visual landscape character analyses,

o Introducing measures for the preservation and restoration-renovation of landscapes,

✓ Effective protection of biodiversity, management and providing the balanced use of it

✓ Planning of green infrastructure systems,

o Development of a green space system and improvement of its quality by considering air corridors in urban areas,

o Establishment of an urban ecological corridor and network,

o Increase in the amount of urban green spaces and the establishment of green networks,

✓ Agricultural resources,

o Prevention of damages and low yield caused by the industrialization and chemical spraying in agricultural areas,

o Inclusion of agricultural lands in and around the city in the ecological network system,

o Promotion of urban agriculture, urban farm, and urban and home horticulture,

o Encouragement of the production of local products,

✓ Natural environmental management,

o Development of conservation functions in natural environment management by appropriate methods,

o Protection, development and providing continuity of habitats, ecosystems and ecological processes,

o Monitoring of habitats, ecosystems and ecological processes and preparing management plans,

o Improvement of socio-economic functions of the natural environment,

✓ Development of a strategy for the protection of marine-coastal ecosystems,

✓ Extension of national and regional programs for sustainable management,

✓ Development of strategies for soil protection,

✓ Evaluation of the geological structure,

✓ Preservation of landscape values, aesthetic qualities, and natural beauties to increase urban aesthetics,

✓ Sustainable forest resources management,

✓ Underground resources management (mines, quarries, water),

✓ Integrated environmental management,

o Reduction of environmental pollution and completion of fossil fuel use,

o Climate change risk management,

o Erosion control,

o Natural disaster management should be based on.

Built environment

Under the title of built environment, the planning and design approach for infrastructure [clean water, wastewater disposal, waste-household waste disposal, transportation lines, communication lines, transmission lines, production areas, irrigation lines, drainage lines, wells, discharge areas, water extraction] and for superstructure [property status, land use, zoning status, structuring status] was expressed.

In this context;

✓ Reduction of CO_2 emission rate,

✓ Minimizing greenhouse gases; Reduction of greenhouse gas emissions,

✓ Planning and design for the protection of climatic balance; the use of sunbathing, wind directions, heat, etc. efficiently and in a way that will provide energy saving in planning and design (e.g., the establishment of wind and photovoltaic farms),

✓ Providing bio comfort, climate control,

✓ Efficient air, water, energy and waste management and provision of its cycle, its being self-sufficient,

✓ Waste management,

o Wastewater management,

o Being able to reduce ecological pressures, to convert wastewater and to gain the surface flow waters to the ecosystem,

o Wastewater treatment for energy efficiency,

✓ Sustainable stormwater management,

o Accumulation of waters in ponds, irrigation of common gardens by these waters,

✓ Intelligent infrastructure networks (transportation lines, communication lines, transmission lines, production areas, irrigation lines, drainage lines, wells, discharge areas, water extraction),

✓ Transportation management; development of alternative transport models,

o Efficient use of energy in public transportation,

o Establishment of pedestrian road networks,

✓ Construction management,

✓ 'Smart and green' housing design,

o Renewable energy sources and efficient use of energy, solar cell panels, obtaining electricity with solar and wind energy, benefiting from solar energy in lighting, heating, and cooling,

o Smart green wall systems,

o Reducing the energy consumption of structures; construction of buildings that produce energy instead of consuming it,

✓ Ecological structures,

o The use of eco-building material in structures,

o The use of biogas,

o Winter gardens that are directed to the south, green-roofed structures,

- ✓ Establishment of recycling systems,
- ✓ The use of gray water systems in houses should be based on.

B. Economic Infrastructure

Today and in the future, for a development that preserves and repairs ecological systems, as well as enhances the welfare of people, strategies aimed at the issues of natural resource use, production and service activities, and employment are listed below.

- ✓ Strengthening the role of workers and labor unions,
- ✓ Development of the ecological industry approach; strengthening the role of the business world and industry,
- ✓ Strengthening the role of farmers,
- ✓ Development of technologies for post-production waste management, waste reduction and/or recycling, and encouragement of their use in industrial organizations,
- ✓ Planning of the financial dimension, and implementation tools,
- ✓ Strengthening of the economic welfare and employment in urban areas,
- o Promotion of technological development,
- o Increasing productivity,
- o Evaluation of employment resources,
- ✓ Use of financial resources and smart mechanisms,
- ✓ Entrepreneurship, innovative spirit, productivity, labor market flexibility,
- ✓ An economy based on knowledge and innovation,
- ✓ Local investment incentive program,
- ✓ The environmental tax as an economic tool; monetary contribution to the cost of environment consumption.

C. Planning-Management

It is the establishment of a planning-management infrastructure aimed at consensus-building by establishing an information network based on

authority sharing balance and central/local and civil cooperation for sustainable ecologically-based planning and management. In this context;

✓ Use of information technologies/information systems,

✓ Establishment of Central and Local Government [Related ministries, municipalities, other public institutions, private institutions and institutes, universities and non-governmental organizations (foundations, associations, professional chambers), enterprise-investment groups] cooperation and preparation of action plans,

✓ Development of participatory local government understanding (efficient, transparent and participatory),

o Informing local people effectively about decisions, public participation and cooperation, sharing responsibilities,

✓ Enlightenment, perception, measurement, evaluation, comparison, interpretation, opinion formation, and action determination,

✓ Establishment of local ecosystem management networks,

✓ Establishing an 'Urban Information System' for the local community,

✓ Information platforms; organizing organizations such as conferences, workshops, summits, etc.,

✓ Research and evaluation – feedback; social, physical and economic development, R&D studies, project and competition organizations,

✓ Support and wide spread of organizations such as Local Agenda 21, European Union Natura 2000 Network, etc.,

✓ Management (administration representative, contractor's representative, relevant field representative, and relevant community members),

✓ The integrated management system that is established in the fiction of planning (work program, fieldwork, face-to-face interviews, entry of data and information into the database, relevant working group roundtable, analysis and synthesis studies reporting) and application-supervision-monitoring (interviews and field studies reports, detailed relevant group reports, relevant group zoning sheet, analysis report and sheets, draft related group synthesis report and sheets),

✓ Use of technological tools for productivity and effectiveness measurement, risk assessment and early warning detection,

✓ Funding supports of international organizations, and private sector cooperation,

✓ Risk management, crisis management, and intervention planning,

✓ Strengthening the role of non-governmental organizations,

✓ In support of the European Union Natura 2000 Network, Agenda 21, the initiatives of local governments should be based on.

D. Social Infrastructure

Today and in the future, one of the main objectives of an integrated urban life approach, which has a high quality of social life and includes the quality of environmental life, is to take and implement social, economic, environmental and physical decisions about the future of the city with the participation of local people and other interest groups. In this way, it is aimed both to implement a rational management mechanism and to strengthen the social structure. In this context;

✓ Raising awareness of public social responsibility,

✓ Local people's understanding, accessing, participating and benefiting from information and communication technologies,

✓ Recognition and strengthening of the roles of local people,

✓ "Intelligent human" profile, scientific and technological community,

✓ Lifelong learning should be based on.

The above-mentioned rational and holistic urbanization model should be supervised with control mechanisms and monitoring systems in order to be sustainable after the implementation. This supervision is vital for assessing to what extent the objectives in ecologically smart city development can be achieved. To this end, by developing certain criteria, the level of implementation of some fundamental decisions envisaged by an ecologically smart city plan should be measured. In this context, the internal supervision mechanism and the relationship among relevant institutions should be established. Furthermore, the proposed system should be revised over time and updated according to the conditions of the day.

CONCLUSION

Cities of the future are currently experiencing an ecological crisis due to the destruction created by the economic, political, and cultural transformation process. This situation will increase in parallel to the demographic

change, migration flows, and strengthening of the degree of urbanization [1], [23]. Ultimately, cities will have to meet millions of new inhabitants in the future.

The excessive infrastructure load above the environmental carrying capacity and wrong land use decisions, weakening of water resources, forest fires, drought and desertification and related ecological deterioration [24], growing problems in meeting water and energy needs, and increasing health problems are causing people who live in the city to lose their quality of life.

Considering that the majority of the world's population will live in urban settlements in the future, a new structuring proposal has been attempted to be introduced in which cities are evaluated and managed in a naturally, culturally, economically and socially integrated manner. In this context, as an urbanization model in which sustainable urban development will be ideally provided, an urban model which is ecologically based, supported by ***participatory and information-technological development*** emerges.

When the planning approach of the ecologically smart city is evaluated, four elements are observed to come to the forefront. The first one of them is ***the environmental infrastructure***, which includes the *natural environment* and the *built environment.* The natural environment is directed to using values and resources that constitute the underground structure, biological structure, agricultural resources, forest resources, landscape values and aesthetic qualities, underground resources and environmental problems more effectively and more rationally, while the built environment evaluates the planning, design, and management of infrastructure and superstructure. The second one is ***the economic infrastructure*** that covers natural resource use, production, service activities, and employment for development that protects and repairs ecological systems today and in the future and at the same time enhances the welfare of humans. The third one is ***the planning-management*** process aimed at consensus-building by establishing an information network based on authority sharing balance and central/local and civil cooperation for sustainable ecologically-based planning and management. Finally, it is ***the social infrastructure*** dealing with the tools concerning implementing a rational management mechanism and strengthening the social structure in the city. These processes need to be supervised by control mechanisms and monitoring systems.

Ecologically smart cities aim to shape cities in line with a holistic planning approach and in a way that there will be a high level of social welfare. Through planning, design, and management of these cities, which consider the interests of future generations and preserve the natural and cultural characteristics of the region where the city is located, there will be

a chance to live in sustainable cities. In other words, in the future, it will be possible to live in a balanced and healthy manner in economically and socially smart and ecological cities where sustainability has been provided, open and green space balance has been established, natural resources have been preserved, transportation infrastructure has been established, energy efficiency has been achieved, carbon emissions have been balanced, ecological architecture has been designed, and technology has been used for the benefit of ecology.

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Biographical Sketch/Biography of

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Her research fields are founded on a landscape planning and design approach, which includes social landscape, landscape-health interaction, landscape-archeology interaction, design for all and landscape-children interaction. She graduated from Ankara University, Faculty of Agriculture, and Department of Landscape Architecture in 1993, and she had her MSc. and PhD. in Ankara University Graduate School of Natural and Applied Science in 1998 and 2003. She had her associate degree in Cultural Heritage and Tourism program at 2019. She completed the online course of SARAT (Safeguarding Archaeological Assets of Turkey) PROJECT (April –June 2019) with certificate by Koç University. She was work in Ankara University as a lecturer (1997-2006) and Bartın University as an Assistant Professor (2006-2012). She joins the Pamukkale University of Landscape Architecture in 2012. She is currently teaching undergraduate and graduate courses in the Architecture and Design Faculty at Pamukkale University. She served as Head of Department and Vice Dean at Bartın University and Pamukkale University. She is also a member of the UCTEA Chamber of Landscape Architects in Turkey. She was/is a member of the archaeological excavation committees.

Biographical Sketch/Biography of

Assoc. Prof.Dr. Sertaç GUNGOR

He was born in the capital city of Turkey (Ankara) in 1970. He graduated from Ankara University, Faculty of Agriculture, and Department of Landscape Architecture in 1992, and he had his MSc. and PhD. in Ankara University Graduate School of Natural and Applied Science in 1996 and 2003 He was work in Ankara University and Selcuk University as a research assistant. He joins the Selcuk University as a Assistant Professor of Landscape Architecture in 2004 after 4 years (1991-1995) of combining an active professional practice (such as site chief landscape architect and operations manager) with academic appointments including vice chair of Department of Landscape Architecture, technical secretary and member of editorial board of Selcuk Journal of Agriculture and Food Science, Vice-Director and Member of Executive Council of Research Center of Applied Mathematics. The focus of his scholarship is in four areas; GIS in landscape planning, bioclimatic comfort, Landfill Site Selection-Tourism activity site selection/etc. criteria with the help Of GIS and Tourism and recreational planning. He has published more than 35 articles on landscape planning. Presented 18 international 19 national conference reports. He is also a member of the UCTEA Chamber of Landscape Architects in Turkey.

CHAPTER 3

THE ERGONOMIC - ANTHROPOMETRIC ANALYSIS OF THE COMPATIBILITY FOR DISABLED INDIVIDUALS OF ATATÜRK CITY PARK IN MANİSA

Prof. Dr. Bahriye GÜLGÜN
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INTRODUCTION

As an ecological data-based physical planning and design discipline, Landscape Architecture aims to design functional and aesthetic spaces for human activities and needs (Gülgün et al., 2014; Gülgün et al, 2015a; Akça and Yazıcı, 2017; Akça and Gülgün 2019). Proper planning in terms of sustainable environment, functionality for users and aesthetic in terms of visual perception are important in landscape architecture studies (Temizel et al, 2019; Yazici and Gülgün, 2017). The aim of Landscape Architecture -ergonomics- anthropometry studies, common point of which is human, is to carry out studies that will positively maximize the design of the physical environment in terms of comfort, health, and safety.

ERGONOMY AND ANTHROPOMETRY CONCEPT

In a sense, ergonomics can be defined as arranging the work in accordance with human characteristics. Ergon in Greek means business, nomic means rule. The most important aim of ergonomics is to make the technical level of the work area the most suitable for the human being. Because, the comfort of the people in the environment they exist in, is provided by designing the tools and equipment they use in accordance with the relevant organs' characteristics of the human body (Özok, 1981; Çelik 1995).

Anthropometry is a branch of human science dealing with body measurements, including measurements of body length, shape, strength and working capacity. Anthropometry is a very important branch of ergonomics. Anthropo in Greek means Man and metikos means measurement. In this case, this sub-discipline is the development of design standards and specific instruments, and the evaluation of products with engineering drawings and the application of cognitive, physical methods to humans in order to ensure that these products are suitable for the population using them (Oborne, 1995).

In the Municipality Law No. 5393, it says: "Municipality services are provided in the places closest to the citizens and with the most appropriate methods. In the provision of services, methods suitable for the situation of disabled, elderly, addicts and low-income people are applied". In the regulation of disabled service units of metropolitan municipalities, it is stated that the rules are created in order to ensure that disabled people living in metropolitan municipalities and contiguous areas benefit from equal and social opportunities just like the non-disabled individuals do. It is also stated that it is aimed that disabled people live their lives in safety, health and happiness by taking advantage of urban facilities with modern service concept (Anonymous, 1989). In this context, it is understood that district and metropolitan municipalities have duties and responsibilities in order to

meet the needs of disabled individuals (Panero and Zelnik 1979; Babaolu, 2003; Gülgün et al, 2018).

The World Health Organization (WHO) grouped the concept of disability in 1980 with three definitions based on disease outcomes and focusing on health aspects. When we define them:

- Impairment: It refers to deficiency and abnormality in psychological, physiological and anatomical (physical) structures and functions in terms of health.
- Disability: The limitation or inadequacy of performing an activity within the normal accepted limits.
- Handicap: It is the limitation or failure of the roles expected from the person in accordance with age, gender, social and cultural factors due to an insufficiency or disability (Pheasant, 1996; Yavaş 2002).

ANTHROPOMETRIC STANDARDS FOR HANDICAPPED INDIVIDUALS IN LANDSCAPE ARCHITECTURE

Anthropometry is a science that deals with the dimensions of the human body. According to Jürgens (1990), anthropology, which is "anthropometry", one of the basic techniques of human science, examines the metric dimensions of human beings.

The aim of the Landscape Architecture - ergonomics - anthropometry studies, whose common point is human, is to ensure the harmony between human and machine and work environment, minimizing the human error and wear rate and minimizing the environmental stress factors on performance, in terms of physical environment design, comfort, health and safety, in order to make the maximum positive effect (Bayik; 1992; Bekiroglu, 2002; Yoruk et al., 2006;Gülgün et al., 2015b).

Hands are the most important factor in human activities. Therefore, the hand-related handles, the size of the grip elements, form and surfaces should be made in the most appropriate manner to the human hand in terms of structure. In addition, the height of the seating units, backrest should be suitable for human sizes and forms, especially in playgrounds such as garbage cans, should be within the reach of children. Many other examples of such functions can be given that affect people in terms of physical, psychological and health aspects (Doğan and Altan 2007; Anonymous 1989).

Table 1. *Determined Anthropometric Standards for Individuals with Disabilities (Example of pedestrian path stairs ram*

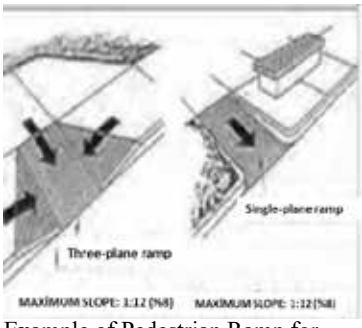
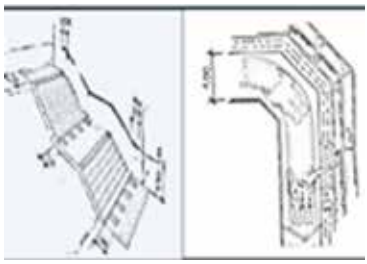
	ANTHROPOMETRIC STANDARDS		ANTHROPOMETRIC STANDARDS
PEDESTRIAN ROADS AND PAVEMENTS	- The height of pedestrian roads and pavements from the ground level should be between 6-15 cm, the unobstructed area along the road should be at least 180 cm (preferably 200-250 cm) wide and should be smooth enough for the visually impaired to follow with canes, and there should be no dangerous chamfers. - The surface of the flooring materials and grids used on the floor should not be slippery and too rough when wet or dry, and there should not be wide gaps between the pavers to prevent the wheelchairs and stroller wheels from being trapped. - Ramp widths should be at least 180 cm at the crosswalk and entrances and 90 cm at other places. The slope of these ramps can be up to eight percent. - For visually impaired people on wide pavements and pedestrian paths, there should be 80 cm wide walking lanes made as a special application which we can call a guide track. There should be at least 80 cm normal walking lanes on both sides of these lanes. (Özdingiş, 2007)	STAIRS AND RAMPS	Stairs and ramps should have areas with at least 100 cm width on both sides of the floor, using different flooring material. - Each step of the stairs should be 28-30 cm wide and 15-16 cm high. - Long staircases should have a landing after every eight to ten steps. - On both sides of the stairs, handrails with a circular cross-section with at least 85 cm in height from the step and a diameter of at least 4 cm should be put, considering individuals with weak or poor grip. - The maximum slope in ramps should be 10 percent for a height difference of 10 cm, 8 percent for height differences between 10-25 cm and 6 percent for height differences between 25-50 cm. All slopes on ramps and above 6 percent should be equipped with a handrail. - Ramp widths should be at least 130 cm. At the beginning and end of the ramp, there should be areas of at least 120x120 cm in front of the doors. If the height of the ramp is 600 cm or more, there should be 150 cm long landings in between. This area is necessary for the disabled person to maneuver. - The ground surface of stairs, ramps and immoveable obstacles must be smooth or slightly rough, non-slip and rigid. (Özdingiş, 2007)
	 Example of Pedestrian Ramp for Disabled Persons (Özdingiş, 2007)		 : Stairs and Ramp Example for Disabled People (Özdingiş, 2007)

Table 2. *Anthropometric Standards and Flooring Standards for Disabled People Using Crutches and Wheelchairs*

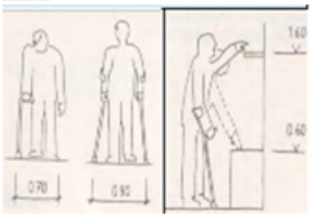
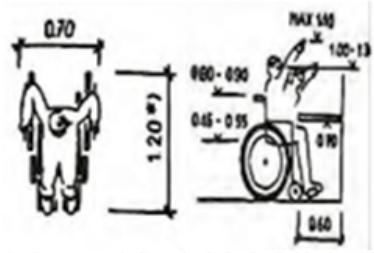
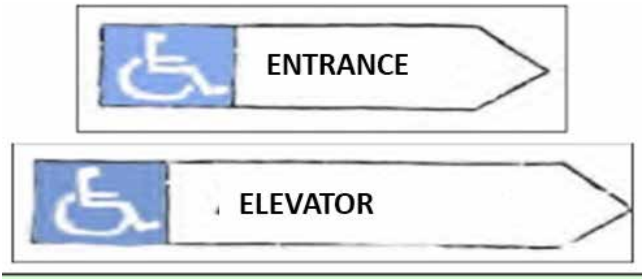
	ANTHROPOMETRIC STANDARDS		ANTHROPOMETRIC STANDARDS
INDIVIDUALS WITH WHEELCHAIRS	Crutch users: They cannot walk without crutches, they cannot descend from or climb up to platforms with more than 20 cm in height. They cannot bend, squat, use their two arms at the same time freely. - Pedestrian road width of at least 70 cm is required for an individual using a single crutch and at least 90 cm is required for an individual using two crutches. - An individual using crutches can reach up to 60 cm down and 160 cm up using only one hand.  Anthropometric Standards of Individuals Using Crutches (Özdingiş, 2007) height of the arm. Sitting in a wheelchair, they can move forward or backwards. - The minimum space required for a wheelchair user is 70x120 cm. - The eye level of the disabled person using a wheelchair is 100-130 cm. - For persons using wheelchairs, at least 140x140 cm space is required for 90° rotation and 140x170 cm space is required for 180° rotation. (Özdingiş, 2007) - Wheelchair users: They cannot walk, stand, bend or squat, and cannot lie vertically apart from the  Anthropometric Standards for Individuals with Wheelchairs (Özdingiş, 2007)		- Pebble or loose cobblestone pavements often mean difficulty for people. - Hard-textured, slightly rough, wet or dry anti-slip surfaces are very useful for all individuals but primarily for disabled people. - Since footsteps in the flooring are guiding for blind or visually impaired individuals, they can determine their route by touching the changes on the road and wall surfaces, listening to the sound of footsteps or cane sounds. - Complex colored, loose textured and sound absorbing materials should be avoided. - For the safety of visually impaired or blind individuals, the flooring, which can be called perceivable surfaces, is necessary for protection against hazards. - The flooring material and the design of the stairs shown in Figure 11 are not suitable for people with disabilities. Because the natural stone material is too rough, it will make the wheelchair difficult to ride and it will be uncomfortable for physically disabled people as the chair will move jerky. In addition, the large staircase steps make it difficult for the visually impaired to move. - These surfaces should be painted in contrasting colors, as many visually impaired people can see even a little. (Özdingiş, 2007).  - Different flooring materials, stairs and ramp application (Özdingiş, 2007) - Perceivable surfaces for the visually impaired (Özdingiş, 2007)

Table 3. *Signs and Instruction Plates for Disabled Individuals*

LIGHTING COMPONENTS	- The ground clearance must be at least 210 cm. - Since visually impaired people and elderly people will have vision problems in poorly lit areas, pedestrian roads, seating areas, information boards, direction signs and dangerous areas should be well illuminated. - Illumination of interconnected areas and surfaces with varying intensity, or with dazzling light, is an obstacle for the visually impaired and the elderly. (Özdingiş, 2007)
TRASH CANS	- It should be placed at a height of 90 cm in a way that does not prevent the passage in the place. - The colors should be remarkable, and the material should be non-flammable. - For persons with disabilities, the cover should be easy opening. (Özdingiş, 2007)
SIGNS AND INSTRUCTION PLATES	- Placing of signs is a very important task. These signs should be placed at the eye level for people without vision problems but should be lower in areas where wheelchair users come frequently. - In order to prevent healthy or visually impaired individuals from hitting their heads, the signs must be at least 210 cm (preferably 250 cm) above the ground. The best reading height is 90-140 cm. - The format of the font should be legible (Helvetica, upper and lower case may be preferred) and the dimensions should be adjusted to the reading distance (50 cm at 150 cm reading distance, 10-17 cm at 300 cm reading distance). (Özdingiş, 2007)
	 Signboard for disabled people (Özdingiş, 2007)

MATERIAL AND METHOD

Material

The seventeen districts of Manisa, in 2015 with a total population of 1.380.366 according to TUIK data, is the fourteenth most populous city of Turkey. It is located in the middle of the Aegean Region and has 1232 square kilometers in area. It is adjacent to Uşak and Kütahya from the east, Aydın and Denizli from the south, Balıkesir from the north and İzmir from the west. The city was established at the foot of the Spil Mountain and a large part of the Gediz River passes through the provincial borders. 46% of Manisa City is covered with forests and shrubs. Its climate is harsher than the Aegean coast. Summers are hot and dry, winters are mild and rainy (Anonymous 2017a).

Figure 1. *Manisa District Map (Anonymous 2017a)*

Considering the district population rates, Yunusemre district is one of the most populated districts in Manisa. Atatürk City Park, located in Güzelyurt district of Yunusemre district, is the most popular park in terms of the number of users in the center district and all other districts. It has been identified as a research area because it has easy accessibility and includes various landscape application elements ranging from an adventure park to walk-lanes that appeal to the whole population of baby-child-young-adult-old people. At the end of the interview with the headman of Güzelyurt, Basri Bilici, 27 disabled people were found in the neighborhood. Atatürk City Park, which is the only park on the scale of the district park of Manisa City, has been examined in terms of anthropometric and ergonomic aspects of the use and accessibility of disabled individuals.

It is an area defined as a recreation area in the zoning plan on an area of approximately 170.000 m^2 on Ingolstadt Boulevard in Güzelyurt neighborhood of Yunusemre district of Manisa City (Figure 1; Figure 2). There are Manisa-Menemen Road in the north, Birlik Street in the south, Ingolstadt Boulevard in the east and Street No. 5740 in the west. North of the research

area is the ring road, there are residential areas in the southwest and east, and Safran Creek divides the area into approximately two.

Definition of Neighborhood Park: These are the parks that will serve a few neighborhoods. They enable active and passive recreation activities. The service radius is 3000 meters. It is 40-200 decares in size". (Özkan, 2001; Kartay and Korkut, 2009) According to this definition, our research area is classified as a district park. 100 acres of 170 acres of research area is designed as a plant landscape application area and 70 acres is designed as a structural landscape application area where structural and architectural functions are defined. Three of the seven entrances in the project area are located on the east side of the road that divides the project area in two, and the other four are on the west side. There are two restaurant buildings with an average size of 250m² in the project area. One of them is located next to the ornamental pool in the north direction and the other one is at the entrance of the south facade. In the project area, there are five open car parks with a total capacity of 450 vehicles, two of them with 200 capacity are in the eastern part and three of them with 250 capacity are in the western part. The children's playground consists of: Pirate wars thematic game, adventure tower, playground with slides, motorized zipline (aerial view of a part of the area as in a ropeway), climbing and jumping tower, disabled playgrounds, chaotic climbing, synthetic sledge ride and sports equipment. Children's playgrounds cover a total area of 2000 m² with colored cast rubber flooring.

Figure 2: *Research Area*

Figure 3. *Night View of the Research Area (Atatürk City Park) (Anonymous 2019)*

There is a bicycle path of 750 meters in total and there are 50 bicycle parking spaces. There is a walkway of 2000 meters in length and made of red cast rubber. The research area includes a football field, a tennis court and two basketball courts. There is an ornamental pool of 2850 m^2 with music and illuminated water shows.

Method

This study was conducted to determine the adequacy in terms of quality and quantity by examining the landscape application functions of Atatürk City Park, which is the first district park of Manisa. The aim of the study was to assess the conformity of anthropometric and ergonomic standards determined for the use of disabled individuals and design criteria. The four main stages of the research were: conceptual analysis, research organization/data collection, evaluation, discussion and conclusion.

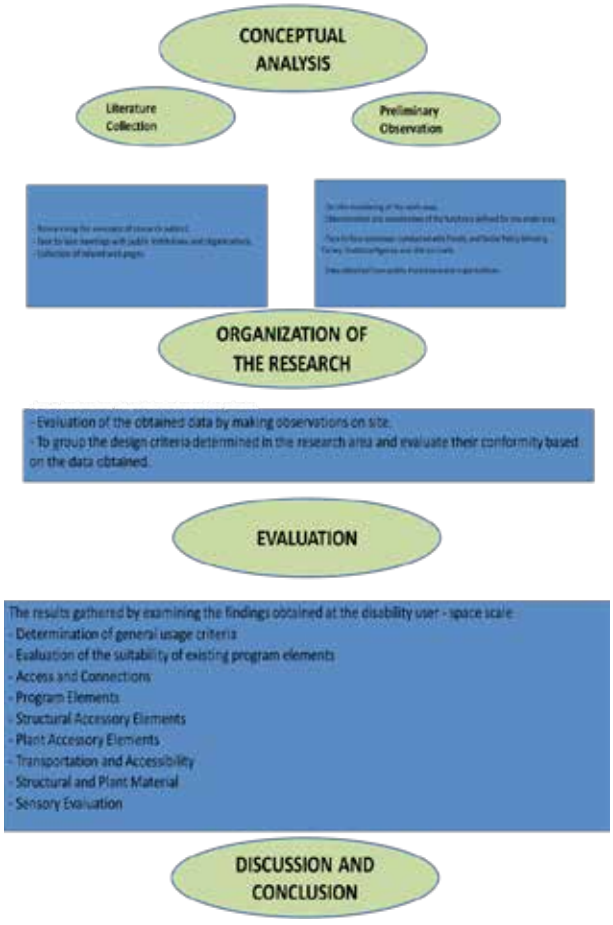


Figure 4: *Method Flow Chart*

Figure 5: *Percentage Rates of Disabled Population Living in Şehzadeler and Yunusemre Districts in Manisa City*

According to the info at hand, there are 88.313 people with at least one disability in Manisa. In Şehzadeler district, 0.01% of the population is found to be disabled, while Yunusemre has a disabled population of 0.004%. In this context, although there are similar rates, it is seen that there are more disabled people in Şehzadeler district.

RESEARCH FINDINGS

Atatürk City Park has been examined under the headings of various landscape program elements in terms of its compliance with the anthropometric standards determined for the use of disabled people. These headings are designated as parking lots, pedestrian roads and sidewalks, stairs and ramps, flooring materials, seating elements, lighting elements, garbage cans and signs, information and guidance signs. Parking spaces for disabled people could not be identified in the research area. For this reason, disabled people will have difficulty in parking. Since the parking spaces are located at the closest distance to the entrance and accessible to the disabled without any assistance, the design was found to be appropriate.

Car Park

It was observed that the car park floor is made of non-slip and hard material, the level difference is solved appropriately, and it can be reached without steps. It has been determined that there is no parking space in the car park area which is required by standards in the ratio of two percent and dimensions of 350x600 cm, but that the disabled individual does not encounter any urban reinforcement element barrier while reaching his vehicle.

Figure 6. *Example of Parking for Disabled Persons (Orginal, 2016)*

Pedestrian Roads and Pavements

It has been found that the height of pedestrian roads and pavements from the ground elevation and the unobstructed area widths are suitable for the disabled people, there are no dangerous chamfers, they are in compliance with the standards, away from unexpected elevation differences and no dazzling materials are used.

Figure 7. *Example of Pedestrian Road for the Use of People with Disabilities (Orginal, 2016)*

It was observed that the surface of the flooring materials used on the floor was not slippery, there were no large gaps between the paving stones, and there were no obstacles such as flower bed, barrier, bench, lighting pole and direction signs that could cause getting stuck on the floor along the way.

Stairs and Ramps

The elevation differences across the Atatürk City Park were resolved by ramps in accordance with the topography of the land, but no stairs were used. Walkways and access roads have been elevated to ensure stormwater drainage and have been mostly faithful to the natural form of the land.

Figure 8. *Example of Stairs Not Suitable for Disabled Use in the Research Area (Orginal, 2016)*

It was found that ramp widths are more than 150 cm and there is enough maneuvering space for wheelchair users at the beginning and end of ramps. It has been determined that ramp slopes are generally 2-5% and the ground

surfaces are flat, less rough and made with non-slip material. The fact that the surface of the ramp and the pedestrian or pavement surface are different material, stands out as a facilitator for disabled people due to the difference in texture. The staircase was used at a single point in the research area and it was observed that the pressure and dock widths were not equal, and this was a negative quality for disabled individuals.

Flooring Materials

It has been observed that the flooring materials are generally hard textured, slightly rough, non-slip surfaces, and the joint gaps are less than 5 mm, free of any obstructions. For the safety of blind or visually impaired individuals, visually impaired follow-up bricks are used to create perceptible surfaces.

Figure 9. *Example of Walking Path in the Research Area (Orginal, 2016)*

Sitting Areas, Benches, Picnic Tables and Picnic Areas

Sitting elements in the research area consist of wooden benches, picnic tables, sitting - resting units, concrete belts and grass hills. Wooden benches are on the side of the pedestrian path, picnic tables and wooden seating units are on the green area.

Figure 10. *Example of Bench and Picnic Area Suitable for Disabled Use in the Research Area (Orginal, 2016)*

Both those on the roadside and those on the grass are accessible because there is no difference in elevation.

Figure 11. *Example of Flooring Material and Walkway in the Research Area*

Lighting Elements and Trash Cans

It was found that the lighting elements were located on the edge of the pedestrian path and pavements and its height from the ground was at least 180-200 cm. It is observed that the roads are adequately illuminated and there is no dazzling light or dark area for visually impaired and elderly individuals.

Figure 12. *Example of Lighting Element and Trash Can Suitable for Disabled Use in the Research Area (Orginal, 2016)*

In the research area, it was determined that the trash cans are in an appropriate height and do not prevent passage, and that the wheelchair users are in compliance with the anthropometric standards. It has been found that the lids of the closed bins can be easily opened, and they are assembled in the appropriate position.

Signs, Information Boards and Direction Signs

The plan of the Atatürk City Park was installed at each entry point of the research area as a pedestal for information purposes. The plan includes access to functions such as the administrative building in the park area, café restaurant and children's playground. Thanks to the guiding and informative panels on the side of the road, the show areas and event units are easily found.

Figure 13. *Samples of Board not Suitable for Disabled Use in Research Area (Orginal, 2016)*

It has been found that the information boards are clear, complete and easy to understand at the entrances of the area, but that the appropriate height is not applied for wheelchair users. Dashboards include functions such as the name of the place, layout and warning letters.

It was observed on the information boards that there are no signs in Braille characters for the visually impaired individuals. Embossed characters or numbers should be placed on the edges of the signs and be well illuminated together with the writing bands prepared for the blind.

CONCLUSIONS AND RECOMMENDATIONS

While evaluating Atatürk City Park in terms of anthropometric and ergonomic use of disabled individuals, the suitability of the landscape application function elements of the research area to the standards was examined. In this context, parking area, pedestrian roads and sidewalks, flooring materials, benches, picnic tables and picnic areas, stairs and ramps, lighting elements, trash cans, signs and information boards were examined. In the study, similar results were obtained with Özdingiş (2007). The City Park research area has been evaluated in terms of its appropriate and inappropriate qualities on the landscape implementation project and an idea project has been proposed for the inappropriate qualities.

As it is non-slip and hard material, asphalt pavement was used as flooring material in parking areas and it was found that the design of this material was appropriate. It was found that wheelchair users could reach their vehicles in the parking lot without any assistance until the entrance, and they did not encounter any reinforcement elements such as columns, walls, lighting elements or trash cans while they were reaching or leaving the vehicle. The results obtained support the work of Öner Bilen (2004).

While these features stand out as the appropriate qualities of the parking areas, it is determined that the area to be used by the disabled individual in the parking area is not marked and the requirement of having a disabled

parking area of 2% of the whole parking area is not followed. In addition, it should be noted that the design dimensions for disabled parking spaces should be considered.

(a) (b) (c)

Figure 14. *Disabled Parking Lot Sign and Parking Example on Vertical Ground (a): Example for Disabled Users (b; c) (URL 1; URL 2)*

Pedestrian roads and pavements were found to be accessible and reliable for all disabled people in general terms, the surface of the floor covering and gratings were not slippery when wet or dry and conform to the standards and non-dazzling material was used. It was found that there were no dangerous chamfers, unexpected elevation differences, and visually impaired follow-up bricks and walking lanes were formed. Taking into consideration the maneuvering area of individuals using wheelchairs on pedestrian roads and sidewalks, it was determined that designs were made according to the example shown in Figure 15.

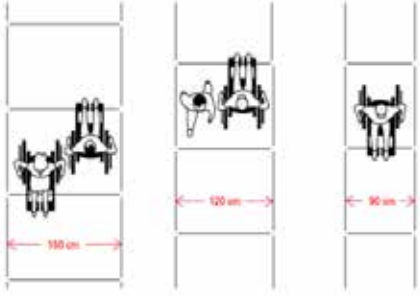


Figure 15. *Pedestrian and Pavement Measures in Accordance with the Standards of Disabled Users (URL 3)*

Stairs and Ramps

Due to the topography of the research area, there were no frequently used function elements. Stairs application is used in a single area of the research area, while ramp application is mostly seen at the entrance and exit of the roads.

Figure 16. *Example of Dock Height Suitable for Structural Landscape Application (URL 4)*

It was observed that the floor covering of stair and ramp designs was suitable, while the heights of the docks were not suitable.

In terms of flooring materials, it is observed that the research area has a suitable quality, non-slip floor covering, it does not have wide gaps and it is highly suitable for disabled individuals in terms of having hard texture and less rough texture. However, for the blind or visually impaired individuals, sounds of footsteps or timbres on the floor are guiding, so different textures and qualities can be used in flooring. Since this type of flooring is called perceivable surfaces, it is an important element for the safety of disabled people.

Seating areas, benches, picnic tables and picnic areas are placed in various seating units and are found in areas designated as grove. It was found that the benches used were suitable for ergonomically disabled individuals, but because of the difference in elevation, a ramp or a different solution was needed. The benches are the ones with arm and backrest in accordance with the needs of the disabled and elderly individuals.

It is seen that the lighting elements are designed in accordance with the needs of the disabled and do not prevent the passage. It is observed that the height of the ground is suitable for disabled people, pedestrian paths, seating areas, sidewalks and picnic areas are well lit. It is observed that the interconnected roads and surfaces are illuminated with the same intensity and there are no dark parts.

Trash cans are properly and adequately located throughout the research area. It has been observed that garbage cans are usually located on the side of the road without obstructing the passages in the spaces and are at a height that can be reached by the disabled individuals using wheelchairs and are very suitable with their colors and designs.

Signs, information boards, and signposts are located in easy-to-see locations on the research area entrance and interconnected roads. They are clear, consistent, complete and easy to understand. It includes the name

of the place, the layout of the place, warning letters and guidance information. It is observed that these signs are suitable for healthy or visually impaired individuals, but some orientation signs are not clear and legible in terms of writing characters and size.

Figure 18. *Appropriate Panel Height Examples for Disabled Users, Embossed Map Example Made to Standards (URL 5)*

Signboards should be designed in the most legible way. In addition, there are no signs for the visually impaired with Braille characters or consisting of standard alphabets and numbers. Embossed characters or numbers will provide convenience for individuals with visual impairment.

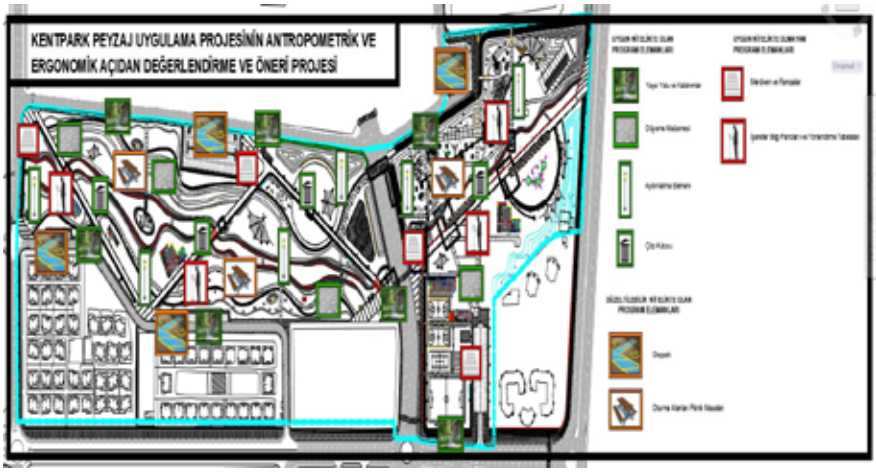


Figure 19. *Atatürk City Park Research Area Evaluation and Suggestion Project (Orginal, 2016)*

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Internet Resources

Url1: http://engelsizkent.org/tasarim-rehberi/otopark-alanlari/

Url 2: http://www.plantdergisi.com/yazi-alican-ozpolat-300.html

Url 3: http://www.plantdergisi.com/yazi-alican-ozpolat-300.html

Url4: https://www.google.com.tr/search?Q=Engelli+Kullan%C4%B1c%C4%B1lar+Peyzaj+Merdiven&Source=Lnms&Tbm=Isch&Sa=X&Ved=0ahukewj7rc6-H8_Xahurjlakhtnpcyuq_Auicigb&Biw=1536&Bih=747

Url5: http://www.plantdergisi.com/yazi-alican-ozpolat-300.html

DEVELOPMENT of PROFESSIONAL IDENTITY in ARCHITECTURAL DESIGN EDUCATION

CHAPTER 4

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INTRODUCTION

In architecture, design education has traditionally been carried out on the basis of "learning by doing" system. Design education experiences are generally based on the project proposals that are prepared by architect candidates intended for a design problem. In this sense, design education is a tool for the development of knowledge acquisition, talents, and for increasing originality, creativity and productivity. Design education reinforces students in terms of producing creative design ideas with an artist-specific perspective. On the other hand, design education forms the "professional identity" and "professional ideologies" of the candidate architects in that it ensures the development of individual freedom and professional identity (Kahvecioğlu, 2001, p.94). Professional identity is considered as a state of mind or an awareness level with which the individual can identify himself/herself as if s/he belongs to a professional group. The formational process of the development of the "professional identity" of designers is initiated during vocational training, and continues in professional practice (Godsey, 2011). This professional awareness has significant roles in the professional development of individuals because it is a basic element of personal identity (Skorikov and Vondracek, 2011). For this reason, the sense of belonging to a group and a job is an integral part of the self; and reflects the professional development of the individual directly. The process in which a designer starts to develop a certain professional identity has discussed commonly in terms of skills and competences (Cross, 1982; Adams et al., 2011). In this respect, Lawson and Dorst (2009) also emphasized the "identity", which questions "more" instead of only having skills. The development of a professional identity is affected by social and demographic factors, which necessitates that one's personal values, moral values and qualities are integrated with the norms of that specific profession and technical knowledge (Crossley and Vivekananda-Schmidt, 2009; Cowin, 2013; Kunrath, Kamila; Cash, Philip; Li-Ying, Jason, 2017).

In the present study, which argues that the design education has important roles in the development of professional identity of architects, it is considered that the development of the professional identity is associated directly with the basic principles of design education. In this respect, most of the time, the basic mission of design education is to ensure that professional ideologies, personal competencies, skills, productivity, creativity and artistic personality are developed. Erzen (1976) likened the process in studios where design education is performed to art education process, and said that the personality of the students in educational settings was not very different from that of an artist. According to Erzen, the process in the studio where the design education is performed necessitates an aesthetic life setting. The analysis and creativity that are expected from the student

here puts him/her in an aesthetic process inevitably; and the formation of the original artist personality is supported. Different from other science fields, architecture education requires that the student works with all his/her senses and physical existence. In architectural education, just like it is the case in art, the ability of working with the mind, the eye and the hand is developed. Especially architectural design studios have the most favorable conditions for an aesthetic process among all educational settings. In this context, the success of architecture education depends on the formation of this aesthetic potential.

Well-known architects of the 20th Century argued that architecture is basically a creativity work. If Bauhaus and the Architectural Association in England were able to raise successful architects, it was because they could establish the settings that revealed the creativity of students in an effective way, which shows that design education is based on an active and multi-perceptional structure in architecture activating the power and creativity of analysis and solution. Today, the architect has started to take his/her "professional identity" with institutions like Ecole des Beaux-Art, MIT and Bauhaus as the first institutions where the foundations of design education was established (Kahvecioğlu, 2001). A great deal of the professional identity development appears as a result of the professional socialization process, which occurs in the educational stages of architects at the architectural school. Professional identity may be understood with the professional socialization concept (Fagermoen, 1997; Geoff, 2005; Sabancıoğulları and Doğan, 2012). Professional socialization occurs in two ways; the primary and secondary socialization. It is argued that the first one occurs during the formal education, and the second one occurs when the graduates enter professional settings (Gregg and Magilvy 2001; Sabancıoğulları and Doğan, 2012). For this reason, although the professional identity development is shaped in these two socialization processes at a great deal, it continues throughout the career of the individual (Sabancıoğulları and Doğan, 2012).

Literature Review

Studies conducted on professional identity concept became the subject of many studies and applicational areas. The professional identity concept is used in different terms in the literature. The terms "professionalism", "professional identity" and "self-image" generally have the same meaning. These terms have a common meaning like the "professional integration" and are perceived by the knowing, adopting and reflecting certain characteristics, standards and skills of the member of a specific profession (Fagermoen, 1997). According to Öhlen and Segesten, Leddy and Pepper (1993) defined professional identity as being confident in professional roles, feeling proficient in experiences, and expressing professional ideological com-

mitment clearly. Sttenbock-Hunt (1985) defined it as "Feeling as an individual who can apply a profession with knowledge and responsibility and being aware of one's limitations/powers"; and Lindström (1985) "Having professional authorization and ethical principles, including certain main norms of the profession, and reflecting these on one's behaviors". Strasen (1992) emphasized that the professional identity of the members of a certain profession must be strong to achieve a professional status and provide qualified services to the community.

In addition to these, the professional identity concept also exists in many branches in which personal development and occupational identity are involved and in psychology studies dealing with the characteristics of identity (Schwartz, 2011). Similarly, professional identity development studies can enable people to evaluate several aspects to adapt the individual to the challenges of the field better (Evetts, 2003; Tracey and Hutchinson, 2013).

In the context of the development of the professional identity of a designer as a man/woman of the profession, the study that was conducted by Kunrath et al. (2017) to deal with personal characteristics and design skills is also important. In this study, the elements that are deemed important or necessary for designers were determined. The elements that are classified as personal characteristics are those, which define the emotions, attitudes and behaviors of the designer. For this reason, it is not only related with the technical abilities but also with the internal situations that are based on social psychology and values. Elements that are classified as the design skills are those, which define cognitive, technical and behavioral characteristics about a specific application of design activity (Tam et al.). These elements are the characteristics, which may be trained in the educational and practical context directly (Horváth, 2006). Understanding the shaping professional identity process allows that a stronger and more effective guidance is developed with higher education (Zou and Chan, 2016; Kunrath et al., 2016). In this way, the unity of personal and technical characteristics brings a holistic viewpoint on the professional identity of designers (Kunrath et al., 2016). The unity of the design skills and personal characteristics allows that the professional identity of lifelong designers is developed leaving traces on the foundations of being a designer based on the construction of social perception (Kolb et al., 2013; Dall'Alba, 2009; Adams et al., 2011). These studies are only some of those that were conducted on the professional identity concept, the use of this concept, and the development process pf the professional identity of designers as a part of the work in the literature. This study, on the other hand, examines the formation and development process of the professional identity of designers who produce architectural outcome in the field of architecture and the

contribution of design education to the development of the professional identity and ideology of the architects.

METHOD

This study uses the Detailed Interviews Method to obtain data on the relation between the formation of professional identity and professional ideologies of architects via design education. The Detailed Interviews Method, which is a qualitative method, is used when detailed information is required from a small number of people, where the opinions and experiences of people in the problem field are important, when certain data are required in line with certain needs, and when the importance of meaning and interpretation in the understanding of social reality is believed. In other words, Detailed Interviews Method aims to create data by collecting the opinions and evaluations of individuals around the subject in question. It is determined how individuals form their worlds and how they evaluate their social environment with their perceptions about the outside world by considering the meanings, intentions and expectations (Seale, 1998).

The participating architects were contacted in 2016. In the capital city of Ankara, the number of newly-graduated architects who are registered at the Chamber of Architects, Ankara Branch, is approximately 320 per year (TMMOB; Onur, 2018). A total of fifty-five architects were interviewed for the study in Ankara with the Snowball Sampling Model. Since the designer identities of these architects were considered, the architects to be interviewed were selected from among those who were newly graduated and who were actively working in an architectural office. Detailed interviews were made with fifty-five architects from different age groups and different professional experiences in terms of the interaction between design education and professional identity. These oral interviews lasted 1-1.5 hours in average.

The determination of the number of interviewees was based on the formation of a general model of the answers that were obtained from the questions asked to the individuals. In other words, it was decided that the field study was completed when the answers of the 55th interview were received and when they matched the purpose of the study and reached a general texture. The Ethics Form was signed before each interviewer that consisted of twenty-one male and thirty-four female architects; and the interviews were recorded as audio recordings with the permission of the interviewers. When the interviews were completed, the audio recordings were analyzed and transferred into digital medium, and were then converted into Word text.

For the purpose of reaching the data with respect to the relations between design education and professional identity development, open-end-

ed questions were asked to the sampling group; and how they preferred the architecture education department, how the design education changed the architect image in their minds, the negative or satisfactory sides of the design education, the importance-necessity of the design education and the necessity of design education and the effects of these on the formation of architectural professional ideology were questioned.

FINDINGS

When the demographic structure of the sampling group that was interviewed was examined, it was determined mostly that they were between 25-36 years old. Their professional experience increased in proportion with their age. The group that was interviewed was mostly graduated from the prominent architecture schools of Turkey. In addition, these architects were also involved in design-concept and modeling works in offices that participated in architectural competitions and in offices that produced large-scale works for public institutions. The residential buildings and public buildings that are constructed by the state are the building types, which shape the urban areas at a great deal forming the majority of the building stock. In this respect, it must be considered that these medium-size offices where the sampling group worked had an important effect on the appearance and spatial life of the urban sphere today.

Some open-ended questions were asked to the sampling group to examine the contribution of the design education in Turkey to the development of the ideology and professional identity. The data that were obtained in this respect are as follows:

The architects who were interviewed defined “architect” as a person producing, designing, creating, elite, idealist and artist. According to them, architects are intellectuals and artists, who are respected and distinguished people in society. Forty-six of the fifty-five architects who were interviewed said that they did not have a clear awareness of the architectural profession when they first started architectural education. They generally chose this profession with the orientation of the people around them, media influence, and reasons like career choice, based on the points system in Turkey. They stated that they started to think differently and original, have a vision and look critically, demolish patterns, look at the environment differently, and develop awareness with the design education process, which is an important pillar in architectural education. They added that they became original and different individuals at the end of the design education process. However, they also said that they considered the ability to produce a concrete architectural product with free thoughts among the satisfactory aspects of design education. The sample group who was interviewed with detailed

interviews believes that design education is the most important factor in acquiring professional ideology in the architectural education process. The design education imposed them the image of well-known, prestigious and elite architects who design and produce must be different from other people. They said that they were made to feel the value and dignity of being an architect in the 4-year education design education period.

A total of 32 of the 55 architects who were interviewed believe in the necessity of being an architect to understand and interpret architecture. Although art is open to the community, they emphasized the necessity of design education to interpret architecture in an accurate manner. According to them, the aesthetic knowledge acquisition is possible only by receiving this training. The rest of the group said that they believed in the concept of "*architecture without an architect*"; however, they also stated that there was a need for an architect to produce more qualified discussions on the architecture discipline, and that the design ability can be acquired through education.

The sampling group of the study said that despite the image of "prestigious and respected architect" in design education in architecture, this education still had contradictions. They acquired the professional ideology during the design education process. However, they said that there were often no matched in education and in real-life practice. The participants who are not involved in the design process in architecture offices experience professional dissatisfaction and demotivation. However, those who are responsible for design processes in architecture offices think that they obtained the identity of architect and do not consider them as technical painters.

They stated that obtaining the title "architect" provided an ego inevitably, and the reason for this was due to the acquisitions that were obtained in education. They also stated that being an architect made them seem different from other people (in terms of their viewpoints); and they were considered as superior in the context of social position because of reasons like historical reputation of the profession and media effect. This situation also differed according to the nature of the office and the job description of the architect. The architects who could do design works believed in the difference consciousness and superior position of architecture as producing individuals. The participants who were interviewed stated that the majority of architects had egos, and this was related to the training that was received. The architects who were working for more than 5 years reported that their professional egos decreased over time. Although the participants were pessimistic about the future of their professions, they also stated that they did their job with pleasure.

As a result of the detailed interviews that were made with the 55 architects who worked in private offices in Ankara the first finding was that architects do not show a fully homogeneous characteristics in terms of demographic indicators and in terms of positions in their jobs. It was determined that the works of the architects differed depending on the nature of the architectural office. The perception of professional identity of the architect was different depending on the opportunity of doing design works in the architectural office.

The group of architects who could do design works said that they felt like an "architect"; however, the group that was responsible for technical drawing could not feel like an "architect", which contradicted with the image of architect that was taught in design education. As this architect group had to apply ideas and opinions against their wills, they moved away from the designer professional identity.

As a result of the detailed interviews, it was determined that the main factor that constituted the professional ideology of architects was the design education. Although working conditions and quality of the work differed for architects, common professional ideologies came to the forefront as a result of the training they had received. In other words, the principles of the design education bring architects together under a common professional ideology in architecture. Although the quality of this education constituted the professional ideology of the architects who were interviewed, the concept of "*architecture without an architect*", which was determined in the interviews, was considered to have emerged in the office life after school. Although some of the architects who were interviewed thought that the architect was necessary to understand and interpret architecture, they also believed that architecture could also be interpreted by people other people who were not from this profession with the influence of decision-making mechanisms that exclude them. The existence of the following factors are possible in the background of this effect: Architecture is a professional practice that exists within social life. In this context, architectural product users can demand products in the context of their wishes. In other words, the "architecture without an architect" concept stems from the architect-user relation and on a ground on which the architect is often not allowed to be the subject for architects.

RESULT AND DICSUSSION

As a result of the findings that were obtained with the detailed interviews in the context of the relations between design education and professional identity, it was determined that there is a significant relation between the professional identity concept and design education. The architect group

that was interviewed said that the "creative, artist, intellectual and distinguished" professional identity was prioritized in the design education process, and it was imposed them the things that distinguished the architect from other professional people were "designing" "creation" and "to produce". In this way, it was concluded that the "architect" figure as an "artist, intell0ectual and productive professional" was learned during the design education process, and that the professional ideology of the architect was actually a part of the design education process.

The findings that were obtained in the detailed interviews in the scope of the practice of architecture profession showed that the ability to work as a designer in private offices increased the professional motivation of architects. Although the group that could do design works among the architects who were interviewed kept their professional motivation in terms of the effectiveness of their roles in production, the group that was responsible for technical works like application and details had occupational demotivation. In other words, the ability to do design works affected the perceptions and motivations of the architects about their identities. However, although there were difficulties and limitations in the profession, it was determined that the participants felt satisfied to be involved in building production and to contribute to the building of a concrete building. The most important source of such a professional satisfaction is the principles of the design education because the architects who were interviewed said that their professional identities were shaped in the design education process, and that they graduated from their schools with the image of "designer, creative architect" and "artist person". In other words, architects acquired their professional identities and professional ideologies during the design education process.

In architectural settings, which is a component of the capitalist service sector in present economic relations, most of the time, architects cover the need for intermediate staff and technicians. However, an architect who received the education on design with the value judgments of the *Renaissance*, moves away from the concepts like "artist, creative genius" and face contradictions in the education-practice axis, which brings him professional demotivation in his profession. This requires that the discourse that glorifies the architect and architecture, which is part of the formation of professional ideologies, is questioned.

As recommendations in this respect, it is considered that a conscious architectural approach should be adopted to avoid the role conflicts in the positions of "designer architect" and "drawing-architect" and the problems that appear in the relation between architectural practice and design education in architecture. The architects of the future must have the opportunity to know how to work in a practical systematic in the present setting

of architectural practice, which has become ordinary and massive. Since the considerations like “creative genius, elite, enlightened” loaded in the educational processes, which are a part of the formation of architectural professional ideology, bring with them a role conflict and demotivation in architect-technician position for professional people, it is recommended that the practice is initiated with a real consciousness. In addition, there is a need to conduct studies examining the contradiction between education and professional practice, and a pre-training model providing career guidance are applied.

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A STUDY ON INVESTIGATING URBAN AWARENESS THROUGH IMMIGRANT INDIVIDUALS: THE TRABZON CASE

CHAPTER 5

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My day is foreign to me. My past is waiting for me to embrace the lost city I left behind in the fogs… From now on, we will create imaginary places, not real cities or villages, invisible imaginary homeland… Salman Rushdie, Imaginary Homelands, London 1991, p. 9 (by Abadan-Unat 2002: 250

IMMIGRATION AND URBAN SPACE

Migration, which is defined as a social event that affects people and societies deeply, emerges with various factors in every period of history. When we search the literature on the definition of immigration, it is seen that the concept of immigration is generally defined by demographic and economic criteria. However, the concept of immigration, which requires a wider framework, is interpreted as a large-scale phenomenon that occurs because of economic, political, religious, and social reasons.

According to TDK (1998), migration can be defined as an act performed by individuals or communities moving from one country to another, from one settlement to another due to economic, social or political reasons (Commission, 1988). İçduygu et al. (1998), on the other hand, define immigration as all of the population movements that change the social, economic, cultural and political dimensions of the process of geographical space change and the social structure." In another definition, immigration is described as spatial and social mobility, and evaluates the concept with all the components involved in this process in areas where immigration takes place, such as the emigration place, the migrated place, the migrants and the inhabitants of the migrated place (Erder, 2013).

Similarly, the phenomenon of immigration, which occurs due to the interaction between time, space, and actors, is an affected and influential process. In addition, the Network of Relations, which tries to show the impact and importance of social relations during immigration, shows the impact and importance of social relations. Beyond the classical immigration theories based on an economic and political basis, the relations network theory, which focuses on the sociological dimensions of immigration, is related to the bonds of friendship, kinship, and roots of shared society between immigrants, ex-immigrants and non-immigrants. These ties play an important role in immigrant individuals in terms of finding employment, housing, and accommodation (Salman, 2015).

The city, which is the dominant settlement form in this age, is defined as a form of the reflection of relations between people and physical space. The emergence of neighborhoods and spaces in cities in various forms, each city, as well as demographic and economic structures, distinguish each other from the cities (Sezal, 1992).

Urbanization, which was accepted as the beginning of both civilization and the transition to settled life, has got accelerated, especially with the industrial revolution. Nowadays, in most of the countries in the world, the number of people living in cities is increasing rapidly compared to those living in rural areas. This increase is due to both internal and external immigration. For that reason, it can be stated that migration is a phenomenon that accelerates the cultural, social, and economic changes of the city and causes many positive and negative situations.

Dynamics which ensure formation of different social environments in the city are urban residents' life styles, behaviors, occupations, demographic characteristics, household size, quality of housing, and their income levels. The cultural environment defined by socio-cultural and socio-economic dynamics in a city changes over time. For that reason, it can be said that the urbanization process is a structure in which social, cultural, demographic, and economic dynamics interact with each other (Knox and Pinch, 2006).

IMMIGRATION STATUS AND LIFE

Migration is a process that concerns not only the countries receiving the immigration but also all the countries where the impact of globalization is seen. Almost all countries around the world have been affected by immigration. Particularly in the second half of the 20th century, mass population movements occured, and the immigrant population has increased rapidly in the last half century. Indeed, according to data from United Nations, if the immigration continues to increase with the speed just like in the last 20 years, the number of international immigrants in the world is expected to reach 405 million in 2050 (Turkey Immigration Report, 2016). Turkey, which has received immigration in world history many times, has been host to millions of migrants due to its geographic location.

TRABZON-IMMIGRATION-SPACE

More than 16 thousand people from various statuses, including 5 thousand 400 migrants with residence permits, 3 thousand 300 selective applicants, and 6 thousand 700 international protection applicants, live in Trabzon. The aim of this study is to investigate immigrants' adaptation process to urban life, who live in Trabzon and to reveal the relationship between urban-space-immigrant individuals. In this context, research objectives;

- To examine the immigration status in Trabzon in urban space scale
- To convey immigrants' stories about their daily life with the subjective qualities of urban space (Figure 1).

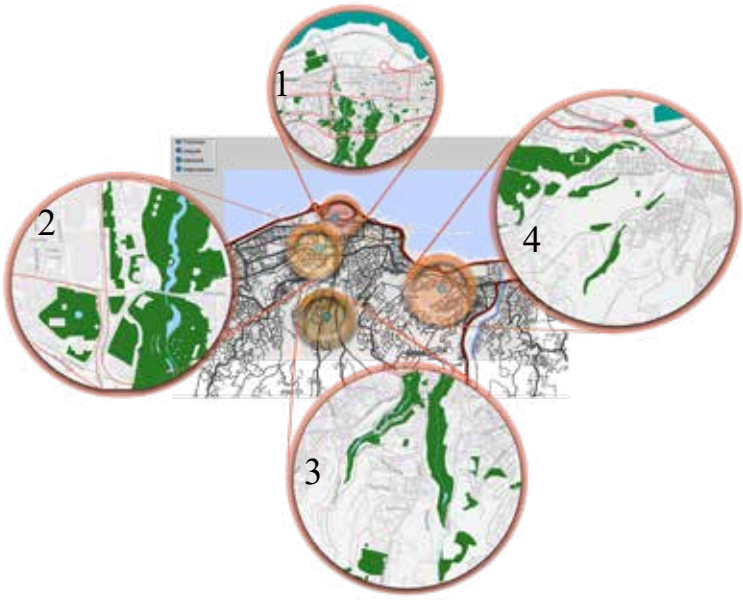

Figure 1. *Study Area (1: Pazarkapı, 2: Atapark, 3: Bahçecik, 4: Değirmendere)*

The ethnographic research method underlying the question of "What is happening here?" (Wolcott, 1999) provides insights into perspectives and experiences in sociocultural, political, economic, geographical contexts and helps to convey collective memory, beliefs, and actions. The ethnographic study method, which is based on qualitative research methodology, tries to understand the current and past relations of the group or culture in daily life either individually or as a whole. The findings obtained in this process are processed by qualitative techniques (Kartarı, 2017). In addition, ethnography (Fetterman, 1998), which is defined as a branch of science or art, enables to define the common feelings, experiences, beliefs, rituals and daily habits and practices of a particular group from the perspective of the research (Eker, 2018). In the process of globalization, cities have changed rapidly with information, technology, and immigration, while urban planning and urban studies have become one of the disciplines that ethnographic methods are frequently used. This discipline has been found to be directly related to a wide range of areas, from global cities to ghettos inhabited by migrants, or from different social groups in villages.

In this study, it is thought that the ethnographic approach presents a story about the immigrants living in Trabzon and will create an environment for socio-spatial solutions in an urban environment.

The study consists of two stages. The first stage is based on the conceptual and theoretical basis of immigration and urban life, and the second stage is based on face-to-face interviews with Trabzon immigration Administration's expert staff and the narratives related stories and visual materials. The findings obtained from the face-to-face interviews conducted in the continuation of the study were evaluated within the conceptual framework of the research. These are aimed at determining (i) how the adaptation processes of urban immigrants are (i) the problems encountered in this process and (ii) how the city interacts with socio-spatial dynamics. Narratives, stories about daily life, visual materials and observations are presented. Findings from face-to-face interviews with migrants;

(i) individuals who migrated to Turkey because of various political reasons and the war live in in Trabzon for almost 2 years. They were settled in Trabzon with guidance of Directorate General of Immigration Management. They started to live in Trabzon believing that their children would get better education and they could easily find a job.

(ii) The places where immigrant individuals settled in groups in Trabzon are Bahçecik, Atapark, Pazarkapı. These places are urban poor neighborhoods isolated with invisible borders.

(iii) The living conditions in these neighborhoods are related to immigrants' experiences and life stories.

(iv)Most of these immigrants express themselves as temporary and express their desire to go to countries with better living conditions (education, work, various social activities, etc.) over time.

(v) Immigrants living in Trabzon stated that they did not perform their living habits and rituals in urban space and that they needed to socialize with people of the same culture. They also emphasized that there are not enough social activities in the city and therefore they mostly spend time at home.

(vi)Immigrants who want to spend time with their families in recreational areas whenever they can, have stated that they can only reach the recreational areas in the city by vehicle. This is a very difficult situation for individuals who have difficulty in living because the public transport system does not operate successfully (timely access, safe and hygienic vehicles). They stated that the use of the vehicle for access to recreational areas that are not located in the immediate vicinity would be extra cost, while only immigrants living near the coastline said that they were walking along the sea as a recreational activity.

(vii) When immigrant children were questioned about the access to playgrounds in the neighborhood, they stated that children usually play on the streets but do not find it safe because there is no playground in the neighborhood where they live. However, children all over the world play games and develop their motor skills appropriate to their own culture (İnan, 2013). In their studies, Harten et al. (2008) determined that there was a relationship between playgrounds and motor skills. It was also showed that sufficient playgrounds increased game activities, and games improved motoric skills. It was also suggested in the study that the creation of environments to increase play activities should be performed (Durualp, 2017).

(viii) 80% of the respondents did not respond to the question about the adequacy of the equipment in recreational areas.

(ix)They stated that they want to contribute to local governments in the process of planning urban open spaces and determining the diversity of recreational activities.

IMMIGRATION SITUATION AND URBAN SPACE

These findings, which are the product of approximately 1,5 years of study by ethnographic research method, reveal immigrants' communication and interaction with the urban space, who live in the city.

As a result of the study, 4 major fundamental problems were identified.

1. Inadequacy of recreational areas within the city,
2. Accessibility in the city is not provided successfully,
3. Inadequate spending time in children's playgrounds for children who are in the developmental process and the fcat that this situation adversely affects the development of motor skills,
4. Willingness to take part in joint activities with local governments to make living spaces more livable.

For an ideal urban life, it is necessary to take steps to establish a harmonic relationship between man and the city. These steps can only be done by successfully identifying the social, natural, cultural, and economic needs of the immigrants living in the city and the temporary residents of the city.

In this case, individuals' behaviors, expectations, and needs in the urbanization process are closely related to socio-demographic structure. Socio-demographic and socio-cultural analyzes of immigrant individuals liv-

ing in the city will be possible by successfully providing various training. These kinds of trainings can be provided through workshops, symposiums, and meetings.

As a result, in all face-to-face interviews, both local people and immigrants emphasized an important problem that public transport in Trabzon has not been successfully achieved. Therefore, public transportation systems should be reconstructed, and solutions should be produced.

Because the immigrants' social life is internal and closed to the outside beacuse of some reason like language, access, and poverty, they live their lives without thinking based on for a long time. Opportunities for them to participate in socio-cultural activities should be provided for them to live as healthy individuals in society.

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SELECTING THE APPROPRIATE AREA FOR PICNIC AREAS WITH THE HELP OF GIS IN THE SAMPLE OF KONURALP AND ITS IMMEDIATE SURROUNDINGS

CHAPTER 6

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1. INTRODUCTION

The difficulty of urban life and working conditions, immobile and monotonous life have led the people living in the cities to utilize their free time in a better quality, have increased their longing for nature and have been effective in their recreational activities to integrate with nature in their spare time. Picnic activity is one of these activities. Therefore, recreation areas and diversification of outdoor recreation activities are very important for picnic activities in cities and their immediate surroundings.

Picnic is defined as a recreational activity that usually takes place in the open air, which allows for socializing, having fun, resting, relaxing and having different activities such as eating, sitting, playing games, cycling and hiking in nature and appealing to all segments of society (Levy, 2013). Areas that are generally suitable for picnic activities are the highways and their immediate surroundings, the cities' surroundings, places with natural beauty such as sea, lake, river, forest, woods and mountains (Topay ve Koçan, 2009).

Picnic activities that have been correctly planned and designed contributes positively to people's recreation experience and quality. For this reason, the regions which have remarkable geological-geomorphological formations and landscape features such as sea, lake, river, waterfall, mountain, forest, which can offer different recreational activities to people, rich in plant and animal existence, suitable for bioclimatic comfort, outside the flood area, should be considered in the selection of picnic areas.

In addition, climate, soil characteristics, topographic structure, water resources and accessibility are the factors that must be taken into consideration. Since picnic activities are carried out in open areas, coarse or medium textured areas, which do not receive much rainfall, are protected from strong winds, do not have avalanche and landslide risk, and whose topographic structure is slightly inclined to drain rainwater and low ground water level, which has the ability to quickly drain surface water, should be selected. Areas that are not sensitive to the presence of plants and animals, that have nearby water sources for drinking and using, and that allow the use of existing areas such as meadows, forests, heaths and picnic activities should be selected.

In addition, the regions which do not have bad image, noise, air and water pollution and similar problems and which provide access to infrastructure facilities such as communication, health facility and electricity supply within short periods should be selected as suitable for picnic (Tanrıverdi, 1987; Doğru, 1989; Sözen ve Şahin, 1998; Koç ve Şahin, 1999; Topay, 2003; Sakaryaizcileri, 2008).

While selecting the appropriate place for picnic activities, the areas should be planned in a sustainable and ecological way without harming the natural and cultural resource values that constitute the recreational attraction of the areas. Determining the natural processes in the landscape well and making appropriate decisions for these processes, keeping the negative effects that may occur on natural resources to a minimum level, evaluating of landscape sensitivity analysis along with usage conformity analysis, are important in the sustainability of the natural and cultural resources of the determined use and areas.

The aim of this study is to determine the suitable areas for the use of picnic in a 145 km² area including Konuralp, which has historical past, natural and cultural assets of the Central District of Duzce Province and its surroundings by analyzing the data of natural landscape elements with the help of GIS.

2. MATERIALS AND METHODS

2.1. Materials

Konuralp and its immediate surroundings in the central district of Düzce were selected as the study area (Figure 1). The fact that the first settlement of Düzce, Konuralp Town, dates back to 1300 BC, it served four different periods including Britain, Rome, Byzantine and Ottoman periods (Kaya et al., 2014), it is an important place in terms of attracting tourists due to its cultural, historical and archaeological values, Düzce University has main campus, the lack of picnic activities in Konuralp and its immediate surroundings has become effective.

Figure 1. *Work area location (Anonymous a, Anonymous b, 2018).*

Konuralp is 8 km from Duzce city center. Konuralp is 220 meters above sea level. Approximately half of the study area is mountainous and half is flat. As you go north, the height rises to 1045 meters. In the area, Küçük Melen passes from Düzce University Konuralp Campus, Antique Theater and South East of the study area. Our study area covers an area of approximately 145 km² covering the surrounding area of Konuralp and its surrounding in the province of Düzce. The D-100 highway divides the working area in the middle. The area includes Konuralp, Bogazici Town, Akyazı, Duzkoy, Esentepe, Kadıoglu, Osmanca, Sancak, Sarayyeri, Yakakoy, Cakırlar, Camkoy, Çiftlikkoy, Yoruk, Hatipler and Nasirli village.

In revealing the natural and cultural characteristics of the area and determining the boundaries of the area; 1/25000 scale map (G-26-a2 Adapazari topographic maps) prepared by the General Command of Mapping in 1997, 1/25000 scale map prepared by MTA General Directorate in 1984 (G-26-a2 Adapazarı Geological Maps),1/25000 scale management maps and reports updated by General Directorate of Forestry in 2008, 1/25 000 scaled soil maps prepared by National Information Center of Soil and Water Resources General Directorate of Rural Services (G-26-a2 Soil Map) and reports were used. Transportation networks on topographic map; settlement units, contour curves were digitized. Google Earth pad was used to determine the current land cover. Scientific studies on the subject have been utilized. Arc Map 10.1 application was used for processing, storing, analyzing and creating the data of the study area.

1.2. Method

The method followed in the study was divided into three stages; data collection, analysis and synthesis. Examining the studies related to the subject during data collection stage, which landscape elements are needed and their numerical and verbal data were collected in the database with the help of GIS. In the analysis of the data, factor weight coefficient is given to each landscape element in the range of 1-3 according to its importance and subunits were scored in the range of 1-5 (Table 1).

The opinions of the experts in the Department of Landscape Architecture and Forest Engineering of Düzce University were taken in determining the landscaping elements and sub-units and assigning their scores (Mansuroğlu et al., 2012).In the selection of the picnic area, the corresponding areas were determined by calculating the equivalent values of Arc Map 10.1.In natural landscape elements; slope, elevation, aspect, available land use, land capability classes, stand closure and hydrology (surface waters) data were evaluated.Among these criteria, slope and current use of land are the most important, height, aspect, stand degree of closure and prox-

imity to surface waters are of second importance, while land capability classes have the least importance.In addition, roads, surface waters and settlements are indicated on the entire map.

Table 1. *Konuralp and its surrounding picnic area selection criteria and scores*

Selected Natural and Cultural Factors				
Utilized Maps	Weighted Coefficient (3)	Sub Factors	Score (5)	Total Points
Slope	3	0-2% (Straight)	0	0
		2-6% (Slope slightly)	5	15
		6-12% (Medium slope)	4	12
		12-20% (Steep slope)	2	6
		20-30% (Very steep slope)	0	0
		> 30 (steep)	0	0
Height (m)	2	0-200	0	0
		200-400	2	4
		400-600	3	6
		600-800	4	8
		800-1000	5	10
		1000-1045	3	6
Aspect	2	North	0	0
		Northeast	0	0
		East	2	4
		Southeast	4	8
		South	5	10
		South West	4	8
		West	3	6
		Northwest	0	0
Existing Space Usage	**3**	Hazelnut	0	0
		grassland	0	0
		Forest	4	12
		Agricultural Area	0	0
		Residential	0	0
		Mine	0	0
Land Ability Class	1	I.Class	0	0
		II.Class	2	2
		III.Class	4	4
		IV.Class	5	5
		VI.Class	4	4
		VII.Class	4	4
Closeness	2	0-Cavity	5	10
		1-Loose Closed	4	8
		2-Medium Closed	2	4
		3-Closed full closed	0	0
Hydrology (Watery Stream)	2	0-300 m	0	0
		300-1000 m	5	10
		>1000 m	3	6
Transportation (2 lane road)	2	500 m	5	10
		1000 m	4	8
		>1000 m	1	2

In the selection of picnic areas, the areas with slope close to the slope (0-2% slope) were used as agricultural area and because of drainage problem, it was evaluated as 0 points. In terms of area usage and cost, the areas with the slope of 2-6%, which is the most appropriate range, are scored with the highest score of 5. In the height groups, the 800-1000 m range received 5 points, while the 600-800 m, 1000-1045 m, and 400-600 m ranges were scored with 4, 3, 3, respectively. In the camp and picnic areas, the south, southeast and southwest directions are preferred to provide climatic comfort for visitors, For this reason, these aspects were evaluated with 5, 4, 4 points, respectively, while northern ones with 0 points. When evaluated in terms of current area usage, forest areas received the highest points in order to place picnic activity in forested wooded areas, agriculture, settlement, quarry and hazelnut areas were evaluated with 0 points. When the land capability classes were evaluated, IV, VI and VII. were given points of 5, 4 and 4, respectively, while I, II and III. were given the lowest score of 0,2,4, considering the use of agricultural land as agricultural land. In terms of the degree of closure, the closed and loose closed spaces are ideal for picnic areas and these areas are evaluated as 5 and 4 points.

In order to prevent picnic activity in fully enclosed areas, the lowest score was 0.Surface waters were evaluated with 0 points in the range of 0-300 m proximity to surface waters considering the water pollution control regulation. In addition, since the presence of water is important in picnic areas, the 300-1000 m range was evaluated with the highest 5 points. The ease of access to the area by visitors is also important. In the planning study, accessibility was evaluated by zoning 500 m and 1000 m to double lane roads. Settlement points were processed in all maps and were taken into consideration in the conformity classes of the study.

Following the conformity analyzes, water process analysis and erosion process analyzes were performed and sensitivity analysis was performed with the method approach based on revealing the potential of infiltration and erosion. Areas where landscaping is sensitive to 1st degree, 2nd degree and 3rd degree have been revealed. (Buuren 1994; Şahin 1996; Şahin and Institution 2002; Uzun 2003; Dilek et. Al. 2008; Uzun et al. 2010; Uzun and Gültekin 2011). Areas where landscaping sensitivity is 1st degree and picnic Conformity is less suitable, areas where landscape sensitivity is 2nd degree and Conformity value is moderateand landscaping sensitivity of 3rd degree, high Conformity areas were mapped in 3 classes as very suitable areas.

In the synthesis part of the study, as a result of conformity and sensitivity analyzes with the help of GIS, suggestion picnic areas were revealed in Konuralp and its surroundings, these areas were identified as “very ap-

propriate", "medium appropriate" and "unsuitable" areas and planning and design proposals were developed for these areas.

3. RESULTS

Natural and cultural landscape elements which are important in terms of landscape values in determining suitable areas for picnic areas have been evaluated and maps of the study area are presented in this section.

Slope: Slope: The slope groups, area and percentage ratios of the study area are given in Table 2. The slope grade suitable for picnic areas is 2-6% and 6-12% slope degrees. Slopes> 30 (steep) and above are located in the northwest part of the area and 2-6% (flat and close to the slope) of the slope are located on the southwest side (Figure 2).

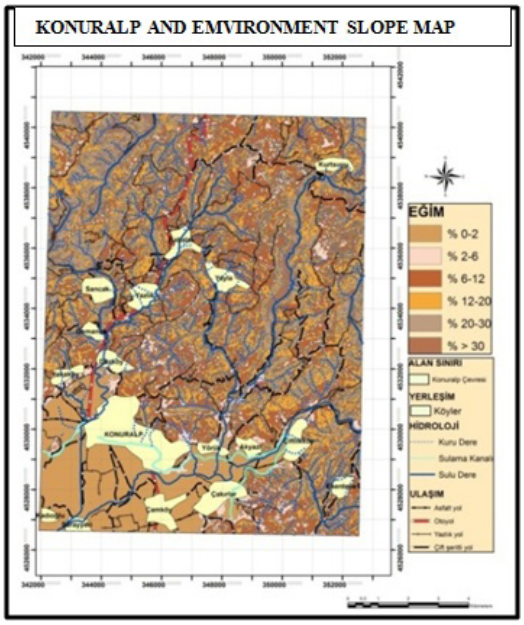

Table 2. Work area slope analysis

Slope Groups	Area (m²)	Rate (%)
%0-2	28.203.922,08	19,37
%2-6	17.409.397,91	11,96
%6-12	42.107.202,49	28,92
%12-20	38.762.357,03	26,62
%20-30	15.576.323,48	10,7
>%30	3.529.497,20	2,42
Total	**145.588.700,19**	**100**

Figure 2. *Work area slope analysis map*

Height: Height groups, area and percentage ratios of the study area are given in Table 3. When the height group is evaluated, the lowest height is 145 m and a sample of 200 m or less was accepted when the assessment was made. It covers an area of 200 m and less (21%) and is located in the southwestern part.

The highest point is the southern part of the Ihlamur Hill in the northwest section with an elevation of 1045 m. (Figure 3).

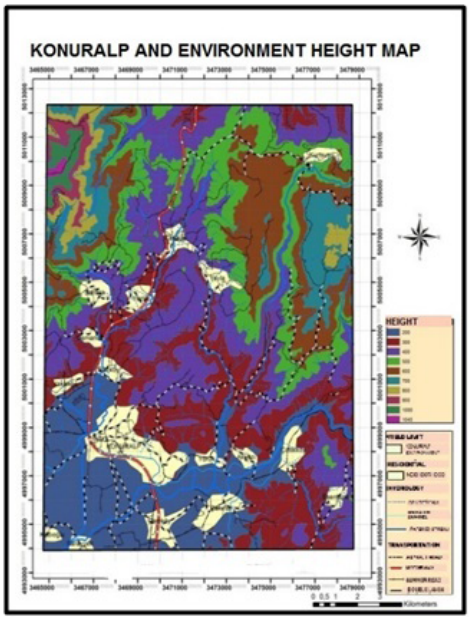

Table 3. *Workgroup height group analysis*

Height Groups	Area (m²)	Rate (%)
0-200 m	30.546.284,21	20,98
300 m	31.742.485,67	21,8
400m	32.447.524,30	22,29
500 m	20.375.466,29	14
600 m	15.863.147,39	10,9
700 m	7.948.411,87	5,46
800 m	3.340.321,54	2,29
900 m	1.803.850,94	1,,24
1000 m	1.300.428,56	0,89
1045 m	220.779,42	0,15
Total	**145,588,700.19**	**100**

Figure 3. *Analysis map of working area height groups*

Aspect: Aspect groups, area and percentage ratios of the study area are given in Table 4. It is observed that northern (17.43%), southeast (14.04%) and southern (13.32%) respectively, are the most common aspects in the area (Figure 4).

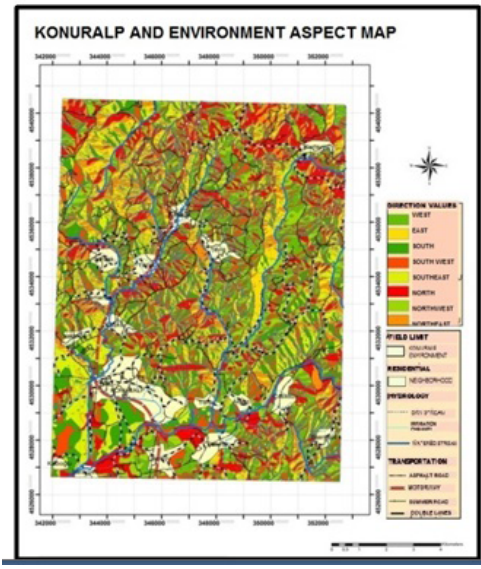

Table 4. *Work area aspect analysis*

Aspect Groups	Area (m²)	Rate (%)
North	25.374.540,24	17,43
Northeast	10.919.360,32	7,5
East	16.064.451,44	11,03
Southeast	20.436.174,89	14,04
South	19.399.055,32	13,32

Figure 4. *Study area aspect analysis map*

Current land use: Current land use: Current land use maps of the area have been created by the General Directorate of Forestry using management and Google Earth data. The current area uses, area and percentage ratios of the study area are given in Table 5. In the area, there are forest areas with a maximum of 53.93% (Figure 5).

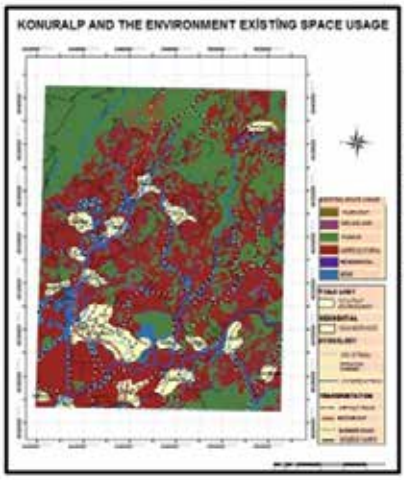

Table 5. Workingarea available area analysis

Existing Space Usage	Areas (m²)	Rate (%)
Hazelnut	2.685.028,12	1,84
grassland	870.569,45	0,6
Forest	78.585.962,66	53,98
Agriculture	36.214.509,05	24,87
Stone pit	80.709,60	0,06
Residential	27.151.921,31	18,65
Total	**145.588.700,19**	**100**

Figure 5. *Map of current area usage analysis of the study area*

Land Ability Classes: Land ability classes, area and percentage ratios of the study area are given in Table 6. In the area, VII. has the highest land ability class (43.98%) in the south-west section, and at least III. has the land ability class (0.75%) (Figure 6).

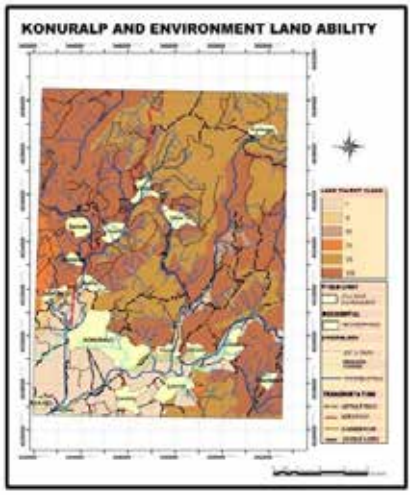

Table 6. Work area land ability class analysis,

Land Ability Classes	Area (m²)	Rate (%)
I.Class	20.016.300,00	13,75
II.Class	5.068.030,00	3,48
III.Class	1.092.990,00	0,75
IV.Class	3.918.760,00	2,69
VI.Class	49.849.800,00	34,24
VII.Class	64.031.800,00	43,98
VIII.Class	1.611.020,19	1,11
Total	**145.588.700,19**	**100**

Figure 6. *Work area terrain ability classes analysis map*

Stand (Area) Closeness: Stand closure analysis was performed among the selection criteria of picnic area; Table 7 shows the stand-off status, area and percentage ratios of the study area. In the area, the closed area with the maximum gap is 0 (90,08%) (Figure 7).

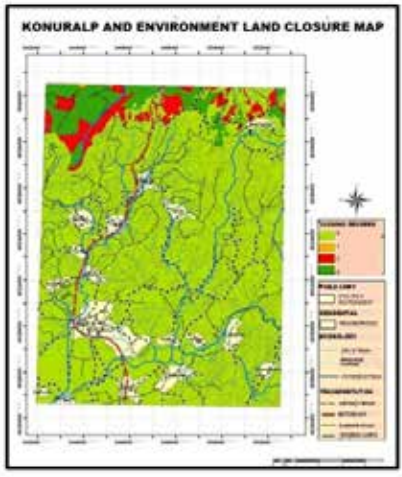

Table 7. Study area stand closure analysis

Degree of Closure	Area (m²)	Rate (%)
0 (Gap)	131.147.622,30	90,08
1 (Loose)	131.925,16	0,09
2 (Normal)	5.564.662,88	3,82
3 (Full)	8.744.489,85	6,02
Total	**145.588.700,19**	**100**

Figure7. *Stand closure analysis*

Hydrology map: Hydrology status, area and percentage ratios of the study area are given in Table 8. Water surfaces are important for picnic areas. When evaluating the water resources, considering the water pollution control regulation, protection zone was thrown to the first 300 m distance and the lowest compliance value was given as 0 points. The highest score value was given considering the 300-1000 m walking distance after that (Figure 8).

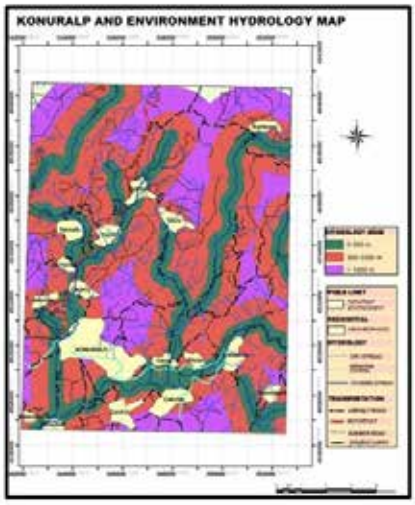

Table 8. Hydrology situation analysis of the study area

Hydrology	Area (m²)	Rate (%)
0-300 m	39,403,062.23	27.06
300-1000 m	71,719,142.21	49.26
> 1000 m	34,466,495.75	23.68
Total	**145,588,700.19**	**100**

Figure 8. *Hydrology analysis map of the study area*

Conformity Map: Conformity status, area and percentage ratios of the study area are given in Table 9. As a result of the scoring given to the slope, aspect, height, available space usage, land capability class, closure and hydrology values considered within the scope of picnic area selection, appropriate areas were revealed by entering the GIS database (Figure 9).

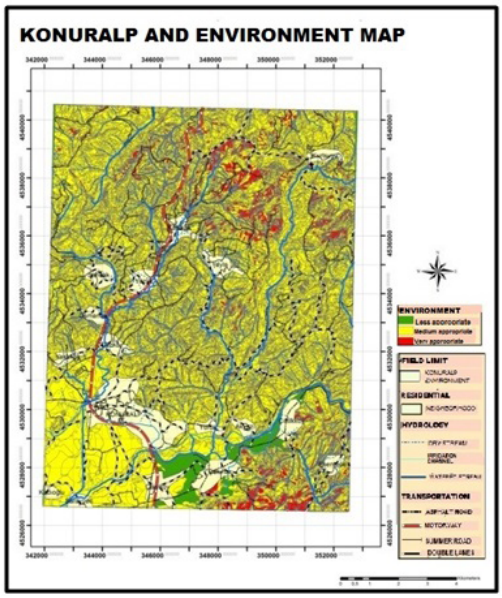

Table 9. *Workspace Conformity analysis situation*

Conformity	Area (m²)	Rate (%)
Less suitable	5.370.834,38	3,68
Medium suitable	133.253.204,56	91,54
Very Suitable	6.964.661,25	4,78
Total	**145.588.700,19**	**100**

Figure 9. *Work area Conformity analysis map*

As a result of scoring related to natural landscape elements and sub-features, less suitable, medium suitable and very suitable areas were determined for picnic areas. Less suitable areas were identified as agricultural lands along the Küçük Melen stream in the southern part of the area. The most suitable areas are in the southeast of the area and near the northern parts of the Yayla neighborhood.

Sensitivity Map: In this context, water process analysis and erosion process analysis were performed and sensitivity analysis was performed with the method approach (Buuren 1994; Şahin 1996; Şahin and Kurum 2002; Uzun 2003; Dilek et. al. 2008; Uzun ve ark. 2010; Uzun ve Gültekin 2011) based on revealing the potential of infiltration and erosion (Figure 10). Infiltration and erosion potentials were identified and sensitive areas were determined. The areas with the highest sensitivity are located in the southwest of the study area. The areas where sensitivity is moderate are in the northwest. The sensitivity of most of the area is 3rd degree. Sensitivity status of the study area, area and percentages are given in Table

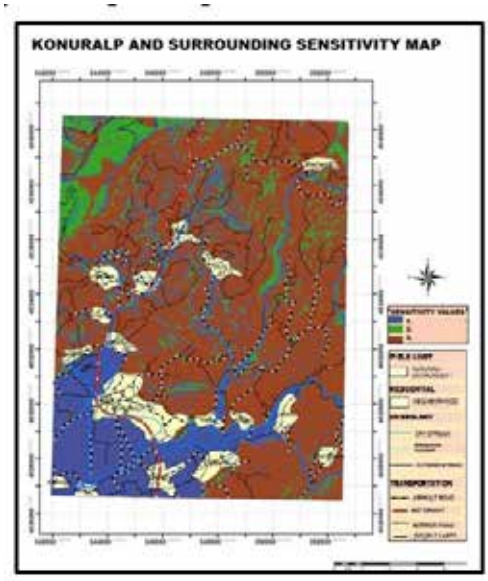

Figure 10. *Work area sensitivity map*

Table 10. *Sensitivity analysis of the study area*

Sensitivity Status	Area (m^2)	Rate (%)
1.Degree	29.403.700,00	20,2
2.Degree	18.716.600,00	12,86
3.Degree	97.468.400,19	66,95
Total	**145.588.700,19**	**100**

Optimal area map: Optimum picnic area in the study area, area and percentages are given in Table 11. As a result of conformity and sensitivity analyzes, suggestion picnic areas were revealed in and around Konuralp; these areas were identified as "very appropriate", "moderate appropriate" and "inappropriate" (Figure 11).

As a result of the conformity analysis and sensitivity analysis carried out with the help of GIS with 145km² area in Konuralp and its surroundings, the suggestion picnic areas have been determined as "very appropriate", "medium appropriate" and "less appropriate". Less appropriate areas are around the area of Küçük Melen stream south of the area where sensitivity is high and around settlements such as Konuralp, Kadıoğlu, Sarayyeriköyü, Çamköy, Çakırlaköyü and Yakaköy. The most appropriate areas are southwest of Esentepe Village, southeast of Çakırlar Village and between Kurtsuyu and Kabalak Village.

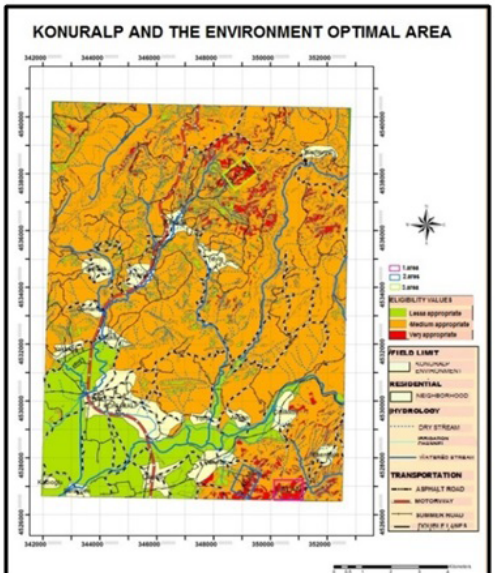

Table 11. *Optimal area analysis of the study area*

Optimal	Area (m²)	Rate (%)
Less appropriate	29.780.839,82	20,45
Medium Appropriate	109.002.487,83	74,88
Very Appropriate	6.805.372,54	4,67
Total	**145.588.700,19**	**100**

Figure 11. *Suggestion picnic areas map*

4. RESULT

In line with the work carried out on an area of approximately 145 km², covering Konuralp and its immediate surroundings connected to the center of Düzce province, suitable areas for the picnic area are mainly 6-20% of the grade of the slope (Figure 2), the aspects are south and east (Figure 3), height values are in the range of 400-800 m (Figure 4), existing land use is forest (Figure 5), it is in the range of 0-1000 m in terms of proximity to the transport network; the degree of closedness is hollow closed, it is located in the area where the land capability class is VI (Figure 6); and as a result of the landscape sensitivity analysis, it was revealed that it is a 3rd degree sensitive area (Figure 10).

In this study, the current situation of natural landscape elements in the study area is revealed by using ArcMap program. In addition, the data to be used in the study area has been determined and the changing and differentiating aspects have been examined with the analyzes and techniques made in the GIS environment, and suggestions have been made for the picnic area. When selecting optimal areas for picnic areas, it is possible to utilize GIS as a tool that reduces the error rate of planning decision making by verbal and graphical storage of spatial data and analytical evaluation and analysis (Topay ve Koçan, 2009).

In the light of the planning study for the study area; after determining the number of users, transport capacity of the area, the design process

should be started while preserving the resource values of the area. In this process, the opportunities provided by natural resources should be well reflected in the field. Infrastructure and superstructure needs of picnic areas; entrance, security, wc, kitchen, shower, administrative building, staff building, daily picnic area, warehouse, garbage collection area, country coffee house, place of worship, parking, fire place, for accommodation; tent, country house, bungalow and caravan areas, activity areas that promote the culture of the region, the relationship and positioning of these areas with each other should be designed considering the visitor capacity.

The relevant laws and regulations should be reviewed before the construction of these facilities.The flora, fauna and similar resource values of the study area should be paid maximum attention and the facilities should be brought in keeping with these values.Seat areas, garbage, bench, lighting elements, signs to be used as reinforcement elements such as picnic area should be selected from the materials appropriate to the natural structure of the area should be ensured integrity.

In addition to the determination of visitor capacities in order to balance recreational supply and demand in picnic areas, to protect resource values and ensure sustainability without deterioration, management approaches such as controlling, monitoring or not being insensitive after the use of these areas are required. Otherwise, unconsciously and uncontrolled recreational uses cause deterioration in the existing resource values that cannot be removed, resulting in reduced attractiveness of the area and a reduction in the quality of the recreation experience. The structural materials used in the picnic area should not be endangered by the safety of people and their maintenance and repairs should be done regularly in order to be durable and durable.In addition, ecological and landscape sensitivity of the area should not be taken into consideration during the planning and design stages of other outdoor recreation activities (Gültekin et al., 2018).

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THE USE OF PLANT MATERIAL IN CONFIGURING SHOPPING MALLS AS PUBLIC INDOOR SPACES

CHAPTER 7

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THE USE OF PLANTS IN PUBLIC INDOOR SPACES AND ITS IMPORTANCE

The desire of people for green spaces continues to increase due to rapid urbanization. Indeed, plant designs have gained a higher importance for both outdoor and indoor spatial organizations. Plants are among the primary elements of natural interior design. Indoor plant design implemented according to proper techniques and conditions increases the comfort of the related space (Cengiz *et al.,* 2017). It is known that indoor plants have a nice and calming impact on individuals (Lohr *et al.,* 1996). Moreover, plants are mostly used indoors for physical, functional, aesthetic and psychological purposes. In addition to the aforementioned uses, it has also been determined that plants increase user satisfaction (Pakravan, 2010).

The main objective for spatial organizations using indoor plants was to use plants as an architectural element and to create livable spaces for plants using their different characteristics in addition to functional and aesthetic spaces for people. Plants in spatial organizations (Bozkurt and Ulus, 2014):

- organize and coordinate indoor space elements,
- provide an identity to the space,
- make spaces inside the structures more livable while increasing their aesthetic value,
- organize indoor elements in addition to acting as a physical or visual separator for overlapping functions,
- and establish an harmony between indoor space elements and people.

Plants with colored flowers or hanging plants emphasize that the area is people oriented. Moreover, plants are also effective in ensuring that artificial and fully controlled spaces (via lighting, heating, ventilation) are perceived as more acceptable by individuals (Yazgan *et al.,* 2003). Indoor plants may also function as indoor air cleaners and they comprise an effective method for reducing indoor pollutants (Cengiz and Karaelmas, 2019).

PUBLIC INDOOR SPACE CHARACTERISTICS AND SHOPPING MALLS AND THEIR DEVELOPMENT PROCESS

The change in shopping culture has had a significant impact on all areas of shopping culture and shopping spaces have evolved and changed over time as part of this process. A new period of transformation ensured in shopping malls and shopping streets leading to independent new shopping spaces (Acar, 2006).

People who come to these shopping malls that serve as recreational areas with the greatest claim of establishing an indoor urban space need certain locations to meet their social needs as well as a natural indoor landscape in order to relax psychologically. Indoor plants are among the indispensable elements for indoor organization (Bozkurt and Ulus, 2014). These malls have emerged as common spaces outside the cities where people urbanites gather during their strictly planned daily lives (Anonymous, 2011).

Shopping Malls are complexes with various stores and service establishments designed, planned and managed by a central unit (Cengiz and Özden 2006). These complexes have emerged as one of the most important reflections of the varying needs and social demands in urban areas following the change in the consuming habits of the society (Türk, 2012). Throughout history, people have considered it a necessity to gather regularly at certain areas for product exchange, knowledge and experience transfer as a result of the necessity to sustain communal life. These social exchanges have fed on commercial activities in all societies from the past to the present thereby generating areas that shape urban life in all societies (Acar, 2006). Shopping malls are areas where all individuals of a family with different interests can find activities related with their personal interests. These malls are the public spaces of urbanites who have neither the time nor the willingness to discover urban life during their strictly planned daily lives (Vural and Yücel, 2006).

INDOOR SPACE DESIGN IN SHOPPING MALLS

Visual arrangements that we define as aesthetic values are very important for shopping malls as is the case for many structures in the age that we live in. Arrangements for increasing the visual impact of the structure as well as the perception of the structure from the outside along with indoor arrangements applied for ensuring that the shoppers find the ambiance attractive are among factors that determine the aesthetic value (Aksoy, 2009).

The design elements used should have attributes that are distinctive from those of other shopping malls in addition to creating different spaces indoors (Acar, 2006).

According to Beddington (1986), shopping malls should not be complex and the users should not lose their way in them. Exact symmetric similarities that are difficult to distinguish should not be used and arrangements for entrances, exits and large units should be made that make one feel the descriptive, distinctive and indicative differences (Acar, 2006).

Plants should be placed at a certain distance from the sitting units inside the shopping malls. Otherwise, plant beds and pots tend to be used as garbage cans (Bozkurt and Ulus, 2014).

The air is colder in the ground floor and hotter in upper floors for shopping malls with more than one storey. In addition to the air circulation between the entrances and exits of the shopping malls, the air currents generated by the air conditioners used are also important when determining the locations of the plants (Acar, 2006).

It is very important for indoor design activities to have knowledge of the environment. The humidity ratio, shade, light and whether there is air current or not at the application area should be determined beforehand. Since these data that will be determined prior to the application are characteristics that may limit the design. After determining these characteristics, the application is started by selecting the plants that will adapt to the indoor environment (Gülin, 2006).

PLANT MATERIAL IN SHOPPING MALLS AND THEIR USE

Indoor Space Survey

Structural design criteria for shopping malls are evaluated with regard to circulation, exterior appearance of the building, functionality, directing the users, readability, spatial organization, potential for growth, passages, structure and material, color use, lighting and the use of reinforcing elements (Tokgözlü, 2011). In addition, contributions are made to creating unique spaces by way of accentuating the space effect, creating a background, bordering, alley formation, eliminating monotony to add color and mobility to the space when the plants used are evaluated with regard to plant design elements (line, texture, form and color) and principles (repetition, balance, dimensional harmony, emphasis, variety, contrast and accordance, koram). The volume measure acquired by plants in the horizontal and vertical directions plays a role on the measure of the space where the arrangement will take place. Plants should be in harmony by themselves as well as among each other. Planting that is in accordance with the measure of the space will result in suitable plant designs (Birişçi *et al*., 2012; Khabbaziden, 2009; Eroğlu, 2004; Powell, 1984).

In this scope, selecting in advance the points of lighting, windows, heating units, air conditioners, stairway access to entrances and exits as well as special locations such as assembly areas with regard to the correct placement of suitable plant species is of significant importance for indoor survey studies.

SELECTION OF SUTABLE PLANT SPECIES

Classification of Indoor Plants Based on their Ecological Demands

Temperature: Ornamental plants used indoors are classified into three groups based on their temperature requirement; (Amiraslanlı, 2016) (Table 1)

- Plants that can adapt to high temperature: they are observed to grow better at locations with a humidity balance of 80-85 %. Tropical origin plants are included in this group.
- Plants that can adapt to moderate temperatures: Well-lit and spacious areas are more suited for the plants in this group.
- Plants that can adapt to low temperatures: these are plants that can grow indoors at temperatures varying between 5-8 celcius during the winter season and outside in gardens or balconies during the summer season (Khabbazi, 2009).

Light: For many plants, light that diffuses the plant without direct sunlight is required. Accordingly, indoor plants can be roughly classified based on their light requirements as full-sun, semi-shade or shade plants (Table 2) (Yazgan, 1990).

Table 1. *Temperature requirements of various indoor plants (°C) (Bozkurt and Ulus, 2014)*

High temperature	Medium temperature	Low temperature
winter: 16-20° / summer: 18-25°	winter: 8-15° / summer: 15-18°	winter: 5-8° / summer: 15-20°
Ananas comosus	*Begonya rex*	*Aloe arborescens*
Anthurium andreanum	*Chlorophytum comosum*	*Asparagus plumosus*
Aphelandra squarrosa	*Cyclamen persicum*	*Asparagus sprengeri*
Caladium bicolor	*Ficus benjamina* 'Daniella'	*Bougainvillea glabra* 'Sanderiana'
Codiaeum variegatum	*Ficus benjamina* 'Starlight'	*Fatsia japonica*
Cordyline fruticosa	*Ficus benjamina*	*Fuchsia hybrida*
Dieffenbachia sp.	*Ficus elastica*	*Helxine soloirolii*
Dracaena sp.	*Ficus lyrata*	
Guzmannia lingulata	*Ficus pumila*	
Maranta leuconeura	*Monstera deliciosa*	
Neoregelia carolinae	*Nephrolepsis exaltata*	
Phalaenopsis sp.	*Primula obconica*	
Philodendron erubescens	*Saintpaulia ionantha*	
Spathiphyllum wallisii	*Sansevieria trifasciata*	
Vriesea splendens	*Tradescantia albiflora*	

Table 2. *Light requirements of various indoor plants (Yazgan et al., 2003).*

Full-sun plants	Semi-shade plants	Shade plants
Ananas bracteatus 'Tricolor'	*Aglonema* 'Marie'	*Adiantum raddianum*
Bougainvillea 'Dania'	*Aspidistra elatior*	*Aspidistra elatior* 'Milkway'
Browallia speciosa 'White Troll'	*Asplenium nidus*	*Aucuba japonica 'Crotonifolia'*
Capsicum annum	*Begonia* 'Tiger Paws'	*Chamaedora elegans*
Capsicum annum 'Carnival Red'	*Dracaena cincta* 'Bicolor'	*Duchesnea indica*
Celosia argentae 'Plumosa'	*Dracaena marginata*	*Fittonia* 'Bianco Verde'
Chrysanthemum indicum	*Dracena fragrans* 'Compacta'	*Howea forsteriana*
Cordyline fruticosa 'Kiwi'	*Fatsia japonica*	*Philodendron bipinnatifidum*
Crassula coccinea	*Ficus pumila* 'White sonny'	*Philodendron scandens*
Crassula socialis	*Fittonia verschaffeltii* 'Janita'	*Schefflera arboricola* 'Luciana'
Dudleya pulverulenta	*Hedera helix* 'California'	*Selaginella martensii*
Hoya carnosa 'Variegata'	*Monstera deliciosa*	*Soleirolia soleirolii*
Nerium oleander	*Nephrolepsis exaltata* 'Bostoniensis'	*Spathiphyllum* 'Euro Gigant'
Punica granatum var. 'Nana'	*Philodendron* 'Medisa'	
	Philodendron erubescens 'Red Emerald'	
	Schlumbergera truncata	

Classification Based on Form Characteristics: Indoor plants are classified into three groups based on their form characteristics as; architectural form, climbing and hanging plants.

Architectural form plants: They can be used by themselves in indoor spaces. They are used in wide spaces for their focus creating, accentuating, guiding functions as well as decorative effects. Architectural form plants can be used by themselves or to reduce the spreading effect of plants that are used for covering purposes (MEGEP, 2007).

Climbing plants: They are plants that always grow vertically. Some wrap around a support, while others cling to the support via adhesive organs. Indeed, they can be used as separators by being wrapped around supports in indoor spaces (MEGEP, 2007).

Hanging plants: They can cover the soil surface or they grow downwards when hung up in a pot. Some of the sarkıcı plants are effective with interesting leaves, while others with their flowers. These plants can be placed in hangable pots or in pots that resemble high columns (MEGEP, 2007).

Classification Based on Leaf and Flower Characteristics: Tables 3 and 4 present the plants according to their leaf and flowering characteristics.

Table 3. *Indoor plants according to leaf forms (Yazgan et al.,2009).*

Small-leaved	**Broadleaf**	**Thin-long-leaved**
Begonia sp.	*Anthurium crystallinum*	*Acorus gramineus* 'Ogon'
Callisia repens	*Codiaecum variegatum* var. 'Pictum'	*Carex conica* 'Snowline'
Eunoymus japonicum 'Microphyllus Variegatus'	*Cordyline fruticosa*	*Codiaeum* 'Goldfinger'
Ficus pumila	*Dieffenbachia* 'Compacta'	*Cordyline australis* 'Red Star'
Hedera helix 'Spetchley'	*Fatsia japonica*	*Dracaena cincta*
Peperomia prostrata	*Ficus elastica*	*Isolepsis cernua*
Peperomia rotundifolia	*Ficus lyrata*	*Pandanus veitchii*
Pilea depressa	*Monstera deliciosa*	*Phormium* 'Sundowner'
Punica granatum var. 'Nana'	*Philodendron bipinnatifidum*	
Streptocarpus saxorum	*Platycerium bifurcatum*	
Tripogandra multiflora	*Yucca elephantipes*	

Table 4. *Long term flowering indoor plants (MEGEP, 2007).*

Indoor plant	**Flowering time**	**Flower Color**
Achimenes hibridleri	From summer to autumn	Pink
Aechmea fasciata	Summer for months	Pink,blue
Anthurium andraeanum 'Acropolis'	Continuously for years	White
Begonia scharffii	Winter and spring	White, pink
Cymbidium showgirl	Winter and spring	Pink, cream
Kalanchoe blossfeldiana 'Debbie'	Weeks from winter to summer	Dark red, pink
Saintpaulia 'Bright Eyes'	Long-term for months	Purple, pink shades

INDOOR PLANTING DESIGN

Majority of the indoor plants should be placed in best-lit locations. Because light is less indoors compared to the shades of trees outdoors. Light demand in plants may differ. Plants require more light during their development periods and less light during their resting periods. Indoor plants are classified based on their light requirement into different groups as plants that grow in sunlight, light, semi-shade and shade. Plants grown in sunlit places are generally located at windows overlooking the south indoors or in sunlit areas of the gardens during the summer. Plants that prefer semi-shade are grown in locations with mild or very little sunlight. These plants are generally located at windows facing the west or the east. Plants that prefer shade should be kept at windows with no direct sunlight, or they should be kept in areas that do not receive sunlight when they are grown in greenhouses (Korkmaz, 2008).

Targeted spatial effects related with plants are important for shopping malls as well as placing the plants according to their ecological requirements. In this regard, plants are among the most important factors that support and affect spatial organizations in shopping malls. Planting design in public spaces contribute to spatial comfort and aesthetics in addition to functional contributions by way of their characteristics related with forming spaces, screening effect between spaces, guiding, accentuation, aesthetic value, strengthening the visual impact, bordering, creating a background and separation.

CONCLUSION

As is the case in all spaces, it should be kept in mind that space is an area of consumption in modern shopping malls as well and that the transformations that take place during the consumption period have an impact on recreational areas. So, recreational spaces transform into a commodity consumed in shopping malls.

It is aimed to meet the socialization demands of individuals in addition to their needs for goods and services in shopping malls defined as an alternative to the city center that aim to setup the liveliness in urban spaces in indoor spaces with the use of outdoor space components. Hence, shopping malls are also used as recreational areas. A natural indoor space landscape arrangement is the most important part of recreation. The use of decorative plants in indoor landscape design for shopping malls creates a positive impact on the psychologies as well as the visual pleasures of people in addition to providing relaxation. Indoor space survey prior to planting design is important in order to ensure the sustainability of both the aesthetic and functional characteristics of the plants used. Applications combining

innovation and creativity which create coherence between the spaces are among the most important focus points for public spaces.

Indoor space planting designs with a good relationship between people and spaces provide significant contributions with regard to spatial organization, spatial quality and spatial comfort level.

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TYPOLOGICAL ANALYSES OF HISTORIC OTTOMAN MOSQUES IN BITOLA, MACEDONIA

CHAPTER 8

Gülşen DİŞLİ[1]

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1. INTRODUCTION:

Ottoman Empire conquered Bitola at the end of the fourteenth century and Ottoman ruling ended in the city as a result of Serbian occupation in 1912 (Bechev, 2009, 105-107; Kotzageorgis, 2007, 129; Prifti, 2003, 562). During this more than five hundred years of ruling, number of Muslim population increased (Kotzageorgis, 2007, 140) and as a result, Ottomans built many sacral and public buildings for this new population and converts in the city (Bechev, 2009, 106). Especially in the 16th and 17th centuries monumental religious buildings were constructed in the city by the Ottoman Empire (Mihajlovski, 2012, 289-301; Mihajlovski, 2003, 351-366). Evliya Celebi, a 17th century Turkish traveller, stated the existence of seventy mosques and small masjids in the city in the 17th century (Kahraman, 2010, 794). Based on the archival documents including waqf registers and title deed registry records of the buildings, Ayverdi and Yüksel (2000, 95-107) similarly state that in total seventy mosques were constructed in the city by the Ottoman Empire, among them only fifteen percent being intact in late twentieth century. From the accounts of Şemseddin Sami (1898, 4437), in the 19th century there were twenty four mosques in Bitola, and according to Mehmed Tevfik (1911, 39) in the 20th century this number increased to thirty seven. The number of mosques in Bitola still intact today is only twelve, and among them Haydar Qadi Mosque, İshakiye Mosque, Hamza Bey Mosque, Hasan Baba Mosque, and Hatuniye Mosque have still been used in their original functions. The aim of this research is to make a typological analysis of the existent mosques in the city according to their plan, roof, façade, dome transition elements, and material usage, in order to reveal the similarities and differences in those mosques in terms of various typologies.

Historic mosques of Bitola have been the interest area of many researchers. Among them Waltenberger (2014, 149-164) examined the Ottoman sacral architecture in Bitola, and gave detailed information about the still existent mosques in the city. Mihajlovski (2013, 213-221; 2012, 289-301; 2003, 351-366) similarly, constituted a detailed research on both extinct and existent mosques in Bitola built in the sixteenth, seventeenth, and nineteenth centuries (Figure 1). Bülbül's (2011) research and Seçkin's (2016, 112-125) study on Ottoman architecture in Bitola also include mosques and masjids and give detailed information related to their inscription panels and waqf registers if exist, their architecture, material and technique, facades, interior space features and, decorations, as well as include photos and drawings of the buildings. Çağ (2010) examined the neighbourhood units of Bitola under the rule of Ottoman Empire in the sixteenth and seventeenth centuries and mentioned about the religious architecture in those different districts. İdrizi (2008, 67-73) and Ünlü-Sarı

(1996, 107-109) also give information on historic mosques in city of Bitola but without detailed explanations. In addition to architecture and art history studies, there are also some specific research related to the mosques in Bitola, such as conservation and restoration studies, stone finials, women's prayer space, and grave stones of the mosques (Dişli and Taşkesen, 2018, 31-85; Dişli, 2017, 20-37; İnci-Fırat, Dişli, and Taşkesen, 2016, 45-56; Dişli and İnci-Fırat, 2016, 318-332; Dişli, 2015, 197-207) . Among them, especially the stone finials and women's prayer space in Bitola mosques have been studied in terms of their different typologies (Dişli, 2017, 20-37; Dişli and İnci- Fırat, 2016, 318-332). Although there is a vast literature in Ottoman period mosques in Bitola, they still lack a systematic typological analysis regarding their plan, façade, material, and roof, and need to be analysed in detail, which is the primary focus of this research.

Figure 1: *Bitola in 1848, painted by Edward Lear, and in early twentieth century, showing the mosques and Ottoman gravestones (Source: Mihajlovski, 2012, 290; Mihajlovski, 2003, 351).*

2. MATERIALS AND METHODS:

Here are presented the material and methods of the research. The former, describes the historic mosques belonging to Ottoman period and still existent in Bitola, and the later presents the investigation methods of those edifices according to their different typologies. These methods covered literature survey, archival analysis, and in-situ investigations during the field trips. In addition, based on the field analysis, condition classification of components and urgency risk classification of case study mosques were done according to European Standard UNI EN 16096 (2012) on "Conservation of cultural property - Condition survey and report of built cultural heritage" (Table 1).

Table 1: *Condition and urgency risk classification chart (Source: UNI EN 16096 (2012) (English))*

Condition classification of components		**Urgency risk classification**	
Condition class(CC)	**Symptoms**	**Urgency class (UC)**	**Urgency**
CCO	No symptoms	**UC 0**	Long term
CC 1	Minor symptoms (Paint is worn, moss on roof tiles and a few broken roof tiles)	**UC 1**	Intermediate term
CC2	Moderately strong symptoms (Localised damage caused by minor wet rot infestation requiring improvement & partial replacement)	**UC 2**	Short term
CC3	Major symptoms (Leaking roof with consequent damage and major damage caused by fungal or rot infestation)	**UC 3**	Urgent and immediate

2.1. Material: Historic Mosques of Bitola

In this research, among the twelve mosques intact today, only ten of them have been analysed in terms of their various typologies. Among the existing mosques, Ahmed Serif Mosque (1849/50) is used as a residential building and Çarşı Masjid (19th cc.) is used as the office of mufti today, and lost their original features to a great extent during the transformation process, providing only limited information in terms of typological analysis. Therefore they were excluded from the scope of this research. The mosques built by Ottoman Empire in different periods and still existent in early twentieth century in Bitola have been shown in Figure 2 and primary data related to case study mosques have been given in Table 2.

Table 2: *Case study mosques in Bitola*

Name of the Mosque	Construction date/period	Current function	Condition classification of components	Urgency risk classification
a-Hacı Mahmud Efendi/ Hacı Bey Mosque	1521/ 16th cc.	depot	CC3: Major symptoms	UC3: Urgent and immediate
b-Hamza Beg / Mosque of Three Sheiks (Üç Şeyhler)	16th or 17th cc.	mosque	CC1: Minor symptoms	UC1: Intermediate term
c-Hasan Baba/ Kesik Bas Tekke Mosque	Built between 1628-1640/ 17th cc.	mosque	CC1: Minor symptoms	UC1: Intermediate term
d-Ishak Chelebi/ Ishakiye Mosque	1506-7/ 16th cc.	mosque	CC0: No symptoms Newly restored	Only periodical maintenance
e-Koca Qadi/ Ahmed Efendi Mosque	1529-30/ 16th cc.,	Depot/ garage	CC3:Major symptoms	UC3: Urgent and immediate
f-Paftali Mosque/tomb	First half of the 16th cc.	Tomb (ruined)	CC3: Major symptoms	UC3: Urgent and immediate
g-Yeni/ Qadi Mahmud Efendi Mosque	1551-2/ 16th cc.	No function	CC3: Major symptoms	UC2: Short term
h-Haydar Qadi Mosque/ Gazi Haydar Qadi Mosque	1561-2/ 16th cc.	mosque	CC0:No symptoms Newly restored	Only periodical maintenance
ı-Isa Fakih/Cinar Mufti Mosque	1505-6/ 16th cc.	Garage/ depot	CC3: Major symptoms	UC3: Urgent and immediate
i-Hatuniye Mosque	1905-6/ 20th cc.	mosque	CC1: Minor symptoms	UC1: Intermediate term

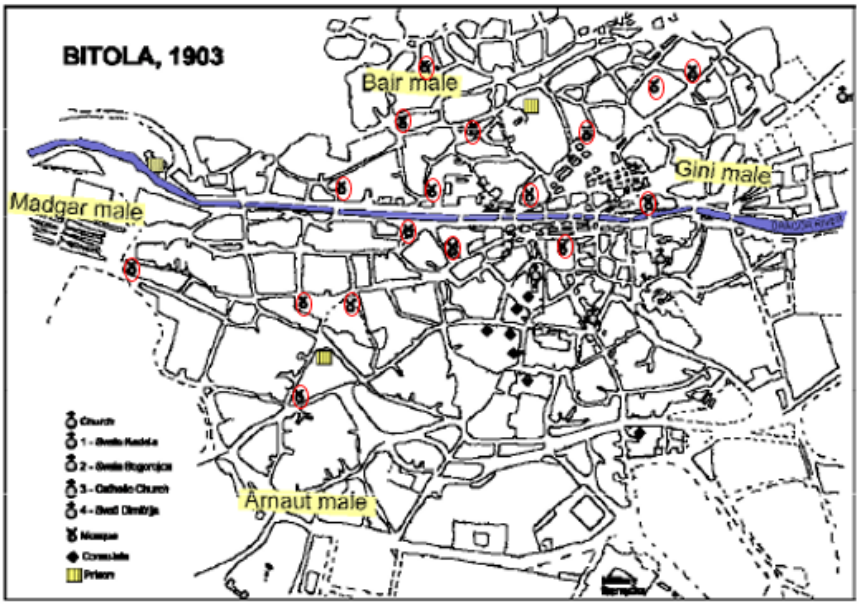


Figure 2: *Map of Bitola in 1903 in which mosques were shown with ɣ symbol (Source: Anastasovski, 2005, 204).*

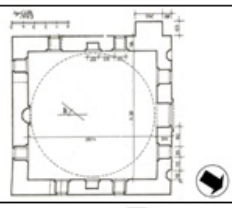
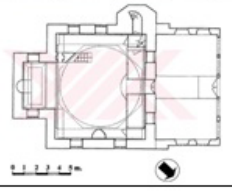
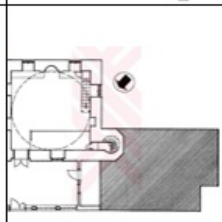
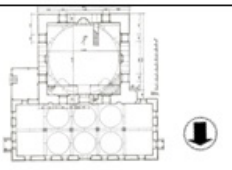
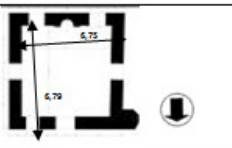
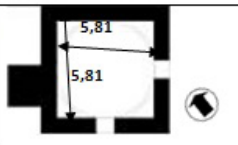
3. RESULTS AND DISCUSSION:

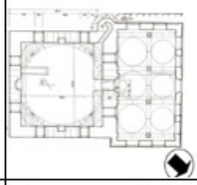
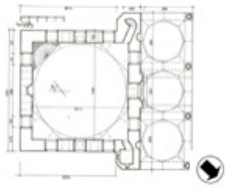
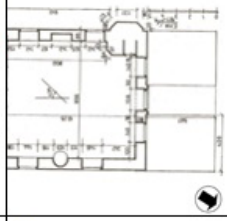
Many scholars have done important contributions on the inventories of historic mosques in Bitola, particularly on their architecture. Yet, they need a systematic analysis in terms of their various typologies. Hence, as one of the aims of this study, this article, different from the existing literature, identifies and describes the typological analysis of in total ten case study mosques from 16th to 20th centuries in Bitola. Typological analysis have been done according to their different and primary types of plan formations, upper structure, dome transition elements, late comers' portico, women's prayer section, and number and location of minarets (Table 3, Table 4, Table 5).The results of all field analysis, archival, and literature survey, as well as condition and urgency risk classification investigations are given in this section with figures and tables. As a result of field analysis, it becomes clear that according to UNI EN 16096 (2012), half of the case study mosques have major symptoms and need urgent and immediate repair. Since Ishak Chelebi and Haydar Qadi Mosques have recently been restored, periodical maintenance is considered to be enough without any intervention.

According to their form, plan types of the mosques can be divided into three main groups; square (S) type, T type, and rectangular (R) type. Of the ten mosques being studied, square (S) plan type comprises the largest

number. There is only one T type mosque (Hamza Beg Mosque) and one rectangular plan type (Isa Fakih Mosque), and the rest are all in square form. Among the ten case study mosques, eight were built in the 16th century, one is from the 17th century (Hasan Baba Mosque), and there is also an early 20th century mosque (Hatuniye Mosque) (Table 3). In as-is case, interior dimensions of the mosques were measured 5,81-14,60 m in width and 5,81-14,50 m in depth. Among all, Ishak Chelebi Mosque has the largest ground floor area (212,00 m2), and Paftalı Mosque has the smallest (33,70 m2) (Table 4). Reviewing Tables 3 and 4, it becomes clear that 16th and 17th century case study mosques either with square (S) or T type plan were covered with a single dome. Only Isa Fakih Mosque (16th cc.) and Hatuniye Mosque (20th cc.) have wooden construction hipped roofs. Dome transition elements are either pendentives or squinches (Table 3). Regarding the late comers' portico, among the studied mosques, in Koca Qadi and Isa Fakih Mosques late comers' porticos are not existent today, and Paftalı Mosque does not have a portico originally. In Hacı Mahmud Efendi Mosque, originally an open colonnaded late comers' portico covered with three-dome upper structure was transformed into a closed one with wooden upper structure, and in Hamza Beg and Hasan Baba Mosques current late comers' porticos were added in recent past. On the other hand, in Ishak Chelebi Mosque and Yeni Mosque, original late comers' porticos were enlarged in different periods and have had their current forms (Table 3). Among the porticos that could be identified, they are observed to be either closed or open colonnaded. Considering the number and location of minarets, the study showed that except for Haydar Qadi Mosque all the case study mosques, no matter from which period, have only one minaret on the northwest side. In Haydar Qadi Mosque, on the other hand, there are traces of another one on the northeast side. Its current minaret on the northwest side which was demolished at the first half of the 20th century was completed in 2015, during last restoration works.

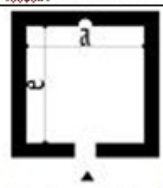
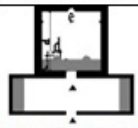
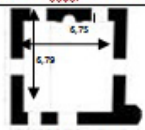
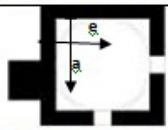
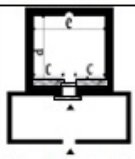
Table 3: *Typological analysis of case study mosques*

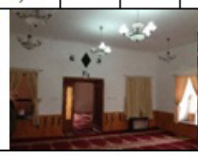
a-Hacı Mahmud Efendi/ Hacı Bey Mosque, 16th cc.	Square plan type (S)		Single dome covering of the main prayer area, pendentives are used as dome transition elements	Today a closed portico covered with wooden roof, but originally open late comers' portico colonnaded and covered with a three-dome upper structure	One minaret on the north-west corner
b-Hamza Beg Mosque /The Mosque of Three Sheiks, 16th cc.	T type plan (T)		Dome covering of the main prayer area, squinches are used as dome transition elements	Closed, rectangular late comers' portico with a wooden hipped roof top covering, added to the north façade of the building in recent past, made of concrete	One minaret on the north-west corner
c-Hasan Baba/ Kesik Bas Tekke Mosque, 17th cc.	Square plan type (S)		Single dome covering of the main prayer area, squinches are used as dome transition elements	Closed, rectangular late comers' portico with a wooden one-way roof covering, added to north façade of the building in recent past	One minaret on the north-west corner
d-Ishak Chelebi/Ishakiye Mosque, 16th cc.	Square plan type (S)		Single dome covering of the main prayer area, squinches are used as dome transition elements	Closed, rectangular two-row of late comers' portico covered with a single slope wooden roof. It was enlarged to its current condition in 1911 (Serkin, 2016, 113). Originally a five-bay portico	One minaret on the north-west corner
e-Koca Qadi/ Ahmed Efendi Mosque, 16th cc.	Square plan type (S)		Today covered with a pitched roof, wooden roof construction, but originally dome	There is no late comers' portico today	One minaret on the north-west corner
f-Paftali Mosque/tomb, 16th cc.	Square plan type (S)		Single dome covering of the main prayer area, pendentives are used as dome transition	There is no late comers' portico originally	One minaret on the north-west side

g-Yeni/ Qadi Mahmud Efendi Mosque, 16th cc.	Square plan type (S)		Single dome covering of the main prayer area, squinches are used as dome transition elements	Closed, rectangular late comers' portico covered with six-domes in two rows, the second row was added during 1793 repairs.	One minaret on the north-west corner
h-Haydar Qadi Mosque, 16th cc.	Square plan type (S)		Single dome covering of the main prayer area, squinches are used as dome transition elements	Open late comers' portico with a three-dome upper structure	One minaret on the north-west corner, and traces of a square base of another one on north east corner
ı-Isa Fakih Mosque/ Cinar Mufti/ Salih Mosque, 16th cc.	Rectangular plan type (R) (10,25m* 8,55m)		Hipped roof covering of the main prayer area, originally, under the hipped roof, there was wooden dome ceiling	Originally had a colonnaded late comers' portico with a width of five meters on the north façade, today has later addition closed rectangular portico topped with a hipped roof	One minaret on the north west side
i-Hatuniye Mosque, 20th cc.	Square plan type (S)	-	Wooden hipped roof covering of the main prayer area and late comers' portico	Closed, rectangular portico on the north side of the main prayer area.	One minaret on the north-west corner

Typological analysis of women's prayer spaces in case study mosques have been done according to their current conditions. Among the ten case study mosques, only three have a defined maksura today. The others either do not have prayer space for women or a curtain separation mostly in late comers' portico has been used for this purpose. In Ishakiye Mosque, on the other hand, there are two defined spaces for women; one is inside the main prayer area on the north wall, and the other is newly added in late comers' portico on the east side. According to their form and current condition, types of women's prayer spaces (wps) can be divided into three main groups; women's prayer space (wps) lying along the full length of the north wall of the mosque, with a narrow width ("b") and with a circular balcony at the centre (Hamza Beg Mosque), women's prayer space (wps) lying along the full length of the north wall of the mosque, with a narrow width ("b") and with two circular balconies on east and west side (Ishak Chelebi Mosque), and women's prayer space on the northwest corner of the main prayer area (Haydar Qadi Mosque) (Table 4). Wood is the primary construction material of women's prayer space, and as a common tradition, this area is smaller than the men's part in the existing ones.

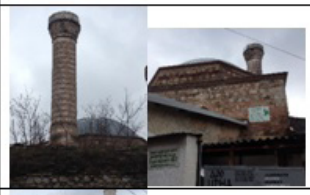
Table 4: *Typological analysis of case study mosques according to their women's prayer section (not all the mosques but only the ones that could be entered during the site analysis have been included in that chart) (Source: Dişli, 2017, 20-37).*

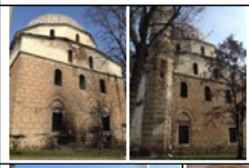
period/plan typology of mosque	women's prayer section (Wps)(current condition)	a	b	c	d	e	Wps	Mosque
a-Hacı Mahmud Efendi/ Hacı Bey Mosque, 16th cc. Square type (S)	 - Wps does not existent	11,5	-	-	-	11,5	-	132,25
b-Hamza Beg Mosque /The Mosque of Three Sheiks 16th cc. T type (T)	 -Wps with a circular balcony- two-story and narrow width and -curtain separation in LCP	8,90	1,48	0,48	2,00	10,3	14,0	79,00
c-Hasan Baba/ Kesik Bas Tekke Mosque, 17th cc. Square type (S)	 -Wps does not existent -curtain separation in LCP	6,00	1,45	4,65	-	6,00	-	36,00
d-Ishak Chelebi Mosque, 16th cc. Square type (S)	 -Wps with two circular balconies - two-story and narrow width -Wps on east-west of LCP	14,6	2,40	1,16	2,9	14,5	39,0	212,0
e-Koca Qadi/Ahmed Efendi Mosque, 16th cc., Square type (S)	 -Wps does not existent	6,79	-	-	-	6,75	-	45,83
f-Paftali Mosque 16th cc., Square type (S)	 -Wps does not existent	5,81	-	-	-	5,81	-	33,70
g-Yeni/ Qadi Mahmud Efendi Mosque 16th cc., Square type (S)	 -Wps does not existent	12,8	1,35	5,49	-	12,8	-	164,1
h-Haydar Qadi Mosque		11,0	1,47	4,30		11,0	6,32	121,00

16th cc., Square type (S)	-Wps on the northwest corner							
		8,81	-	-	-	8,70	-	76,65
I-Hatuniye Mosque 20th cc., Square type (S)	-Wps does not existent -curtain separation in LCP							

As can also be seen from Table 5, stone and brick were the primary materials used on the facades and minarets of the case study mosques. Except for Isa Fakih and Hatuniye Mosques, whose facades are plastered today, in other eight mosques, alternative bonds of stone (rubble stone, coarse stone, or cut stone) and brick usage is the common application in façade formation. Rubble stone is used generally at the foundation level, and cut or coarse stone is preferred on the above levels and at the minaret. On the facades, alternative bonds of stone and brick are observable on both horizontal and vertical directions. On vertical direction, bricks are generally used in two rows, and in horizontal direction, two, three, or four rows of bricks are observable between the stone units. Marble is preferred on window frames and entrance portal.

Table 5: *Typology of material usage and technique on the facades of the case study mosques (Source: Photo archives of the author, 2016, 2015, 2011; Mihajlovski, 2003, 353)*

Name	Material	Technique	Photos of the facade and the minaret
a-Hacı Mahmud Efendi/ Hacı Bey Mosque	Rubble stone, coarse stone, cut stone, and brick	Facades: Alternative bonds of one-row rubble and/or coarse stone and horizontal two/three-row of brick, and vertical two-row of brick between the rubble and/or coarse stones. Minaret base and body: one row of cut stone and horizontal three-row of brick	
b-Hamza Beg Mosque /The Mosque of Three Sheiks	Cut stone, brick	Facades: Alternative bonds of one-row cut stone and horizontal four-row of brick, and vertical two-row of brick between the cut stones. Minaret body is cut stone, base is cut stone and brick	
c-Hasan Baba/ Kesik Bas Tekke Mosque	Rubble stone, cut stone, and brick	Facades: Alternative bonds of rubble stone and brick. Minaret body and base is cut stone, above the balcony is made up of brick	

d-Ishak Chelebi/Isha kiye Mosque	Cut stone, brick, marble	Facades: Alternative bonds of one-row of cut stone and horizontal three-row of brick, and vertical two-row of brick between the cut stones, marble on window frames. Minaret base is cut stone and brick and body is cut stone.	
e-Koca Qadi/Ahmed Efendi Mosque	Cut stone, brick	Facades and minaret base: Alternative bonds of one-row of cut stone and horizontal two-row of brick, on the facades there is also vertical two-row of brick between the cut stones. Minaret: body is cut stone, decorations beneath balcony are brick	
f-Paftali Mosque/tomb	Rubble stone, coarse stone, brick	Facades: alternative bonds of one-row of rubble stone and horizontal three-row of brick, and vertical two-row of brick between the rubble stones. Minaret: base is rubble stone and brick, body is coarse stone, brick is used on decorations, balcony balustrades, and above the balcony	
g-Yeni/ Qadi Mahmud Efendi Mosque	Rubble stone, cut stone, and brick	Facades: alternative bonds of one-row cut stone and horizontal two- row of brick, and vertical two-row of brick between the cut stones. On the foundation level of facades is rubble stone. Minaret: base is cut stone and brick, body is cut stone.	
h-Haydar Qadi Mosque	Rubble stone, cut stone, brick, marble	Facades: Alternative bonds of one-row of rubble stone and horizontal two-row of brick, marble on window frames and entrance portal. Minaret: cut stone	
ı-Isa Fakih/Cinar Mufti Mosque	Cut stone, brick, plastered	The minaret base: cut stone, with an upper part constructed with bricks and then plastered. The facades are plastered.	 1943
i-Hatuniye Mosque	Stone and brick, all plastered	All the facades including the minaret were plastered during 1999 repairs. Facades are made up of stone and brick	

4. CONCLUSIONS:

Bitola, located on southwest side of northern Macedonia was under the power of Ottoman Empire for more than five hundred years. The city has rich historic buildings including Islamic religious architecture. Among them historic mosques from the Ottoman period outnumber the others, and constitute the research area of this article. They help us understand the history, architecture, and cultural and social life of the region. Yet, the literature on the subject matter lack a systematic typological analysis on those historic mosques. In order to prevent inappropriate restoration and/ or reconstruction of those monuments, typology studies are important. Hence, thanks to the case studies, it became possible to better understand

the different typologies of plan formations, upper structure, dome transition elements, late comers' portico, women's prayer section, and number and location of minarets. In addition, as part of this research, condition class and urgency risk classification of in total ten historic mosques have been done. Thus, systematic comparison of those monuments allows the conservation experts and designers to do correct interventions during the restoration applications for the similar buildings in the same/near region.

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DEVELOPING SUSTAINABILITY DECISIONS FOR A HISTORIC SETTLEMENT: THE CASE OF ŞÜKRAN DISTRICT IN KONYA

CHAPTER 9

Gülşen DİŞLİ[1]

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1. INTRODUCTION:

Towns were subjected to the change through the history, sometimes consciously and sometimes because of a natural disaster, and as a result they lose their memory. Şükran district in Meram, constituting the research area of this study, is a part of Konya historic city centre, which has been under urban transformation by Meram Municipality since 2015. Most of the buildings under risk have been evacuated, archaeological investigations have been conducted, and new design proposals have been developed for the area (Figure 1). In addition, the Municipality prepared the City Master Plan of Şükran District in 2018.[1] There are some research on urban transformation applications in Konya. Among them Dur (2015) examined Hacıkaymak, Şeker, and Hocacihan districts in Konya city centre, by focusing on socio-cultural dynamics of urban transformation. Similarly, Özkan-Alpay (2018), investigated urban transformation areas in Konya, focusing mostly on Karatay region, and evaluated the viewpoint and urban transformation applications of the local authority. Urban transformation methods/strategies shall be classified as follows (Günay, 1994, 11-14; Hun-Bilen, 2013, 31): urban rehabilitation (kentsel sağlıklaştırma), urban revitalisation (kentsel canlandırma), urban preservation, urban conservation (kentsel koruma), infill development (eski dokuda yeni bina yapımı), urban refurbishment (kentsel yenileme), re-development (yeniden geliştirme), and gentrification (soylulaştırma). In Şükran district, it is unknown which will be applied among the above mentioned strategies by Meram Municipality. In this research, on the other hand, fourth-year architecture students have developed future sustainable suggestions for the area, including both environmental data and user profile of the area by means of various observations, oral interview, and site analysis. Thus, it is aimed to find the best possible urban development suggestions for the area without ignoring the current actors and users, by respecting to the memory of the town, and by considering both its problems and potentials. At the same time, it is aimed to prodive the students to gain preservation consciousness towards a historic city center.

[1] Meram Municipality, 2018, 1-36. III. Degree Archaeological Site of Şükran District Risky Area Boundaries and Its Periphery, 1/5000 Scale City master Plan Disclosure Report, https://webdosya.csb.gov.tr/db/konya/duyurular/nazim-imar-plani-aciklama-raporu-20180621135947.pdf (Accessed Date: 13.07.2019).

Figure 1: *Current situation of the area and the proposed project by Meram Municipality.*[2]

Şükran district is one of the settlements that Syrian refugees densely resided in Konya. Sahipata and Bosna Hersek districts are the others that they intensely inhabited. Especially Şükran and Şems districts, with their cosmopolite structure, are the first stops of Syrian refugees when they first arrive to the city, and in time, from there they spread to the other parts of the city (Alptekin, et. al., 2018, 87-114). Because of the urban transformation processes in those districts, local community have left their houses, Syrian refugees settled down in those apartments with high rental price (Alptekin, et. al., 2018, 93, 96-97). According to a research on Syrians under temporary protection in Konya by Alptekin et. al. (2018, 87-114; 2017, 1-10), it is revealed that in Şükran district crime incidences against public order have increased, social adaptation problems and ghetto formations have started, and as a result, anger and resentment among the local community against Syrians has arisen. Considering the current situation of the area, in this research, it is aimed to develop economic, ecologic, and social sustainable solutions to above mentioned problems (Figure 2).

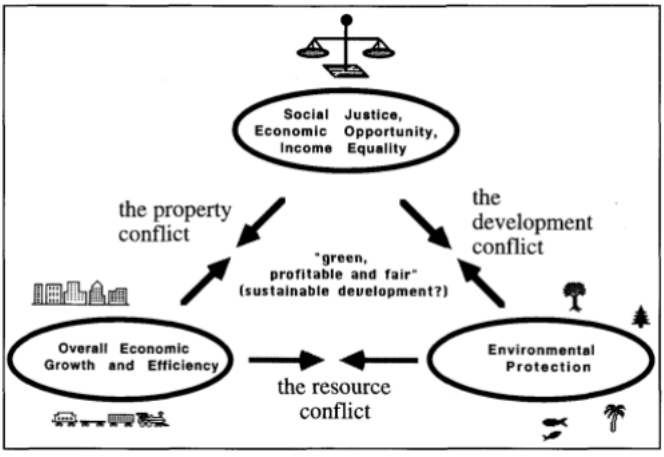

Figure 2: *Three main components of sustainability (Source: S. Campbell, 1996).*

[2] Meram Municipality, 2018. Şükran District Urban Transformation Project of Risky Areas, https://www.meram.bel.tr/tr/icerik/20/2594/sukran-mahallesi-riskli-alan-kentsel-donusum-projesi.aspx (Accessed Date: 20.07.2019).

2. MATERIALS AND METHODS:

In this research, Şükran district, located on the south side of Konya city centre and Alaaddin Hill and on the southwest of Mevlana Museum, has been chosen as the case study area in order to develop sustainability decisions for the region (Figure 3). The area is an archaeological site with the degree of III. In Meram, Konya, the names of districts (mahalle) were changed, and the number of districts were reduced to 69 from 115, in 2018. As a result of this change Sükran District together with Abdülaziz district was connected to Sahipata district.[3] An area of 16,3 ha in ***Şükran*** district was declared to be under risk within the scope of Law No: 6306 by the Cabinet Decision in 2015.[4]

In this research, the analysis and program suggestions have focused on the first part of the area (≈112.000 m2), which has already been evacuated by the Municipality (Figure 3, Figure 4). The analysis methods covered literature survey, archival analysis, and in-situ investigations during field trips. Environmental analysis of the area have been done under eight headings by the fourth-year architecture students as part of Sustainability and Historic Preservation Course packet in architecture program at Necmettin Erbakan University (NEÜ) during 2018-2019 Spring semester. Sustainable development and planning suggestions, including economic, social, and ecological dimensions, have been produced according to data obtained from those field analysis. Primary analyses included in the study are given in Table 1.

In addition to those environmental analysis; location, historic development, current situation, population movement, ownership status, education status, user thoughts about the area, economic structure, and social life in the case study area have been examined. Both visual and oral examination with the current users of the area have been applied during the field trips. Finally, by using all those data together with program needs and environmental analysis; program and usage suggestions, possible interventions and reuse proposals for the existing built heritage, and revitalization recommendations for the area have been compiled.

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[3] Meram Municipality, 2018. New Arrangements to District Names in Meram, Konya, https://www.meram.bel.tr/Content.aspx?CategoryID=23&ContentID=4015 (Accessed Date: 20.07.2019).

[4] Meram Municipality, 2018, 1-36. III. Degree Archaeological Site of Şükran District Risky Area Boundaries and Its Periphery, 1/5000 Scale City master Plan Disclosure Report, https://webdosya.csb.gov.tr/db/konya/duyurular/nazim-imar-plani-aciklama-raporu-20180621135947.pdf (Accessed Date: 13.07.2019).

Table 1: *Primary environmental analysis applied during the research*

Occupancy space analysis: Relations between the empty and constructed areas: building, courtyard, garden relations
Road, building, and green area analysis: relations between the transportation, green area, constructed area, and parking lots
Analysis of historic value and construction period: Historic building, new building compatible with the old, new building incompatible with the old, Period: Seljuk, Ottoman, Republican period, modern
Function and usage analysis: mosque, tomb, residential building, commercial building, educational building, governmental building, military building, depot, health facility, accommodation etc.
Analysis of number of stories: one-story, two-story, three-story, four-story, five story, six or more
User analysis: young, middle-aged, old, employee, leisured, student, retired, etc.
Analysis of construction technique and material: concrete, masonry, timber framing
Building integrity analysis: in good, acceptable, bad, very bad condition/ ruined

Figure 3: *The map showing the boundaries of research area in Şükran district, Konya (left), and the distances from the research area to specific points in historic city centre (right) (Source: google.maps)*

Figure 4. *Map showing some important historic buildings in case study area (left) and its location in historic city centre (right) (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ)*

3. RESULTS AND DISCUSSION:

The results of all field analysis, archival, and literature survey, as well as oral interviews are given in this section with figures, graphs, and charts. As a result of field analysis, it becomes clear that during the urban transformation processes, the area has been evacuated to a great extent, most of the buildings except for the registered, and historic ones, have been cleaned, and archaeological investigations have been conducted. Occupancy space analysis show that, on immediate periphery of the research area, the residential buildings are constructed parallel to the parcel lot, in adjacent order, directly opening to the street, and with or/without an open space (Figure 5). The research area, on the other hand, is almost empty because of urban transformation process except for some registered historic buildings and archaeological excavations.

Figure 5. *Occupancy space analyses (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

The research area is accessible by means of different transportation means including tramways, buses, cars, bicycles, and pedestrians. Pedestrian and vehicle transportation around the area is separated in some parts and intertwined in some others. Because the area is located in a dense zone of the city, there is the problem of inadequate parking lots, and inadequate and narrow vehicle and pedestrian roads. As a result, two sides of the already narrow streets are used for the parking purpose, causing interruption and obstruction for the pedestrians (Figure 6). Hence, considering the traffic congestion, there is one-way application in some parts. Around the research area, there are Alaaddin and Mevlana Avenues on the north side, Sahipata Steet lies on the south, Sırçalı Medrese Street is on the west, and Başaralı Street bounds the area on the east side. Although there are lots of commercial buildings (Bedesten, Mevlana Bazaar, ***Çıkrıkçılar*** Bazaar, Fatih Bazaar, and Saray Bazaar) around the area, it has limited opportunities regarding the green areas. Kayalı Park and Alaaddin Hill are the nearest green zones around the research region, but there is not a continuity in green belt. Kültür Park is also another green zone, but its distance to the research area is more than the others.

Figure 6. *Road, building, transportation, and green area analysis (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

In ***Şükran*** district, settlement activity was observable since the Seljuk period, and both urban and trade activities took part intertwined within the other. In the area there are both monumental and residential historic buildings from Seljuk, Principalities, Ottoman, and Republican periods, as well as new ones compatible and/or incompatible with the old ones (Figure 7, Figure 4-left). New constructions outnumber the others.

Figure 7. *Analysis of historic value and construction period; historic city centre (left) and case study area (right) (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

In the research area, there are buildings with different functions including religious, cultural, residential, commercial, public, commercial and residential, and historic buildings (Figure 8). Among them residential buildings, and commercial-residential ones are more than the others.

Figure 8. *Function and usage analysis (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

On the east side of the research area the Bedesten Bazaar is made of two-three story buildings, and on the west side there are four-five story residential apartment blocks, and residential-commercial units, as well as a few historic buildings. On the north side, similarly, there are commercial and residential buildings generally with more than three-story and on the south side there are residential buildings with irregular number of stories, disrupting the silhouette (Figure 9). In the immediate periphery of the area, there are generally two-three-four-story buildings. High building stocks are not observable.

Figure 9. *Analysis of number of stories (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

Income distribution of the area shows that 6% of the inhabitants do not have an income, 66% have less than 600 TL per month, 27% earn less than the minimum wage, and only 1% have more than 1300 TL income per month (Figure 10). Self-employment, hawking, or daily works are the most common occupations of the inhabitants. 59% of the inhabitants are tenants, and only 37% have their own houses, and 12% have a car. The income and property ownership percentages show that, the area is currently occupied by low income group. In 2009, total population in ***Şükran*** district was 3372, but this number decreased to 1414 in 2017, which might be explained as a result of the transformation of some of the housing units to trade and service sector, devastation of outdated buildings, and change of

function in urban space.[5] In the area child, young, adult, and old people are observable both as the users and inhabitants of the area (Figure10). Since there are many commercial buildings around the immediate periphery of the area, adult users overcome the child and young. Because of the same reason, male population is more than female especially in Syrian enterprises. Even though the research area is fairly near to Mevlana Museum, tourist density in the area is little if any. Similarly, nowadays, the number of local community is very few compared to the Syrian refugees.[6] In the area, education level is rather low, but crime incidences is fairly high, so it is not considered a secure place to live or to visit by the local community. Education opportunities in or around the area is also rather limited. There is only one building, and is used for religious education.

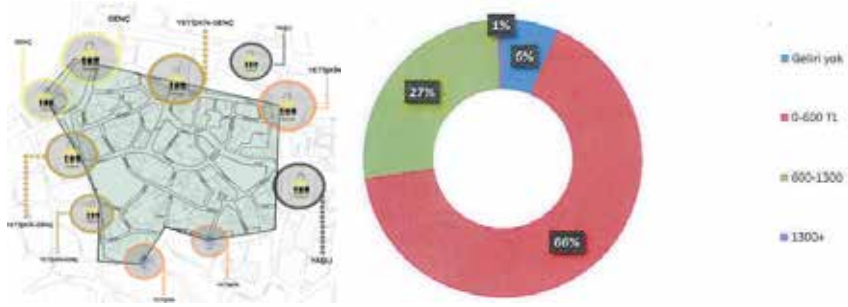

Figure 10: *User analysis in cases study area (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

As can be seen from Figure 11, for the new buildings concrete is preferred as the most common construction material, observable especially on the west and north sides of the research area. Registered historic buildings are built with masonry technique, either with stone or brick material. In historic houses also "hımış" and mud brick are other construction technique and material in the area.

[5] Meram Municipality, 2018, 1-36. III. Degree Archaeological Site of Şükran District Risky Area Boundaries and Its Periphery, 1/5000 Scale City master Plan Disclosure Report, https://webdosya.csb.gov.tr/db/konya/duyurular/nazim-imar-plani-aciklama-raporu-20180621135947.pdf (Accessed Date: 13.07.2019).

[6] K. Alptekin, D. Akarçay-Ulustaş, D. Ustabaşı-Gündüz, 2017, 1-10. Konya'da Yaşayan Suriyeliler: Güncel Sorunlar Ve Çözüm Önerileri Çalıştayi, Sonuç Raporu, KTO Karatay Üniversitesi, https://www.karatay.edu.tr/dosyalar/suriyeliler-calistay-raporu.pdf (Accessed Date: 20.07.2019).

Figure 11. *Analysis of construction technique and material (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

In ***Şükran*** district, considering building integrity analysis, it is observable that more than half of the buildings are in moderate condition with some material problems, but do not have structural problems (Figure 11, 12). In more than 30% of buildings, there are both material and structural problems, and only 10% are in good condition with/or without some minor material problems. There are also buildings in ruined/very bad condition, but its percentage is quite less, because most of the buildings in ruined condition have been demolished during the urban transformation processes in recent years, and some others have been restored.

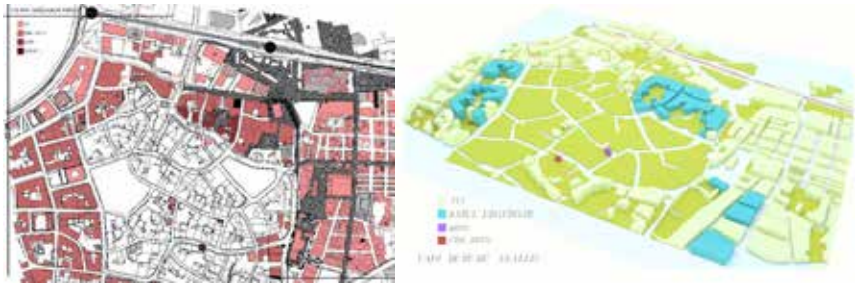

Figure 12. *Building integrity analysis (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

Table 2: *SWOT Analyses of the area*

Strengths	Opportunities
Existence of cultural heritage (in and around) Near to commercial, cultural, & social facilities Easily accessible to cultural, historic, commercial areas- being at the heart of the historic city centre Near to public transportation facilities	Being under urban transformation process Potentials for tourist attraction Proximity to city centre, and traditional Bazaars Accessibility opportunities Existence of archaeological remains
Weaknesses	**Threats**
Being a depression zone Densely populated by Syrian refugees Lack of tourist attraction Irregular construction and buildings around the area with different stories Less green area in and around the case study area Traffic congestion, difficulties for pedestrians Lack of social equipment, recreational area	Being under urban transformation process, and risk of qualified cultural heritage preservation Being the first stop & distribution centre for the refugees with low income and education level Evacuation of local community because of urban transformation process Being and known as an unsecure zone Old building stock and neglected environment

4. Urban Revitalization Suggestions and Project Development for the Case Study Area

At this part of the study, sustainable revitalization suggestions for the case study area have been developed by using the data explained in detail in previous part. Regarding the fact that today most of the Syrian refugees are living in Şükran district, and the area has grown to be a depression zone, project suggestions for the area included the adaptation and integration of those refugees with the local community. Thus it is aimed to incorporate the area with the historic city centre and transform it again to its secure and decent condition as in old days, used by everyone, with all its cultural, historical, and social values, not only by the refugees. Hence, in order to increase the socialization, education, and employment rates in the area; art centre, sport centre, health centre, training workshops, nursing home, library, restaurant, kindergarten, youth club, accommodation, entertainment, commercial, and residential areas are suggested (Figure 13). In addition to those constructed areas, there will also be organic bazaars, arkeo-park, urban squares, children's play area, and gather-yourself/organic hobby gardens. All the people from different ages and status are planned

to be integrated with each other in the research area. Open and closed car-parks, and residential areas will be solved at the boundaries of the area, and walking paths will be designed, bicycle usage will be encouraged. Products cultivated in organic gardens are planned to be sold in organic bazaar and in streets allocated for the sale of organic products, and will be used in the restaurant designed in the area. All existing historic buildings in the area are suggested to be restored and used mostly in their original functions. In commercial buildings both the refugees and the local community will work together. Boutique hotel will be allocated for the accommodation of tourists, thus recognition of the area is aimed to be increased. Rain water captured from the roofs of the buildings will be collected under floor inside the rain water collection tanks and will be reused. Some tour programs will be arranged including the area and Mevlana-Alaaddin axis. In addition, some governmental buildings will be planned to be built inside the research area, aiming to be in more contact with the local community from all walks of life. In training workshops, trainees will be educated in different professions, and nursing home will serve both for the refugees and the local community in need, and thanks to kindergarten, it will be possible for women to enter into labour life.

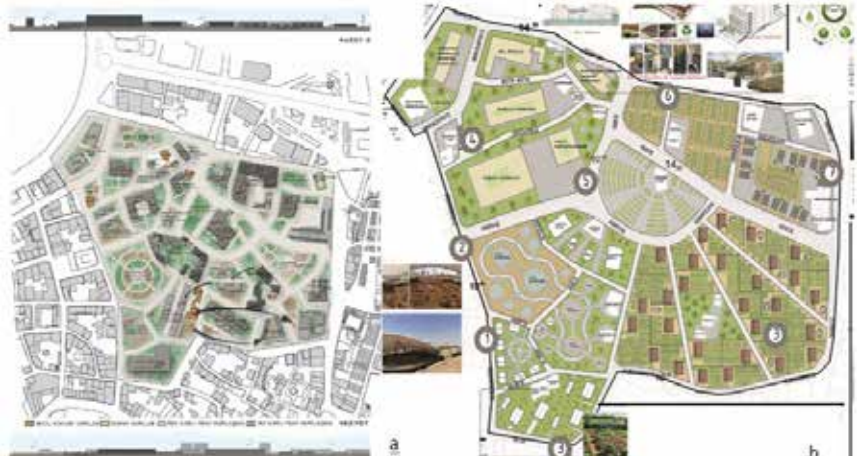

Figure 13: *Design proposals for sustainable development of case study area (Source: Prepared by fourth-year architecture students taking Sustainability & Historic Preservation Course in 2018/9 Spring Semester, at NEÜ).*

In another proposal, traditional residential character of the area has been preserved and the suggestions have been developed accordingly (Figure 13). Similar to the first proposal, integration of refugees is considered important and design strategies included their adaptation as well. In this proposal, a language school and support centre for the refugees, public training centre, health centre, life centre, public library, cafes, stores, open air archaeological park, women's club, permaculture farm, residential units with their own gardens, accommodation units for the tourists, open public

squares, education zones, and socio-cultural lots have been designed. Residential units are located on the south periphery of the research area, and are designed to have their own courtyards and rainwater collection systems. Existing historic buildings inside the residential lot are aimed to create a public square and resting area for the users. Archaeological excavation site has been protected and opened to the tourist and local community with suitable visiting platforms and routes. At the very centre of the research area a green belt has been created circumscribing the Kurkcu Masjid in the middle. Some of the existing historic houses have been refunctioned and new ones added to be used as accommodation units for the tourists. They are located around a farm, thus the guests are suggested to experience the organic garden while resting. Some other historic houses will be reconstructed at their original locations according to their restitution projects and will be used as language education and family counselling centre. The concept of "production at home" is considered an opportunity for the participation of women to economic life. Hence, public training centre and workshops, as well as small-scale stores are important places both for their social and economic development. Those portable/reversible stores will be located near to historic buildings and cafes, around which there is high level of user density. Streets will be paved in their original pattern, and will be installed with suitable urban furniture.

5. CONCLUSIONS:

Urban transformation is a multidimensional process applied in Turkey in many cities. In this process it is important to take into consideration of human, nature, place, as well as historic built environment. In this study, Şükran district in Konya, an area under urban transformation since 2015, has been chosen as the case study, to develop urban sustainability suggestions. First, its condition survey has been done including environmental analyses, and then according to the resultant data new project proposals have been developed by the fourth-year architecture students. Because the research area is now highly populated by Syrian refugees, the proposals included their integration and adaptation with the local community. Thus, it is aimed to transform the area again that can be used by the whole community, rather than being a "getto" zone. Social, economic, and ecological sustainability suggestions, and activities of the need program for the area have been integrated with each other, and at the same time remaining historic fabric has been either refunctioned or suggested to be used in their original function according to the program needs, and results of the analyses. It should be noted that, this study was just a preliminary first stage for a sustainable urban lot development, but could be used as a model for similar areas under urban transformation by taking into account of the needs of the case region.

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AESTHETIC AND FUNCTIONAL EVALUATION OF ORNAMENTAL PLANTS USED IN URBAN ROAD PLANTING DETERMINATION; ÇAYCUMA (ZONGULDAK)

CHAPTER 10

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INTRODUCTION

Open green areas are of great importance for the livability of the urban environment. The most important element of these open green areas is plants (Gülgün et al., 2014; Gülgün et al., 2015). Inadequate open green areas lead to an increase in irregular living spaces and deterioration of ecological balance within the city. Declining green areas threaten the future of cities (Yazici and Ünsal, 2019). In urban areas where industrialization and rapid urbanization are seen, different land uses create many changes in vegetation layout and structure (Eroğlu et al., 2005; Gülgün et al., 2016; Yazici and Gülgün, 2017).

In addition to the aesthetic and recreational uses of plants in parks, gardens and landscaping areas, passive usage of planting works in boulevards, streets, central medians and intersections also contribute to the urban landscape. The roads and squares afforested by the landscaping in the city and other green elements accompanying them, constitute the green areas of the city (Yılmaz and Aksoy, 2009).

Planting works on the roads forming the skeleton of cities and determining the direction of development should be examined and applied within the framework of urban planning. Streets and roads in developing cities connect various urban usage patterns and determine the direction of development of cities (Söğüt, 2005).

The arrangements to be made on the streets and roads should also respond to the aesthetic functions expected by the people living in the city. Trees and other plants on the roads serve the purpose of clarifying and directing the road in particular. It is also effective in determining the location with the perception of size. For pedestrians, plants are also important in areas of business, shopping and recreational use, as well as transportation (Aslanboğa, 1997; Yazici, 2017).

The fact that the quality of life increases in proportion to the open green spaces in the cities, shows that even a single tree in a city possess an undeniable value. It has been revealed in the studies that plant designs have many effects in terms of aesthetics, visual and functional aspects on people and spaces. Therefore, in order to manage green spaces, data and information related to plant material constituting urban open green spaces should be collected (Bilgili et al., 2012).

In this research, planting studies on six important streets in Çaycuma district of Zonguldak City in Western Black Sea region were examined. The aim of this study is to reveal the plant species used in the landscape arrangements in Çaycuma district of these six important streets and to determine the aesthetics and functionality in their use.

1. Some Landscape Architecture Criteria in Urban Road Plantation

In modern cities which care about the physical and ecological benefits of trees, road afforestation is examined within the framework of urban planning and new afforestation is implemented according to a system. On the one hand, efforts are made to protect the existing ones and improve the conditions of the habitat, while on the other hand, efforts are made to raise tree species that are less sensitive to the negative effects of the urban ecosystem on tree life. The basis of all these efforts is design, technical and aesthetic information as well as biological and ecological information (Aslanboğa 1986).

Plants play an effective role in the initial perception of a road space. Trees lined up sequentially on a particular route or a group of trees gathered at a road junction, different sets of trees formed at various intervals give a certain character to the road, while the perception of the road is pleasant to the people. The individual puts the road in a certain position in his mind thanks to the calmness, silence, sense of serenity that the green color awakens in the him, and the freshness it gives to his biological structure. However, a road surrounded only by building surfaces creates a negative effect in the first place in human beings and for a person whose initial perception is negative, that road can no longer attract attention (Seçkin, 2003).

Some criteria related to urban road planting activities can be listed as follows:

- Plantation work on the streets and roads should be an effective planning product aesthetically and functionally in accordance with the city and the expectation of the citizen, and future development goals should be taken into consideration as well as today (Ürgenç, 1998; Küçük, 2010).

- When selecting plant species, priority should be given to species in natural vegetation, and if necessary, other species that can develop under ecological conditions should be considered.

- Trees should not be planted on roads shorter than 5 meters, planting should be done with shrub species. In addition, trees should not be planted on medians with less than 4 meters in width, shrub species should be used in planting works. In middle medians with a width of 2 meters or less, not even shrubs should be planted. Because these plants are affected by the exhaust gases of the cars and dust. The distance to the pavement should be at least 1-1,5 meters and

the distance to the buildings should be 2,5 meters (Ürgenç, 1998; Küçük, 2002; Küçük, 2010).

- In junction arrangements, trees should be planted in such a way that traffic visibility is not obstructed by 23 meters in both directions. For traffic safety, trees planted along side streets and crossings should be planted at least 15 meters away in each direction. Planting distance between trees may vary between 6-15 meters depending on the species used, the light requirements of the surrounding structures, the width of the road and the intended use (Küçük, 2010).

- Especially, roadside and middle refuge plantings should also be selected from species resistant to traffic-induced dust and poison gases.

The plant species to be used in medium refuges should have the following characteristics:

- If the medium refuge is narrow, afforestation of single plant species should be avoided, and shrub and ground cover plants should be used. Species compatible with the plant species used on the roadside should be selected (Akdoğan, 1967; Altınçekiç and Altınçekiç, 1999).

- These plants should exhibit branching starting from the ground and a dense green texture. It should be able to grow rapidly, should not grow too long (2,5 – 3,0 meters is suitable), should not change its property as it gets older, should not be affected by exhaust gases, should be resistant to extreme conditions and should be able to maintain its effect in winter (always green or thin and frequently textured plant) (Koç and Şahin, 1999)

- It should have a body structure that does not break quickly or is too inflexible to prevent accidents.

- Air pollution caused by industrialization and distorted urbanization is a common problem of all plants and is an important factor in the selection of plant species in urban road works. Therefore, the selected species should be resistant to dust, toxic gases, diseases and pests.

- Medium refuge planting, in addition to shielding the effects of the headlighs, has the benefit of reducing and stopping the speed of vehicles out of control (Koç and Şahin, 1999; Altınçekiç and Altınçekiç, 1999; Küçük, 2010; Sakıcı et al., 2014).

- Species to be selected in urban road afforestation should be resistant to insects and fungi, wind, noise and salt. Species to be selected should have shade function, should not have excessive root and side branch growth and should be resistant to mechanical damage (impact, peeling, etc.).

2. MATERIAL AND METHOD

The city center of Çaycuma district of Zonguldak, which is selected as the research area and located in the north latitude of 41 ° 18 '- 41 ° 36' and longitude of 32 ° 12 ', is located in the Western Black Sea region. Çaycuma district, which has all shades of green, is located on the Filyos River and the valley formed by this river and is located to the east of Zonguldak city center.

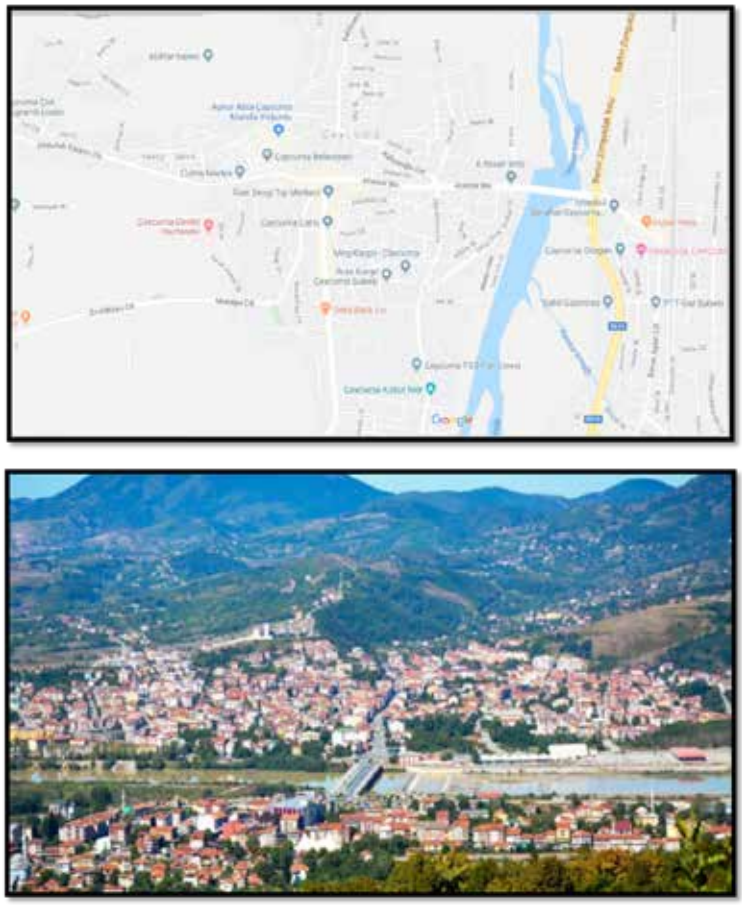


Figure 1. *Map and image of the study area*

This study was conducted in the main transportation arteries of (1) İstanbul street, (2) Oktay OlcayYurtbay Street (3) Yalı Street, (4) Uğur Mumcu Street, (5) Cihan Street and (6) Nihat Kantarcı Street of the Zonguldak City, Çaycuma district(Figure 1). The study was carried out by observation, analysis, synthesis method and the plants were identified in their locations and photographed as original, and these photos were given abundantly in the research. The middle median in Çaycuma district center, the roundabouts and sidewalks at the junctions in the middle median and the plants used in these centers were examined one by one and their species were determined. In addition, the lengths and pavement widths of the routes determined in the study were measured and planting studies in the designated areas were evaluated in accordance with the principles of landscape design. In light of the data obtained, the general characteristics of the trees and shrubs used are given in the tables that are formed for each route separately, and the results and recommendations are evaluated for plant selection.

3. FINDINGS AND DISCUSSION

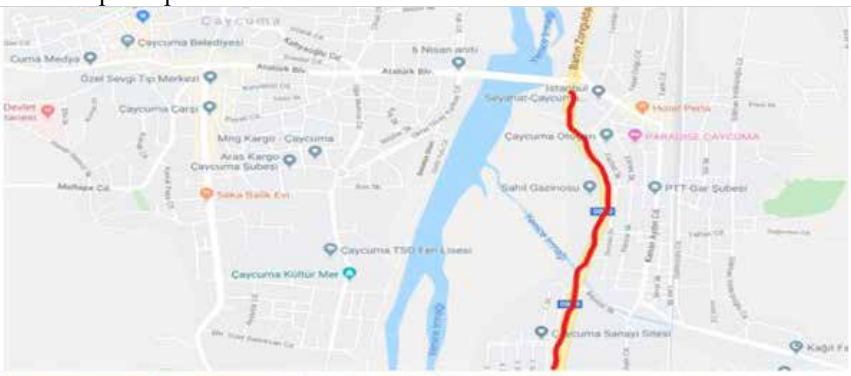
3.1 İstanbul Street

Istanbul Street forms the part of the D010 motorway that connects Bartın to Zonguldak from the Çaycuma bridge exit until the Perşembe junction (Organize Industrial Site junction). İstanbul street is approximately 2,5 km long and the lane width of the road is 8 meters and the middle refuge width is 4 meters. On the road where intercity transportation is provided, especially in the middle median near the intersection, intensive and various plant species have been used. In other parts of the median median, *Robinia pseudoacacia* 'Umbraculifera', *Nerium oleander*, *Cotoneaster dammeri*, *Berberis thunbergii* and *Juniperus horizontalis* were used in a continuous plant design principle. Intersections are emphasized with botanical design by considering colour, texture and form characteristics (Table 1).

Table 1. *The genus and species names of plants used in İstanbul Street and the route map and visuals of the route*

İstanbul Street		
Ornamental plants used in medium refuge		**Ornamental plants used at the junction**
Nerium oleander	*Tulipa gerneirana*	*Juniperus horizontalis*
Tagetes erecta	*Robinia pseudoacacia*'Umbraculifera'	*Thuja orientalis Aurea compacta*
Viola wittrockiana	*Cupressus macrocarpa 'Goldcrest'*	*Cupressus macrocarpa 'Goldcrest'*
Juniperus horizontalis	*Viburnum opulus*	*Viburnum opulus*
Rosa sp.	*Thuja occidentalis 'Smaragd'*	*Photinia serrulata*
Cupressocyparis leylandii	*Cotoneaster dammeri*	*Euonymus japonica*
Morus nigra'Pendula'	*Yucca flamentosa*	*Buxus sempervirens*
Picea pungens	*Salix babylonica*	*Ligustrum ovalifolium 'Variegatum'*
Phoenix canariensis	*Cedrus atlantica*	*Rosa sp.*
Chamaerops excels	*Berberis thunbergii*	*Tagetes erecta*
Prunus cerasifera	*Euonymus japonica*	*Viola wittrockiana*
Hibiscus syriacus	*Pyracantha coccinea*	
Lagerstroemia indica	*Cupressus arizonica*	

Route map and photos

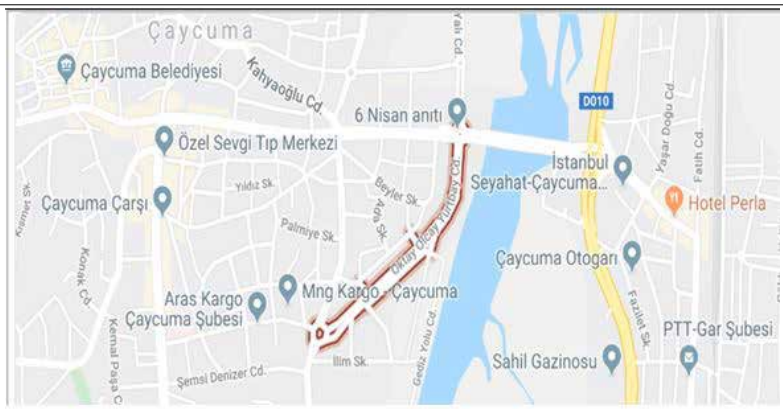


3.2 Oktay Olcay Yurtbay Street

Oktay Olcay Yurtbay Street is the route that connects Uğur Mumcu Street starting from the junction of 6 April Monument on Atatürk Boulevard to the 15 July Democracy junction. The street is 650 meters long and the medium refuge width is 2 meters. There are dwellings, schools and business centers along the street. *Nerium oleander* and *Robinia pseudoacacia* 'Umbraculifera' were used in the medium refuge with the redesign principle (Table 2).

Table 2. *The genus and species names of plants used in Oktay Olcay Yurtbay Street and the route map and visuals of the route*

Oktay Olcay Yurtbay Street	
Ornamental plants used on the roadside	Ornamental plants used in medium refuge
Catalpa bignonioides *Cupressus arizonica* *Cupressus sempevirens*L.	*Robinia pseudoacacia* 'Umbraculifera' *Nerium oleander*
Route map and photos	

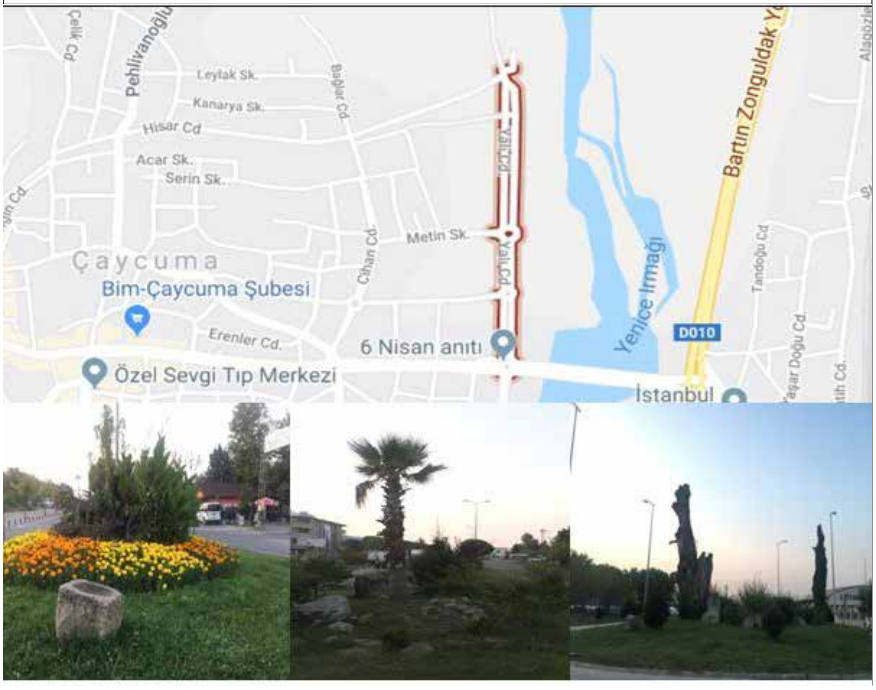


3.3 Yalı Street

Yalı Street includes the route that starts at the junction of 6 April Monument on Atatürk Boulevard and goes to Hisar Street. *Nerium oleander, Robinia pseudoacacia, Juniperus horizontalis*, *Chamaerops excels*, *Prunus cerasifera* were used in the medium refuge. Planting designs made by taking color, texture and form into consideration at the intersections attract attention (Table 3).

Table 3. *The genus and species names of plants used in Yalı Street and the route map and visuals of the route*

Yalı Street		
Ornamental plants used on the roadside	Ornamental plants used in medium refuge	Ornamental plants used at the junction
Platanus orientalis *Hibiscus syriacus* *Nerium oleander* *Cedrus deodora* *Cedrus atlantica* *Ligustrum vulgare*	*Chamaerops excels* *Prunus cerasifera* *Robinia pseudoacacia*'Umbraculifera' *Nerium oleander* *Juniperus horizontalis* *Hibiscus syriacus* *Cercis siliquastrum* *Berberis thunbergii* *Forsythia intermedia*	*Tagetes erecta* *Viola wittrockiana* *Hibiscus syriacus* *Canna indica* L. *Yucca flamentosa* *Berberis thunbergii* *Forsythia intermedia* *Picea abies* *Pyracantha coccinea* *Nerium oleander* *Cupressocyparis leylandii* *Cotoneaster dammeri*
Route map and photos		



3.4 Uğur Mumcu Street

Uğur Mumcu Street is a 1,3 km long street extending from the 15 July Democracy Junction to Martry İzzet Demircan Street. There are business centers and residences along the street route and bicycle paths are available on the curb side of the double lane road. In addition to botanical design, sculptures and objects representing the region were used in the junction and medium refuge. Planting along the street directs both drivers and pedestrians, while at the same time providing a safe and aesthetic walking environment. Plants used in plant design studies at intersections: *Hydrangea macrophylla, Nerium oleander, Cotoneaster dammeri, Buxus sempervirens, Forsythia intermedia, Salvia splendens, Canna indica, Thuja orientalis, Chamaerops excels, Cedrus libani, Cercis siliquastrum, Rosa* sp. , *Juniperus horizontalis, Prunus avium* 'pendula', *Cupressocyparis leylandii* 'Gold Rider', *Acer platanoides*, *Photinia serrulata, Cedrus deodora, Picea abies* (Table 4).

Table 4. *The genus and species names of plants used in Uğur Mumcu Street and the route map and visuals of the route*

Uğur Mumcu Street		
Ornamental plants used on the roadside	Ornamental plants used in medium refuge	Ornamental plants used at the junction
Robinia pseudoacacia'Umbraculifera'	*Morus nigra* "pendula"	*Hydrangea macrophylla*
Tillia domentosa	*Robinia pseudoacacia*'Umbraculifera'	*Thuja orientalis*
Pinus nigra	*Nerium oleander*	*Nerium oleander*
Platanus orientalis	*Thuja orientalis*	*Salvia splendens*
Cupressocyparis leylandii	*Rosa* sp.	*Cotoneaster dammeri*
Nerium oleander	*Cotoneaster dammeri*	*Cedrus libani*
Lagerstroemia indica	*Pyracantha coccinea*	*Buxus sempervirens*
Fraxsinus excelsior	*Ligustrum vulgare*	*Picea abies*
Prunus avium	*Pinus nigra*	*Forsythia intermedia*
	Cedrus atlantica	*Cedrus deodora*
		Canna indica L.
		Rosa sp.
		Chamaerops excels
		Photinia serrulata
		Cercis siliquastrum
		Acer platanoides
		Juniperus horizontalis
		Prunus avium 'pendula'
		Cupressocyparis leylandii 'Gold Rider'

Route map and photos


1.5 Cihan Street

It forms the part from Atatürk Boulevard to Hisar Street. Cihan Street is approximately 500 meters long, the lane width of the divided road is 3.35 meters and the medium refuge width is 6 meters. There are dwellings on both sides of the street. *Platanus orientalis* were used as a single row in the medium refuge and at intersections, plant species such as *Tagetes erecta*, *Viola wittrockiana*, *Hibiscus syriacus*, *Berberis thunbergii* and *Photinia serrulata* were used predominantly (Table 5).

Table 5. *The genus and species names of plants used in Cihan Street and the route map and visuals of the route*

Cihan Street		
Ornamental plants used on the roadside	Ornamental plants used in medium refuge	Ornamental plants used at the junction
Platanus orientalis	*Platanus orientalis* *Pyracantha coccinea*	*Tagetes erecta* *Viola wittrockiana* *Hibiscus syriacus* *Berberis thunbergii* *Photinia serrulata*

Route map and photos

3.6 Nihat Kantarcı Street

Nihat Kantarcı Street is about 1 km long and connects the district center to Atatürk Boulevard with a lane width of about 7 meters and a sidewalk width of 7 meters. Along the street are business centers, residences and government agencies. *Tagetes erecta*, *Tilia tomentosa* and *Lagerstroemia indica* were used in the medium refuge. There is Atatürk Park (3.300 m^2) which is one of the important green areas especially in the district center. *Pinus nigra, Magnolia grandiflora, Prunus cerasifera, Pyracantha coccinea* were used in the section of the park which is on the sidewalk (Table 6).

Table 6. *The genus and species names of plants used in Nihat Kantarcı Street and the route map and visuals of the route*

Nihat Kantarcı Street		
Ornamental plants used on the roadside	Ornamental plants used in medium refuge	Ornamental plants used at the junction
Robinia pseudoacacia'Umbraculifera' *Rosa* sp. *Buxus sempervirens* *Acer platanoides* L. *Yucca flamentosa* *Tillia domentosa* *Pittosporum tobira* 'Nana' *Euonymus japonica variegate* *Euonymus japonica silverking* *Euonymus japonica* *Cupressocyparis leylandii* *Chamaerops excels* *Ligustrum vulgare*	*Tagetes erecta* *Tilia tomentosa* *Lagerstroemia indica* *Ligustrum japonicum* *Euonymus japonica*	*Tagetes erecta* *Chamaerops excels* *Chamaerops washingtonia* *Hibiscus syriacus* *Pyracantha coccinea* *Juniperus horizontalis*
Route map and photos		

Table 7. *Suitability of the plants used in the study area for roadside, refuge and junction planting studies.*

Latin name for plant	Life form	Location	Shading	Visual screening	Windbreaker	Sound shielding	Environmental pollution and toxic gases resistance	Routing Traffic	Limitation	Disease and pest resistance
Platanus orientalis	A	Roadside	*		*	*			*	
Tillia domentosa	A	Roadside, Medium refuge	*		*	*				
Acer platanoides L.	A	Junction	*		*	*	*			
Cedrus deodora	A	Roadside, Junction	*	*	*	*	*		*	
Cedrus atlantica	A	Roadside			*		*		*	
Cedrus libani	A	Junction	*	*	*	*				
Catalpa bignonioides	A	Roadside	*	*	*		*			*
Cupressus arizonica	A	Roadside		*	*	*		*	*	
Nerium oleander	Ç	Medium refuge, Junction		*	*		*	*	*	
Juniperus horizontalis	Ç	Medium refuge, Junction					*		*	
Robinia pseudoacacia 'Umbraculifera'	A	Roadside Medium refuge	*				*		*	*
Salix babylonica	A	Medium refuge	*	*	*			*		
Euonymus japonica	Ç	Roadside Medium refuge Junction		*		*		*	*	
Yucca filamentosa	K	Roadside Medium refuge, Junction		*				*	*	
Fraxsinus excelsior	A	Roadside	*	*	*	*	*			
Hibiscus syriacus	a, Ç	Roadside Medium refuge, Junction		*	*		*			
Pyracantha coccinea	Ç	Medium refuge, Junction		*	*	*	*	*	*	
Magnolia grandiflora	A	Roadside	*	*	*	*	*			

Prunus cerasifera	A	Roadside, Medium refuge		*					*	
Cupressocyparis leylandii	A	Roadside, Medium refuge	*	*	*	*	*	*	*	*
Ligustrum japonicum	Ç	Medium refuge	*	*	*	*		*	*	
Pittosporum tobira 'Nana'	Ç	Roadside					*	*	*	
Cercis siliquastrum	A	Medium refuge, Junction	*	*	*	*			*	*
Rosa sp.	Ç	Roadside, Medium refuge, Junction		*				*	*	
Tagetes erecta	M.Ç	Medium refuge, Junction						*	*	
Viola wittrockiana	M.Ç	Medium refuge, Junction						*	*	
Salvia splendens	M.Ç	Medium refuge, Junction						*		
Lagerstroemia indica	A	Medium refuge		*			*			
Chamaerops sp.	A	Medium refuge, Junction					*			
Morus nigra "pendula"	A	Medium refuge					*			
Hydrangea macrophylla	a, Ç	Junction								*
Photinia serrulata	a	Junction							*	
Viburnum opulus	Ç	Junction		*	*				*	
Berberis thunbergii	Ç	Medium refuge, Junction					*	*	*	
Forsythia intermedia	Ç	Medium refuge, Junction		*				*	*	
Canna indica L.	M.Ç	Junction		*				*	*	
Thuja orientalis	a, Ç	Junction		*	*				*	
Cotoneaster dammeri	Ç	Medium refuge, Junction						*	*	
Buxus sempervirens	Ç	Roadside Junction					*	*	*	

A: Tree a: Small Tree Ç: Shrub K: Cactus M.Ç: Seasonal Flower

CONCLUSION AND SUGGESTIONS

Ornamental plants are used in urban road planting for many functional reasons such as shading, closing bad images and enclosing, as well as the positive effect they create on human psychology with their visual (aesthetic) features like colorful flowers, leaves and fruits, and also their nice smell. In order to make Çaycuma district in the Western Black Sea region more green, healthy and livable, it is important to vegetate urban roads. In this study, planting works carried out in seven main road routes of Çaycuma City were evaluated in terms of aesthetic and functional aspects and the plant species used were determined.

One of the most important elements reflecting the development of cities and the quality of human life is the open-green spaces. According to the data of 2017, total amount of green areas such as passages and intersections, which are considered as passive green areas within the existing green area of Çaycuma district of Zonguldak city, is stated as 14.299 m^2 (Akça and Yazici, 2017).

When we pay attention to the choice of plant species used in the study area, it is understood that both aesthetic and functional concerns are taken into consideration. A variety of plants such as *Rosa* sp., *Tilia tomentosa*, *Lagerstroemia indica, Purunus* sp. were used for their smell and texture and aesthetic appearance. In addition, in order not to obstruct the views of the drivers, especially at the intersection and in the medians; either stunted, not too high, horizontally developing (*Pitosporum tobira, Cupressus arizonica, Buxus sempervirens*, various seasonal flowers, etc.) or lengthened but not too full or sparsely textured (*Yucca flamentosa, Cedrus atlantica, Platanus orientalis*, etc.) plant types are used. In addition, the use of plants such as oleander, which is capable of absorbing harmful gases in the air, is also a remarkable conscious choice.

Therefore, it is noteworthy that road planting works have been taken care of in the city which is rich in plant type and variety. However, it should not be ignored that all such studies carried out by local governments should be planned, implemented and sustained in accordance with scientific and technical criteria and vegetative designs on urban roads. In this context, natural species appropriate to the region should be preferred in the selection of plant species considering the aesthetic and functional characteristics as well as ecological requirements.

In refuge and intersection plantings, trees should not be planted on roads shorter than 5 meters according to the landscape architecture plant design criteria and planting should be done with bush species. In addition, trees should not be planted on medium refuge of less than 4 meters in

width, shrub species should be applied during planting. In addition, in medium refuge with a width of less than 2 meters, even the bush group plants should not be planted. When these criteria were taken into consideration, it was a wrong practice to plant trees even though the medium refuge area of Oktay Olcay Yurtbay and Nihat Kantarcı streets was narrow. Because the root structures of trees planted in such a narrow area will be negatively affected. As a result of this, it will be very difficult for the plant to develop. It can even not develop at all or unfortunately, die.

Morphological and physiological characteristics should be taken into consideration in urban vegetation design and especially in the selection of road trees. Species to be selected in urban vegetation design studies should be resistant to wind, noise, insects and salt. In addition, the species to be selected must have shade providing functions and be resistant to mechanical damage.

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