

Architectural Sciences and Spatial Planning

November - 2022

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PREFACE

DEAR SCIENTISTS

The platform, which was established under the initiative and leadership of Prof. Dr. Atila GÜL with the motto of "Common Platform Where Spatial Planning and Design, Building, Landscape and Construction Meets", has been organized since 2021 (1st and 2nd International Symposium on Architectural Sciences and Applications 2021/2022), the books he edited (Architectural Sciences and Sustainability and Architectural Sciences and Conservation), and the Journal of Architectural Sciences and Applications, which left its 7th year behind, are excited to add a new one to these academic studies that he brought to the scientific life.

In 2022, Architectural Sciences and Applications Platform is proud to publish 6 more edited books. One of these books has the title of Architectural Sciences and Spatial Planning and has been edited by the undersigned below. Of course, the contribution and support of scientists and authors, especially in the academic sense, is of great importance in bringing this book to academic life.

The achievements of the Journal of Architectural Sciences and Applications (JASA/MBUD), which has been built on the focus of interdisciplinary and multi-disciplinary studies brought to the academic portfolio of Architectural Sciences (design and planning disciplines) and has been continuing for 7 years, started in 2021 and continued with increasing momentum this year. It created a driving and encouraging force in preparing the edited books called JASA/MBUD. All these formations and steps are scenarios put forward for the purpose of bringing them to the academic publication life by being evaluated as a proactive step towards eliminating the deficiency in the literature.

This year, in 2022, the book, which includes 10 book chapters, was published in English with 361 pages. The prepared book will be

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delivered to you in both e-book and printed form (for a fee). The book was published by İKSAD Publishing House and we share with you the information conveyed to us by the publishing house (indexes scanned, having contents and competencies covering academic applications/Associate Professor Application Criteria and Academic Incentive Applications).

We wish to continue this process that we have started in the coming years, and we will ensure the continuity of the books with successive numbers. We are proud to have reached these numbers with the contributions and supports from you.

First of all, I would like to thank the Reviewer Committee, Architectural Sciences and Applications Academic Platform, who contributed greatly to the publication of both books, and İKSAD Publishing House and its responsables who successfully followed the process. Many thanks to Sibel AKTEN, Lecturer, who has meticulously dealt with all the details of the book and has taken care of the book's success from the editorial processes to the referee processes with great determination and stability....

The biggest thank you deserves you, the authors of the book chapter. Thank you for sharing the quality and valuable works you have prepared with us.

November 15, 2022

EDITORS

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Architectural Sciences and Spatial Planning

November 15, 2022
ISBN: 978-625-8213-85-0

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Architectural Sciences and Spatial Planning

November 15, 2022
ISBN: 978-625-8213-85-0

CONTENTS	Pages
CHAPTER-1	1-62
Processes of Outdoor Recreational Strategic Management Planning Atila GÜL	
CHAPTER-2	63-81
The Importance of Sports Recreational Areas in University Campuses Mevlüt GÜNAYDIN- Ertan DÜZGÜNEŞ- Öner DEMİREL Tuba Gizem AYDOĞAN	
CHAPTER-3	82-101
Spatio-Temporal Change of Land Surface Temperature Distribution in Istanbul, Türkiye Hakan OĞUZ	
CHAPTER-4	102-125
Fire Safety in The Cities Kübra DEMİR- Ümit ARPACIOĞLU	
CHAPTER-5	126-162
Investigation of Urban Sprawl in Isparta in the Case of Çünür Neighborhood Damla BALCI- Murat AKTEN	
CHAPTER-6	163-207
Evaluation of Visitor Impact Regulations With A Participatory Approach Within The Scope of National Park Long-Term Development Plans Öner DEMİREL- Meryem Bihter BİNGÜL BULUT Ertan DÜZGÜNEŞ	

Architectural Sciences and Spatial Planning

November 15, 2022
ISBN: 978-625-8213-85-0

CHAPTER-7	208-267
------------------	----------------

**The Pre-Pottery Neolithic Age Land Use Layout of
the Euphrates River Basin:
Three Akarçay Tepe Plaques**
Şirin Gülcen EREN

CHAPTER-8	268-281
------------------	----------------

**Installation Art as a Landscape Element in Public
Open Spaces**
Pınar GÜLTÜRK DOĞRUYOL

CHAPTER-9	282-334
------------------	----------------

**Privatization of Public Parcels and Lands:
The Turkish Case**
Şirin Gülcen EREN

CHAPTER-10	335-360
-------------------	----------------

Forerunner Architects in Earthen Architecture
Evrin SOLHAN- Ümit ARPACIOĞLU

Processes of Outdoor Recreational Strategic Management Planning

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1. Introduction

In parallel with the developments in social, economic, cultural, environmental, technological, and political dimensions in modern society, the concepts of recreation, open and green spaces, and free/leisure time continue to be current and play an important role in human life (Gül et al., 2004; Gül, Örucü & Karaca, 2006; Gül et al., 2016). It is accepted that factors such as the increase in urbanization trend, the gradual development of transportation/accessibility opportunities, climate change, the global epidemic (Covid-19), and the increase in the use of digital technology cause the change and diversification of recreational demands and trends.

In addition, unhealthy, uncontrolled, and rapid urbanization and the inadequacy of existing green open spaces and recreation facilities in urban areas have caused many citizens to spend their time in natural and rural areas rather than cities (Gül & Gezer, 2004).

Recreation is a universal and vital need for the individual and society. It is seen that he has been engaged in recreational activities in every period of human history. The need for recreation has positive benefits in terms of physical, intellectual, and mental aspects that recreational activities provide individually and socially. In addition, factors such as socialization, creativity, development of personal skills and abilities, social solidarity/integration, effect on work success and work efficiency, economic mobility, and making people happy are also effective.

Recreational activities and trends are directly related to lifestyles. New developments and changes in daily life lead to the differentiation of people's lifestyles. With the developing technology, it can save time by doing things faster, and this situation creates free time. However, developments in digital technology, communication, or transportation also lead people to lead an inactive (sedentary) and virtual lifestyle. It is accepted that this situation contradicts recreational purposes.

Recreation is the whole of the actions that include active and passive activities, which are done in free time outside the compulsory life activities of the person, do not aim to win any prize, provide physical, intellectual, and mental renewal and development, and are performed as a result of an inner impulse of the person.

Outdoor recreation refers to activities that people undertake out of doors in places where they can access nature or green areas, mainly as part of their daily or weekend routines (Bell et al., 2007).

Recreation approaches aim to provide different contributions to the individual/society such as meeting needs, free/leisure time, adding value, and regeneration. At the same time, participation in recreational activities may vary to the level of satisfaction of individuals, as well as with the effect of some factors specific to individuals or societies. In terms of recreational areas, possible demands and trends, activity preferences, diversity and intensities, and duration of use can vary greatly. Recreational activities are directly related to Maslow's Pyramid of Needs approach. The Pyramid of Needs, from bottom to top, is in order; original physiological demands, protection, belonging

and socialization, respect, status, and proving yourself (Maslow, 1943).

Besides providing recreation, rest, and entertainment opportunities, there are also negative environmental effects such as soil compaction, loss of organic matter, damage or loss of vegetation, damage to fauna and water resources, loss of area, and pollution (Leung & Marion, 2000; Uzun et al., 2013; Gül & Akten, 2005; Akten et al., 2012; Kurt Konakoğlu & Kurdoğlu, 2020).

According to Gold (1980), recreation planning is a method based on the use of information, which provides resource allocation for the association of space, time, and society with each other to meet the free and leisure needs of society today and in the future.

Recreation planning is a process that includes methods that can establish a relationship between people's free or leisure time (demand and needs) and recreation resources (supply).

It can be defined as determining the current potential of the land in question for recreation and making land use decisions that can bring together multiple uses that will ensure optimum utilization of this land, especially without disturbing the ecological balance.

Recreation includes a holistic planning/design and management/governance organization. It requires holistic management planning in which recreational activities are defined in action and processes for various purposes compatible with recreational resource values are included.

There are many deficiencies in the recreation planning process in natural areas, include are ecological policies (ecopolitics) are not at the forefront, resource values are not prioritized for protection, carrying capacity is not foreseen, decisions are not taken for visitor management, there is no participation at every stage of the process, the demands and tendencies of the area users/visitors and local people are not taken into account, not defining cooperation with stakeholders such as NGOs, not foreseeing awareness and educational actions for protection, lack of design projects, etc. (Gül, 2005; Akten & Gül, 2014).

In this study, an approach to outdoor recreation management planning/design processes has been proposed by examining the concepts of recreation and leisure and the methods and tools used in recreation planning. The proposed methodology of planning is a description, explanation, and justification of the methods or techniques that planners or managers should use to prepare outdoor recreation development plans.

2. Conceptual Framework

2.1. Recreation Concept

The concept of recreation comes from the Latin word "recreatio". It means the re-creation or acquisition of something, which is associated with the English words "re-repeat" and "create". Today, recreation is generally used to mean regaining freshness or vitality. The person engages in various activities for this purpose. Activities that do not contribute to the individual in terms of rest, enjoyment, and entertainment are not considered recreation (Koç, 1991). There are many different definitions of recreation. The most accepted definitions are shown in Table 1.

Table 1. Definitions of Recreation

References	Definitions of Recreation
Tanrıverdi (1975)	It is all the activities of gaining spiritual and physical vitality by doing and watching activities that connect the person to life, relaxing and pleasurable in places where the natural beauties meet to eliminate the fatigue caused by the activities of people and similar works.
Akesen (1978)	It is an action or action that is satisfying in terms of the taste of individuals, aiming at spiritual and physical regeneration, and also includes the individual's social, cultural, economic, and physiological opportunities and dependent leisure use.
Gold (1980)	It is all leisure time activities that people evaluate in line with their demands.
Smith (1983)	It is thousands of different phenomena that provide different satisfactions in different locations, each of which different participants demand the use of different resources.
Edginton & Ford (1985)	It is a social institution in the modern sense, a collection of information, and a professional field of study. Recreation; It is a tool for a full and happy life independent of work, valuable in itself, meeting many important needs of the person. With this approach, recreation can most commonly be defined as activities in that people voluntarily participate in their spare time and provide personal satisfaction.
Koç (1991)	It is the whole of activities done in free time, formed as a result of the individual's own will and inner impulse, aiming to renew the individual physically and intellectually, and made dependent

	on the individual's social, economic, and cultural opportunities.
Yurtseven (1992)	It is all the activities of gaining spiritual and physical vitality by performing and observing activities that bind the person to live in places where nature is present, to eliminate the intensity and stress resulting from daily activities, duties, and similar works.
Akesen (1996)	Recreation is all action in and associated with leisure, which includes free stillness, which means action or preplanned inactivity.
Karaküçük (1997)	Recreation is the whole of activities performed voluntarily, individually or in groups, in independent and unconnected free time, to regain, protect or maintain the physical and mental health of people and to get pleasure.
Anderson (1998)	They are activities that respond to the spiritual expectations and demands of individuals, enable these individuals to develop, and are carried out freely in people's free time without pressure and coercion.
Kraus (1998)	It is the activities that make people get away from the work environment and the stress of their daily life or the activities that make people happy in their free time.
Broadhurst (2001)	Recreation is an activity that includes physical, emotional, social, and cognitive parts that people participate in their free time.
Tütüncü (2012)	It is a field of study that includes multi-disciplinary activities that people do voluntarily in their free and spare time, without being exposed to any coercion, to improve their quality of life without harming nature.
Koçyiğit & Yıldız (2014)	It is the activities they want to get close to people, gain the initiative, suitable for their self and enjoy doing, in short, they do entertainment to renew and develop, and they do in their spare time, apart from the activities they are responsible for, in line with their desires.
Hazar (2014)	They are the activities that individuals participate in fully willingly and achieve satisfaction in the period other than the behaviors they are obligated to do.

The American Camping Association (ACA) defined recreation as an experience that provides creative and educational opportunities to group life outdoors and stated that natural environmental resources contribute to the mental, physical, social and spiritual development of the user (Kurum, 1992).

According to Allen & McCool (1982), the model shows the relationships between participation in outdoor recreation activities and

safe ecological behavior, an individual's environmental ethics can be improved by participating in central outdoor recreation activities, which leads to more reliable environmental behavior of people. Thus, they can increasingly become aware of the sensitivity of the environment, and the effects of themselves and other people on the environment, and take action individually to reduce these effects on the environment (Burr, 1992).

The concept of "recreation" can be defined in general as follows, using many definitions.

“Recreation is the sum of all actions including active or passive activities as individually & in groups that are done in free/leisure time, outside of the compulsory life activities of the human being, any award and non-profit, providing to the person with physical, intellectual/mental renewal and development by self-made.

The main purpose of recreation is to relax, have fun, improve oneself, be happy and integrate with life.

2.2. Basic Features of Recreation

The main features of the recreation can be summarized as follows (Tezcan, 1982; Günışık, 1963; Jenny, 1956; Pamay, 1979; Küçüktopuzlu, 1987; Sağcan, 1986; Koç, 1991; Gülez, 1989; Koç & Şahin, 1999; Karaküçük, 1999; Edginton et al., 2018).

- Recreation is a necessity,
- There is no coercion, the person participates in the activity voluntarily and as a result of the internal push,

- Volunteering is essential. It should not be done by external pressures, legal rules, or coercion,
- The "initiative" in recreational activities should be left to the person himself,
- Recreational activities can be applied in all kinds of open or closed areas and all seasons and climatic conditions,
- Recreation includes or requires an activity. This mobility covers a wide range of activities including physical, mental, social, and emotional,
- Recreation has instructive, educational, entertaining, relaxing, and regenerative features,
- Entertainment is an invariable outcome of recreation, but it is not an end in itself for recreation,
- Recreation may differ from person to person and profession, as well as from time and place,
- It allows people of all ages and genders to participate in activities,
- Recreation, while doing an activity, allows being interested or performing in the second or more activities,
- Participation in recreation depends on personal satisfaction and perception of the activity,
- Recreation should be by the traditions, customs, and moral/spiritual values of the society and should not contradict social values,

- Recreation action, planned or unplanned, can be done with skilled or unskilled people, or in organized or unorganized places,
- It can be carried out by individuals or groups for a short time or continuously, in a certain period or continuously,
- Gains experience,
- Increases social assistance and solidarity,
- Reinforces the harmony of humans with nature,
- Recreation increases people's creative power, desire for life, and workforce,
- It has a psychological aspect, reduces fear,
- Recreation is an activity that provides pleasure and joy,
- Non-monetary or non-profit,
- Develops international relations, etc.

Factors affecting recreational needs and tendencies:

- The effects of population growth and population-related changes on the recreation pattern,
- Changing living standards and increasing standards,
- Increasing transportation and accessibility opportunities (Mobility),
- Decreasing working hours and increasing free time,
- Increasing the level of education,
- Rapid urbanization and gradual alienation from the natural environment,

- Insufficient urban open and green spaces and increasing demand,
- It is the emergence of changes in recreational behavior and desires,
- Increasing visual and print media, advertising and promotion activities,
- Development of digital technology,
- With the widespread use of the Internet and social media,
- An increase in the level of financial situation,
- National and local tourism policies and practices gaining importance, etc.

2.3. Free Time and Leisure Time Concepts

The concepts of free time or leisure time are the parts of time that are excluded from the time spent by individuals for working and other compulsory activities (e.g. sleeping, eating, etc.).

Free time or leisure time has three basic functions in general. These; are rest, entertainment, and self-development/development functions. In their free time, people want to forget their daily troubles and troubles and rest, if possible, to have some fun. The issue to be considered here is; It is generally stated that recreational activities are done in free time, but activities performed in every spare time will not be recreation (Güleç, 1989).

Recreation activities constitute certain forms of use, especially in the spare period. Leisure time, on the other hand, refers to the period used especially during work and sleep time. There is a certain difference

between free time and leisure time. Leisure time reflects a “direction”, while free time includes a potential “open to the direction”.

The concept of free time can be grouped as follows, within the principles adopted in recreational planning (Bayraktar, 1972).

- a. Daily free time
 - Free time during the active period of the day, which includes work,
 - Free time during the passive part of the day (free time after work),
- b. Weekly free time,
- c. Annual free time (Irregular holidays such as public and religious holidays and free time including annual holidays).

Some values or consequences emerge from the good or bad uses of free/leisure time. Free/ leisure time, when it can be used appropriately, provides people with opportunities to rest, have fun, train themselves, develop themselves, be creative, socialize, mature, develop their vision and knowledge, experience their responsibility, and freedom, and find themselves. When used poorly, it can cause harmful habits, stagnation, laziness, carelessness, selfishness, disorder, lack of thought, boredom, unhappiness, and others. After all, free or leisure time can be likened to a double-edged sword.

2.4. Recreation Classification Types

- Structural classification: “indoor and outdoor”
- Territorial classification: “urban and rural (natural)”
- Contextual classification: “active and passive”

- Temporal classification: daily and holiday (“weekly” and “yearly”)
- Resource classification: "user-oriented recreation areas and resource-based recreation areas".

2.5. Recreation Activities

The concept of activity is the actions of people for specific purposes (e.g. cultural, social, entertainment, educational, scientific, health, political, etc.). Recreational activities are the activities in which individuals participate in open or closed areas, individually or collectively, of their own will, in their free or leisure time, for entertainment, rest, satisfaction, discovery, and pleasure, etc.

Recreational activities are classified in many ways. Simple fun, mental (intellectual) activities, sporting events, music and dance events, picture events, hobby activities, educational events, relaxing activities, social events, artistic events, scientific events, humanitarian services, outdoor activities, and political events.

Recreational activities are the most important component of free/leisure time or recreational activities in human life. For this reason, organizing the activities in the most ideal way is the most important issue for the recreation areas and the planning process.

3. Outdoor Recreation Planning and Design

The planning approach is a systematic organizational process that includes the realization of the goals/objectives to be achieved in the future from the current situation of an area or subject, with the help of time and tools.

The plan, on the other hand, expresses an operational result in which the spatial, social, and economic processes that the current situation will take in the future are defined and constructed. In other words, it is a result of the planning process (Koçel, 2003).

Planning is the taking of decisions to be developed to reach the determined goals in a system where mutual relations exist between them (Suher, 1996). Planning is a decision-making process. The elements constituting this process are intelligibility, applicability, public participation, mutual learning, responsibility, and ownership, representing interdisciplinary work and communication (Eagles et al., 2003).

Planning is the most important process of providing the necessary opportunities for people to evaluate their free time in terms of recreational activities. Recreation planning is a process that includes methods that can establish a relationship between people's free or leisure time (demand and needs) and recreation resources (supply).

It can be defined as determining the current potential of the land in question for recreation and making land use decisions that can bring together multiple uses that will ensure optimum utilization of this land, especially without disturbing the ecological balance. According to Gold (1980), recreation planning is a method based on the use of information, which provides resource allocation for the association of space, time, and society with each other to meet the free and leisure needs of society today and in the future. Recreation planning is

considered to be the whole of the work done to meet the recreational demands in a continuous and balanced way.

Recreation planning can also be considered a mixture of spatial and social planning with its general dimensions. The recreation planning process is conceptually expressed as a holistic process of studies carried out to determine the demands/needs of people for making use of their free/leisure time and to meet them continuously and in a balanced way without harming recreation resources. Recreation planning is not a static process, but a dynamic and variable process. They represent processes that complement and follow each other that provide this dynamism.

The main purpose of recreational planning is the development of physical plans and programs that will serve to establish the most appropriate and long-term balance between recreational resources and the recreational needs of people. In this context, it is to improve the quality of life of the individual and society, to provide a healthy, enjoyable, safe, meaning to life, and to create a livable environment suitable for the public interest.

There are two basic criteria to be considered in recreation planning. One is the recreational resource (supply) that tries to meet the recreational demand within the limits of its possibilities. The other is the individual and society that has various qualities and quantities and makes recreational demands and needs. Recreation planning approaches generally aim to realize recreational activities according to

demands and needs or anticipate recreational activities compatible with natural and cultural resources.

Individual values and demands are very important in recreation planning. However, to protect and develop natural and cultural resource values in the best way, public values and benefits should be prioritized. The recreation planning process concerns many disciplines such as landscape architecture, building architecture, geography, tourism professionals, public administration, sociology, forestry, recreation management, and others. Both the concept of recreation and the planning of recreation make teamwork obligatory because it is complex and covers many different disciplines.

For this purpose, in the first step of planning, limited existing or potential resources and continuous user demands and trends should be determined in detail. On the other hand, predicting the long-term dimensions of user demands with the determined resources and reflecting them in the plan-program goals is an important condition for reaching the targets.

Major tasks of recreational planning/design (developed from Gold, 1980).

- Informing the decision makers on this issue by determining the existing or expected free/leisure time opportunities qualitatively and quantitatively,
- Improvement and development of free/leisure use in urban living environments,

- Ensuring the use of the free/leisure opportunities of the society at the optimum distance, diversity, and in the best environment,
- Protection and development of all kinds of recreational resources in a way that will provide the highest and best recreational benefits,
- Integration of recreation planning with other related types of planning,
- Associating recreation areas and activities between planning and design scales, integrating and ensuring continuity,
- Making official institutions effective in recreation and recreation planning,
- Evaluation of the effects of recreational development existing or designed in the public and private sectors,
- To support and encourage public-private sector cooperation in the provision and evaluation of leisure time opportunities in city centers or rural areas,
- Making existing or designed recreational opportunities and services realistic,
- To encourage scientific research and practices in this field to improve recreation opportunities and services.

Recreation planning is a phenomenon that needs to be addressed at the national, regional, macro and micro-catchment, urban, rural, and site scales (between 1/1000000 and 1/1000 scales). It is a series of future-oriented, order-building, and optimal decisions that will reveal versatile use by associating resource values with its users aesthetically

and functionally. Recreation design, on the other hand, includes application-oriented design projects (between 1/500-1/100 scales) and detailing (between 1/50-1/1 scales) made at the scale of micro-areas, sites, and objects within the framework of planning and afterward.

4. Methods and Tools Used in Outdoor Recreation Planning

Different methods and tools for recreation planning have been developed and used extensively in Canada and the USA. Much of the conceptual theory used in tourism and recreation planning originates from the “*Products Analysis Sequence for Outdoor Leisure Procedure*” (PASOLP) developed in the 1970s (Baud Bovy & Lawson, 1977). PASOLP is a progressive process that has five main steps:

- Surveys and analysis of the factors
- Definition of alternative products
- Recommendation of the needs and priorities for tourism and recreation development
- Preparation of plans for the tourism and recreation sectors
- Implementation of the development

Kiemstedt (1967) aimed to gradually determine the recreational suitability of various landscape areas with the "Value of Diversity" (V-Wert) method. The first formalized (repeatable) method for transparently and intersubjectively assessing the diversity of the landscape was developed by Kiemstedt in 1967. The method followed a multicriteria benefit analysis approach. In this method, the

recreational suitability of the planning area was determined according to the existing characteristics of the area. These are soil, water structure (e.g. water edges), weather (climate), vegetation (forest edges, use in terms of forestry, etc.), and agricultural land use (e.g. field, meadow-pasture, etc.). The criteria for these five groups of activities are grouped under 4 headings. These are; the quantity of forest and water edges (m/km^2), relief energy (height difference), quality and quantity of agricultural land uses, and climate factors. With these criterion values, the "Value of Diversity" for recreational suitability can be calculated for each coordinate area over a formula (Gülez, 1996; Demircioğlu, 2010).

Suitability Method: In the suitability method developed by Wedeck, data on soil, water, and vegetation characteristics are collected to determine the uses of settlement, recreation, agriculture, and waste areas to adjust the balance of protection and use of environmental effects, and the qualities determined for each criterion is evaluated as suitable or unsuitable (Köseoğlu, 1982).

Ecological Ceiling Method: In this method developed by Golany, the data are scored according to the criteria under the main classes determined as physical, environmental, socio-economic, and transportation criteria and the scores are marked on the map. Then, the suitability of the area is determined by evaluating the highest scores and alternative areas entered into the cells (Demircioğlu, 2010).

Many data sources and planning tools can be used for applying science in The National Environmental Policy Act (NEPA)

assessments. These tools were designed to be used in planning at various scales and many seek to integrate both social science and biophysical information. It organized recreation planning tools into three types: planning frameworks, analytic applications, and visitor data (McCool et al., 2007). NEPA focused on frameworks used for wildland recreation planning in the U.S. that approximate the steps of the traditional rational planning process (i.e., define the problem, identify goals and objectives, develop and analyze alternatives, select the preferred alternative, implement and monitor the plan) (Cerveny et al., 2011). There are different methods and tools for recreation planning in Table 2. (Cerveny et al., 2011).

Table 2. Different Methods and Tools for Recreation Planning (Cervený et al., 2011)

Name of methods or tools	Definition	Steps of the Process	Strengths and Weaknesses:
The Recreation Opportunity Spectrum (ROS)	<p>ROS was developed in the 1970s by Forest Service scientists and managers to address growing recreation use and to integrate visitor experience information with recreation site attributes (Clark & Stankey 1979; McCool et al., 2007). The development of ROS was based on empirical research on recreation visitors and their site preferences and usage. ROS was also the conceptual precursor to LAC, VERP, and VIM. The ROS process utilizes social, biological, and managerial characteristics to produce a map of opportunity zones ranging from low-use-primitive to high-use-urban type recreational settings (McCool et al., 2007; More & Ddver, 2005).</p> <p>ROS is not a planning framework, because it does not include the systematic development and analysis of alternatives. Recent research shows that ROS has been applied primarily as a descriptive inventory assessment (Stankey, 1999).</p> <p>ROS is used by field managers, landscape architects, city planners, etc. for the planning process to reveal the recreation potential in open areas and to increase the recreational diversity over the existing potential. It is a tool</p>	<p>Steps of the Process of ROS (Nilsen & Tayler, 1997).</p> <ol style="list-style-type: none">1. Inventory and map the three setting perspectives that affect the experience of the recreational, namely the physical, social, and managerial components.2. Complete analysis:<ol style="list-style-type: none">a) identify setting inconsistencies;b) define recreation opportunity classes;c) integrate with forest management activities; andd) identify conflicts and recommend mitigation.3. Schedule.4. Design.5. Execute projects.6. Monitor.	<p>Strengths: It is a practical process with principles that force managers to rationalize management from three perspectives:</p> <ul style="list-style-type: none">• protection of the resource;• opportunities for public use; and• the organization’s ability to meet preset conditions. <p>It links supply with demand and can be readily integrated with other processes. It ensures that a range of recreation opportunities are provided to the public.</p> <p>Weaknesses: The recreation opportunity spectrum, its setting indicators, and their criteria must be accepted in total by managers before any options or decisions can be made. Disagreement will affect the rest of the planning program. ROS maps need to be related to the physical and biophysical characteristics of each area (Nilsen & Tayler, 1997).</p>

	that includes behavioral elements developed for ROS considers the recreational activities demanded by the recreational users and the physical, social, and administrative situation of the area, and divides the recreation areas into six different classes from urban to primitive.		
Limits of Accessible Change) (LAC)	<p>of LAC was developed by the Forest Service in the 1980s in response to requests to establish recreation-carrying capacities in wilderness areas (McCool & Cole 1997; Nilsen & Tayler 1997). LAC involves identifying recreation opportunities and desired resource and social conditions for a particular area and evaluating the effects of the change to those conditions. The steps of the LAC process have been used to inform a wide variety of planning efforts, including the development of VERP and VIM (McCool et al., 2007).</p>	<p>Steps of recreation planning frameworks of LAC (Nilsen & Tayler, 1997; Cervený et al., 2011).</p> <ul style="list-style-type: none">• Identify area issues and concerns• Define and describe wilderness recreation opportunity classes• Select indicators of biophysical and social conditions• Inventory existing biophysical and social conditions• Specify standards for biophysical and social conditions in each opportunity• Identify alternative opportunity class allocations reflecting area-wide issues and concerns and existing biophysical and social conditions• Identify management actions for each alternative• Evaluate and select a preferred alternative• Implement actions and monitor	<p>Strengths: The final product is a strategic and tactical plan for the area based on defined limits of acceptable change for each opportunity class, with indicators of change that can be used to monitor ecological and social conditions.</p> <p>Weaknesses: The process focuses on issues and concerns that guide subsequent data collection and analysis. Strategic and tactical direction may not be provided on management topics where there are no current issues or concerns (Nilsen & Tayler, 1997).</p>

conditions		
Visitor Experience and Resource Protection (VERP)	<p>VERP was developed by the National Park Service (NPS) in the mid-1990s primarily for recreation planning in national parks, though it has been applied in other settings. The framework includes an explicit step for public involvement.</p>	<p>Steps of recreation planning frameworks of VERP (Nilsen & Tayler, 1997; Cervený et al., 2011).</p> <ul style="list-style-type: none">• Assemble an interdisciplinary project team.• Develop a public involvement strategy.• Develop statements of park purpose, significance, and primary interpretive themes; identity planning mandates and constraints.• Analyze park resources and existing visitor use.• Describe a potential range of visitor experiences and resource• conditions (potential prescriptive zones).• Allocate the potential zones to specific locations within the park (prescriptive management zoning).• Select indicators and specify standards for each zone; develop a monitoring plan.• Monitor resource and social indicators.• Take management actions

Strengths: Like VAMP, VERP is a thought process that draws on the talents of a team and is guided by policy and the park's purpose statement. It guides resource analysis through the use of statements of significance and sensitivity, and visitor opportunity analysis is guided by statements defining important elements of the visitor experience. Zoning is the focus of management.

Weaknesses: Additional work is required to pilot the approach in different environments. "Experience" is not defined and the indicators for it are absent beyond the examples for Arches National Park. The will and ability to monitor sufficiently to provide information to guide management actions must also be tested (Nilsen & Tayler, 1997).

**Management
Process for Visitor
Activities (VAMP)**

Created by Parks Canada as a companion process to the Natural Resources Management Process within the Parks Canada Management Planning System. The process guides the planning and management of new parks, developing parks, and established parks (Nilsen & Tayler, 1997).

The general steps of the management plan process are: (Nilsen & Tayler, 1997).

1. Produce project terms of reference.
2. Confirm existing park purpose and objectives statements.
3. Organize a database describing park ecosystems and settings, potential visitor educational and recreational opportunities, existing visitor activities and services, and the regional context.
4. Analyse the existing situation to identify heritage themes, resource capability, and suitability, appropriate visitor activities, the park's role in the region, and the role of the private sector.
5. Produce alternative visitor activity concepts for these settings, experiences to be supported, visitor market segments, levels of service guidelines, and roles of the region and the private sector.
6. Create a park management plan, including the park's

Strengths: Comprehensive decision-making process based on a hierarchy. It benefits from the structured thinking required to analyze both opportunity and impact. It combines social science principles with those of marketing to focus on visitor opportunities.

Weaknesses: Although well-developed at the service planning level, VAMP does not yet have the clout it should have at the management planning level, mainly because the “opportunities for experience” definition has not been built into management plans or the zoning (Nilsen & Tayler, 1997).

			<p>purpose and role, management objectives and guidelines, regional relationships, and the role of the private sector.</p> <p>7. Implementation—set priorities for park conservation and park service planning.</p>
Visitor Impact Management (VIM)	<p>VIM was developed in the early 1990s for the NPS by scientists at the University of Maryland. This approach emphasizes three factors related to visitor impacts: problem conditions, causal factors, and management strategies (Nilsen & Tayler 1997). VIM focuses more heavily on the impacts or problems of visitor use, rather than on recreation opportunities and benefits (McCool et al., 2007).</p>	<p>Steps of recreation planning frameworks of VIM (Nilsen & Tayler, 1997; Cervený et al., 2011).</p> <ul style="list-style-type: none">• Conduct pre-assessment and database review• Review Management objectives• Select key indicators• Select standards for key impact indicators• Compare standards and existing conditions• Identify probable causes of impacts• Identify management strategies• Implement	<p>Strengths: The process provides for a balanced use of scientific and judgemental considerations. It places heavy emphasis on understanding causal factors to identify management strategies. The process also provides a classification of management strategies and a matrix for evaluating them.</p> <p>Weaknesses: The process does not make use of ROS, although it could. It is written to address current conditions of impact, rather than to assess potential impacts. (Nilsen & Tayler, 1997).</p>
Recreation Carrying Capacity (RCC)	<p>RCC was a concept first used in natural resources management referring to the limits of growth that an area can achieve due to environmental factors (Shelby & Heberlein, 1986). The concept was applied to the recreation management of parks as early as the 1930s when officials asked how many people</p>	<p>Carrying capacity planning deals with 6 stages (Lim, 1998).</p> <ul style="list-style-type: none">• Defining the carrying capacity• Determining the type of tourism (use)• Listing of targets• Determination of criteria affecting	<p>Researchers have shown that the issue of carrying capacity is essentially a qualitative concept and that it is very difficult to measure (Tokmak, 2008). According to Saveriades (2000), carrying capacity is not a scientific concept</p>

	<p>could coexist in a wilderness area before the wilderness quality is destroyed (Manning, 1999). In the 1970s, recreation scientists began using the concept to determine levels of the appropriate use of a park, wilderness, or other management area. Recreation Carrying Capacity (RCC) typically involves defining recreation opportunities, establishing indicators and standards of quality to be maintained, and monitoring these indicators for change (Nilsen & Tayler, 1997).</p>	<p>capacity</p> <ul style="list-style-type: none">• Determination of usage levels or thresholds. <p>Demonstrating the carrying capacity</p>	<p>or formula used to obtain a numerical expression that indicates the point of termination of development, but it is not a fixed / unchangeable concept as it develops with time and growth. The method to be chosen in capacity determination studies can generally vary depending on the type and nature of the information aimed to be obtained for capacity.</p>
<p>The Scenery Management System (SMS)</p>	<p>SMS was developed in the mid-1990s to integrate different 'visual resource management systems that were being used by the Forest Service and BLM (More & Driver, 2005; USFS, 1996). These applications were developed by landscape architects to map the scenic quality and sensitivity of natural landscapes so that the visual preferences of the public would be included in agency planning activities and management decisions.</p>		<p>SMS is a tool that contributes to and provides opportunities for the integration of biological, physical, and socio-cultural resources in the field of recreation with visual aesthetics at the planning stage (USDA, 1995).</p> <p>In addition to recreational opportunities, this tool has a structure that affects both the quality of the landscape (visual aesthetics) and the opportunities available during the experience of the users in the area.</p>
<p>Benefits-Based Management (BBM)</p>	<p>BBM was developed with a similar zoning approach as ROS, but rather than focusing on recreation opportunities provided by settings, it identifies potential beneficial outcomes (social, physical, and psychological) of leisure</p>		

	participation (McCool et al., 2007; More & Driver, 2005). In other words, ROS is a tool for analyzing the supply of recreation opportunities; BBM is a conceptual tool to help analyze the need or demand side of outdoor recreation.	
Place-Based Planning (PBP)	PBP starts from a different assumption than ROS, SMS, or BBM. Rather than planning primarily for instrumental outcomes, this approach seeks to understand the symbolic and emotional meanings and attachments people have to geographic places (Williams et al., 1992). Place meanings are often not substitutable (Eisenhauer et al., 2000; Kruger & Williams, 2007).	Place-based planning approaches and BBM (outcomes-focused management) are both new, and the mechanisms for turning these applications into integrative planning frameworks have not been fully developed.
The Gap Analysis Tool For Outdoor (GATOR)	GATOR is one of the tools that enable analytical analysis. However, it is a method in which not only analytical data but also demographic data for users are integrated. GATOR provides an easy method to continuously monitor for gaps in service. GATOR reveals which facility or area should be used more or less with the determination of unused areas and the demographic information of recreation users changing over time (Chamberlain, 2014).	The GATOR tool allows the production of interactive maps, where many stakeholders and local people can be consulted or informed continuously. Thus, inter-institutional coordination is ensured and discussions about future decisions can be followed up-to-date thanks to this transparent mechanism.

Gülez Method (1990): It is a method for evaluating the recreational potential of forest areas. In this method, the recreational potential of the area is determined as a percentage as a result of the sum of the scores obtained from the main factors such as landscape value, climate value, accessibility, recreational convenience, and negative factors (Gülez, 1990; Gülez, 1992).

According to Uzun & Altunkasa (1991), the recreation planning process consists of 6 main phases that complement each other.

1. Recreational resource (supply) inventory,
2. Detailing the recreational demands and requirements of the users,
3. Detailing the dimensions of recreational supply and demand in the long run,
4. Producing recreational planning alternatives,
5. Creation of recreational plans and programs,
6. Implementation of plans and programs; organization, management, and maintenance.

Steiner (2008), pointed out that the sociocultural and biophysical structure is important in determining the most appropriate land use in the ecologic planning process. In this direction, he developed a model with ten basic stages for ecological planning. These stages are:

- 1- Identification of problems and opportunities
- 2- Determination of planning goals
- 3- Performing landscape analysis
- 4- Performing detailed studies

- 5- Determination of planning preferences and options
- 6- Creating the landscape plan
- 7- Public participation and education
- 8- Creating detailed designs
- 9- Implementation of plan and design
- 10- Management

According to Torkildsen (2012), recreation planning is a dynamic and variable process and includes ten stages that complement and follow each other.

1. Determination of goals, objectives, and policies,
2. Evaluation of available activities and services,
3. Scope assessment,
4. Evaluation of potential demand,
5. Determining the shortcomings and surpluses in the supply-demand relationship,
6. Identifying and evaluating resources,
7. Determination of management approaches; (methods to be followed in activities such as purchasing, procurement, personnel management, resource management, concessions, and partnerships)
8. Strategy development,
9. Creating an action plan,
10. Monitoring and evaluation.

All of the frameworks follow the steps of standard rational planning: terms of reference, database development, situation analysis, synthesis, objectives, alternatives, final plan, and implementation.

Each approach, therefore, recognizes, in varying degrees, a hierarchy of decisions that need to be made, ranging from inventory and analysis to the development of a management concept (strategic decisions), and subsequently, implementation and operations (tactical decisions) (Nilsen & Tayler, 1997).

All the approaches include (Nilsen & Tayler, 1997).

- Interdisciplinary planning teams,
- A focus on the management of human-induced change,
- A need for sound natural science and social science information,
- Formal and informal data gathered over time,
- The establishment of clear, measurable management objectives,
- The definition of recreation opportunity settings as a “combination of biological, social and managerial conditions that give value to a place” (Clark & Stankey, 1990: 127),
- The hierarchy of demand and the link between activities, settings, experiences, and benefits (Driver & Brown, 1978),
- Recognition that “there is no single, predictable environmental or behavioral response to recreation use” (Graefe, 1990: 214),
- Recognition that “most impacts do not exhibit a direct linear relationship with user density,” and a variety of situational factors must be considered (Graefe, 1990: 214),
- Recognition that it is important to provide a diversity of recreation and educational opportunities,

- A focus on elements of the recreation setting, because these are the components of the recreation opportunity that managers can readily influence,
- A range of direct and indirect management strategies (Graefe et al., 1990), in particular, zoning or landscape classification along a spectrum,
- Ongoing monitoring and evaluation.

5. Outdoor Recreation Strategic Management Planning (ORSMP) Approach and Processes

McCool et al. (2007) describe a planning 'framework' as a "process that involves a sequence of steps that leads managers and planners to explicate the particular issue. The planning process is an organized sequence of steps requiring conscious and continuous action.

Strategic plan: It is defined as a plan that includes the medium and long-term goals, basic principles and policies, targets and priorities, performance criteria of public administrations, the methods to be followed to achieve them, and resource allocations (Kamu Mali Yönetimi ve Kontrol Kanunu, 2003).

Outdoor Recreation Strategic Management Planning (ORSMP) is an organizational process includes that tools, principles, and methods to be used in line with the foreseen management goals and objectives, determination and development of recreational activities (e.g. types of activities, activity sites, recreational areas, facilities, etc.), creation of optimal (ideal) decision options, operational (design process) and managerial decisions, practices, risk, monitoring, and control mechanisms, etc.

The logical framework of ORSMP represents a cyclical process where 6W+2H questions are answered and linked Figure 1.

Outdoor Recreation Strategic Management Planning (ORSMP)
Logical Framework

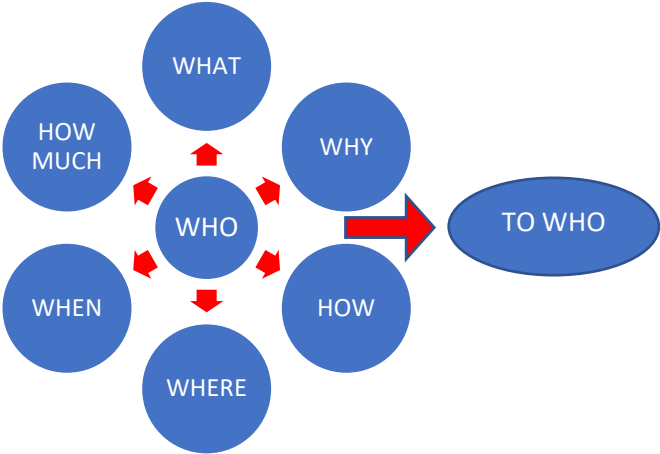


Figure 1. The Logical Framework of ORSMP

Planning of outdoor recreation areas requires the development and use of methods and tools according to natural and cultural resource values (recreation supply).

In this context, meeting the recreational demand, defining suitable structures, facilities, and activities, and improving the quality of recreation should be foreseen according to the objectives determined following the opportunities offered by the recreational supply and the physical capacity it will carry in the outdoor recreation planning process.

In this study, a holistic and participatory recreational management plan model has been proposed for the supply-based determination of recreational opportunities in Outdoor Recreation Strategic Management Planning (ORSMP). The Outdoor Recreation Strategic Management Planning Process was envisaged in 7 stages.

Stage 1: Formation of the Planning Team

The planning team is responsible for acquiring, analyzing, and interpreting all kinds of data at all stages of management planning, making decisions regarding implementation and management processes, determining activities, and coordinating and cooperating with stakeholders. The planning team should have the skills and competence in facilitating, organizing, leading, analyzing and problem solving, creative, negotiation, etc., as well as being an expert in their field. The planning team is also responsible for being well organized and designed to maximize stakeholder engagement.

According to the management purpose and characteristics of the recreation area, permanent, temporary, and supportive participants or stakeholders are determined, and responsibilities and task definitions are made. List of relevant stakeholders that can be involved in the planning team;

- Relevant stakeholders that can be involved in the planning team,
- Managers and technical experts of government institutions and organizations,
- Spatial planning and design disciplines (Landscape Architect, City Planner, Building Architect, etc.),
- Other related professional disciplines (tourism management, recreation specialist, biologist, ecologist, forest engineering, archaeologist, agricultural engineering, geographer, economist,

fisheries engineering, geologist, sociologist, economist, tourist guide, etc.),

- Recreation and tourism managers,
- Local people,
- Representatives of Non-Governmental Organizations (NGOs),
- Foundation representatives,
- Visitors and tourists (domestic and foreign),
- Tourism agencies and guides,
- Tourism and recreation investors and companies,
- Students,
- Other stakeholder representatives vb.

Stage 2. Resource Inventory and Survey

Resource Inventory, in all spatial studies; is a process that includes collecting natural and cultural resource data of the area, creating a database, determining the current situation, revealing how it is, conducting research and examination, classifying, associating, analyzing, evaluating, interpreting, linear, textual and figural visualization.

Source inventory data is obtained inside the recreation area and outside the area that can be directly related to the area. Relevant data are provided and correlated, taking into account not only the recreation area itself but also the society and environment surrounding the recreation area.

There is a need for all current and potential data to be obtained in the field to be up-to-date and reliable and to be systematically evaluated.

The use of incomplete and outdated data adversely affects the healthy and accurate planning and decision-making process. All obtained data is digitized, stored, and analyzed in a GIS environment.

Inventory studies for the recreation area include office and survey (field) works.

Office and data supply studies: First of all, the recreation area and the literature on the subject are searched and filed and used as a base for inventory studies. All existing written and visual data about the area are collected. A digital base sheet (Status sheet) and maps are created. The point, linear and spatial data are processed. Data is systematically classified, filed, stored, a database created, etc.

Survey studies: It is a process carried out to obtain data by researching, observing, and examining the source data of the area in the field and/or controlling and revising the data obtained in the office work (tree or structure survey, survey studies, field examinations, and observations, etc.) (Table 3. and Table 4.).

Table 3. Recreational Natural Resource (supply) Inventory

Data	Sub data
Climate	Precipitation, temperature, humidity, wind, snow, baking, sunbathing time, etc
Soil, geology, and mineral values	Soil type, depth, organic matter ratio, bedrock, large soil groups and types, earthquake fault lines, underground and surface mines and quarry areas, etc.
Topographic, slope, and erosion conditions	Creation of contour base, altitude classes, slope classes, erosion classes, etc.
Hydrology and water resources,	Sea, wet-dry stream, stream, lake, fountain, Geothermal, drainage status, aquaculture, etc.
Vegetation inventory	Forests, trees, maquis, medicinal and aromatic plants, agricultural plants, pasture plants, etc.
Wildlife	common species endangered species, susceptible species, endemic species, etc
Biodiversity	Species diversity, genetic diversity, ecosystem diversity,

		process diversity, endangered species, susceptible species, endemic species, etc.
Natural landscape values	visual	Vista points, geological monuments, monument trees, etc.

Table 4. Recreational Cultural Resource Inventory

Data	Sub data
Social and Historical Data	History of the area, local identity, traditions, customs, handicrafts, gastronomy, customs, existing historical and archaeological values, recreational structures and objects, stakeholder demands and trends, demographic structure, education, and health data, tourism data (number of tourists, number of agencies, number of tourist guides, etc.), etc.
Spatial Data	Existing land use and land classification, residential areas and development plan, local architecture inventory, property and cadastre status, open and green space systems, transportation and accessibility, infrastructure systems (electricity, sewerage, internet, water network, natural gas. etc), legally protected areas/objects, agricultural structures and facilities, tourism and recreational facilities, buildings and objects, landscape landmark values, environmental problems, etc.
Economic, Legal, and Political Data	Livelihoods, income status, business production potential, marketing and employment status, sectoral products/services and economic dimension of the area, tourism economy (accommodation facilities, bed capacity, tourism income, touristic product production, and marketing, etc.), energy production-distribution and storage, finance, fund and credit facilities, the number and function of cooperatives, the number and function of NGOs, their relationship with the current legislation, international agreements, top plan decisions for the field, approaches of decision-makers and politicians, possible investment program decisions of institutions and organizations in the field, project cost and implementation cost, finance, and budget possibilities, etc.

User/Visitor/Stakeholder Recreational Demand and Needs Inventory and SWOT process

Methods such as surveys, interviews, interviews, etc. are applied to determine the demands and tendencies of users/visitors/stakeholders for recreational area use and activities.

In addition, to determine the current situation for the area is determined by the user/visitor/stakeholders with the SWOT technique (internal factors: strengths and weaknesses, external factors: opportunities and threats).

Stage 3: Analysis and Evaluation

Considering all inventory data, analyzes are made and correlated by the purpose. Textual and numerical interpretations are made from the data and decision options are created by obtaining new findings. Natural source data analyzes are given in Table 5.

Natural Source Data Analysis

Table 5. Natural Source Data Analysis

Data	Sub Data
Climatic data analysis	Insolation status, duration and angle, shading rate, annual precipitation, intensity and temperature, min. and max. and average temperatures, cloudiness density, frost condition and duration, prevailing wind direction, relative humidity, aspect analysis, bio comfort compatibility analysis, etc.
Topography, soil, and bedrock data analysis	Slope analysis, erosion status and analysis, elevation analysis, land morphology, surface drainage analysis, interesting geological objects and areas, earthquake analysis, soil structure, depth (0-30 cm, 30-60 cm, 60 <), its structure, texture, organic matter ratio, physical and chemical structure, pH ratio, bedrock type, surface stony condition, soil salt ratio, etc.
Water resources data analysis	Detection of water resource types in the area (well, fountain, artesian city water, etc.) and its capacity, level, physical and chemical content of the existing water resource and analysis of natural water resources (sea, lake, dam, seasonal and annual use of water resources), determination of swamps and areas with high groundwater, drainage, and hydrological analysis, etc.
Natural vegetation data analysis	Area and inland natural plant species and their densities, endemic status, biodiversity status, endangered and risky species, and their distribution, monumental trees and their features, forest fire risk, etc.
Biodiversity data analysis	Natural animal and plant species and their distribution in and around the area, endemic status and distribution,

			endangered/risky species and their distribution, biological diversity status and density, wild animal migration routes and stopover points, etc.
Natural analysis	visual	landscape	Vista points analysis, geological monuments, monument trees analysis, precision landscape analysis, etc

Cultural Source Data Analysis: Cultural source data analyzes are given in Table 6.

Table 6. Cultural Source Data Analysis

Data		Sub Data
Socio-cultural analysis	data	Demographic analysis, local identity values and image relationship analysis, tourism data analysis, analysis of tourism/recreation facilities and objects, analysis of historical and archaeological values, areas with protection status (historical, archaeological, and registered structures and objects) analysis, cultural heritage values analysis, education and health data analysis, stakeholder demand and trends analysis, etc.
Spatial data analysis		Location of the study area, legal and physical boundaries, total amount of project area (building area and landscape area, etc.), current development plan relationship and analysis, building density-space analysis, structure-functionality analysis, existing recreational building and building coordinates and its dimensions, island and parcel information, transport and accessibility data analysis (transport types, vehicle, pedestrian and bicycle paths, transport focal points, road widths, road material type, available parking lots, public transport stops, etc.), property status and functionality analysis, architectural texture, analysis of registered buildings for protection, analysis of open and green area systems in and around the area (green area types, amount of green area per capita, tree survey, old trees, urban equipment and furniture analysis, etc.), landmark points analysis , visual analysis with photographs, analysis of existing problems and negativities (noise, pollution, etc.) in and around the area, existing water resources (well, artesian, city water sleep) analysis, analysis of existing and possible infrastructure and superstructure systems (electricity, sewerage, natural gas, etc.), etc.
Economic and political data analysis		Current and potential financial analysis of the area, income status, production and consumption relationship, tourism sector and sub-sector analysis, tourism economic analysis, relationship and analysis of current legal and legislation, relationship to top plan decisions for the area, project cost, and application budget possibilities analysis, etc.
SWOT analysis		Strengths and weaknesses, threats, and opportunities are predicted with SWOT analysis, all inventory data, and surveys to

	stakeholders. With the Likert scoring technique, each of them is ranked in order of importance. Strategic actions are defined with the current situation analysis as a result of the SWOT matrix association.
Pressure and threat analysis	Current pressures and potential threats to natural and cultural resource values within the area are determined by inventory data and stakeholder views. Reflecting on strategic planning decisions, necessary improvements and measures are suggested.

Determination of Recreation Activities and Activity Location Selection Analysis

Recreational activities are determined by analyzing the area according to recreational goals and objectives, resource values, and stakeholder demands and trends. To determine the appropriate location selection for each of the recreational activities, the most suitable places are determined by using multi-criteria analysis methods (e.g. suitability or threshold analyses) in GIS according to the activity type. Each activity is designed as spatial, point, and linear (routine) and reflected in strategic management plans.

Stage 4: Determination of Recreational Site-Specific Goals And Objectives

As a result of inventory data, SWOT, and threat/pressure analyses, future field-specific goals/objectives are defined and detailed. The goals/objectives and tools should be systematic, realistic, measurable, applicable, consistent, adaptable, cost-effective, and acceptable to stakeholders. A goal is an objective to which the planned activities can be directed. Goals should imply commitment and reflect careful study, as they define recommendations for action and the entire course of the planning effort. Tools are ways to achieve ends. In any chain of goals

(where each goal is a means to achieve higher-level goals), a goal would be an end in the chain viewed from below and a means viewed from above. Goals should be evaluated to make it easier to choose between different goals. Each tool in a given goal chain should be evaluated in terms of how it affects progress towards the highest end goal in that chain in light of available land, labor, capital, and management resources and accepted constraints. Structuring a priority ranking requires a clear understanding of the ultimate ends that goal chains serve and of the relative value assigned to the ultimate end (Uleck, 1971).

Stage 5: Site-Specific Protection and Recreational Use Zoning

According to SWOT and survey results, protection and recreational use zones in the area are determined and defined by multi-criteria analysis methods (e.g., suitability or threshold analyses).

Program options are created, associated, and developed as a result of field analysis of facilities, buildings, and activities envisaged in the designated recreational areas. Zoning forms the core of recreation management planning. The main purpose of zoning is to develop a common vision among all stakeholders to resolve conflicts over actions for conservation and recreational uses. What will happen in the field is defined formally (project) and textually.

Three basic zonings can be developed in recreation sites.

- a. Zoning for Recreational Use:** It is a zone open to recreational activities and uses. There will be buildings, facilities, and equipment that will meet all kinds of needs of the

visitors (e.g., daily activities, accommodation, eating, drinking, WC, maintenance, and repair). According to the planning purposes, needs, and site characteristics, many sub-regions can be established in the same area.

b. Protection Zone: It is the zone where natural (biodiversity, plants, wild animals, geomorphological shapes, etc.) and cultural (archaeological, ethnographic, local and authentic architecture, mythological values, etc.) resource values are taken under protection as areal or object/species. Depending on the resource values, it may be closed to any use or limited use (for example, nature-based ecotourism activities or archaeological sites open to visitors only) may be allowed.

c. Buffer Zone (Transition zone): It is the transition zone from the protection zone to the recreational use zone or from the recreational zone to the protection zone. The main purpose of the buffer zone is to protect the natural and cultural resource values in the protection zone against the effects and effects caused by recreational use. Likewise, it can be established to prevent recreational resources and visitors from being adversely affected from outside the area.

In the planning site, zoning should be foreseen to ensure the integrity and applicability of recreational use (recreational structure, facilities, activities, etc.) compatible with natural and cultural resource values,

- Zones with common features and problems should be defined in line with the foreseen goals/objectives,

- Plan decisions/actions should be developed separately for the defined zoning,
- Plan decisions/actions should be applicable, flexible, and sustainable,
- An effective administrative organization should be established.

Stage 6: Synthesis and Decisions

Outdoor Recreational Strategic Management Planning (ORSMP) and Decisions

For ORSMP, recreational use-protection zones and sub-zones are created as a result of all analyzes (e.g., natural and cultural inventory analysis, SWOT and threat/pressure analysis, activity and site selection suitability analysis, etc.). Strategic decisions and policies (e.g., goals/objectives, actions/activities, stakeholder responsibilities, schedule, activity types, action programs, recreational facilities/structures, budget, governance organization, etc.) are made, defined, and detailed for the entire area and each zone/subzone.

A holistic and fragmented design concept is developed for the recreational site. For this purpose, a digital map of the area is produced and all spatial data are processed. Holistic concept approaches are developed in terms of usage and protection zones, transportation, architectural structures/facilities, landscape spatial arrangement approaches, activity types and locations, infrastructure systems, spatial capacities, etc., according to the determined purposes and decisions.

At the same time, it is shown in the concept plan and reported on a scale of 1/25000 or 1/10000 or 1/5000, or 1/1000 according to the size of the Site.

The developed holistic concept plan is evaluated by the relevant and authorized institutions, other stakeholders, and the project team, necessary revisions are made, and the final concept plan is decided and approved. The next design, implementation, and governance processes are shaped in line with the finalized concept plan.

Action Program for Recreational Activities

In line with the approved final concept plan, a spatial, point, and linear (routine) action program is defined for each recreational activity. Rules and principles are determined by the project team for each activity (For example, where, how, when it will be done, carrying capacity, responsibilities, cost, monitoring, governance, etc.).

The Action Program should include;

- Architectural building/facility projects and landscape design projects are prepared for each activity and the facilities in question at the point and spatial scales. The architectural building project consists of a situation sheet (1/500), building sheets (1/100 or 1/50 scales), and a project technical report. The landscape design project consists of a situation sheet (1/500 or 1/200), structural and plantation application sheets (1/200 or 1/100), detail sheets (between 1/50 and 1/1), and a project technical report.

- Recreational activities are associated with the governance organization.
- Ecological and social risk analysis is made for each activity, facility, and service.
- The visitor carrying capacity is calculated for the area and each activity. Methods for monitoring the visitor effect are determined. The framework of monitoring is determined.
- Activities are associated and integrated according to general legal and management plan decisions and policies.
- Responsible Institutions and relevant stakeholders (such as tour operators, academicians, visitors/users, local governments, and local people) are determined by the limits and scope of their responsibilities.
- Scientific, educational and promotional activities are foreseen in the field and necessary equipment and materials are determined.
- The framework of cooperation between all stakeholders (e.g., Travel agencies/tour operators and non-governmental organizations, and local people) is prepared.
- The short and long-term management and implementation costs of the activities are estimated. Priorities are determined with the time and budget calendar for implementation.
- Methods and procedures for cost-benefit analysis are defined. Not only tangible values are included, but also intangible (satisfaction and satisfaction level, etc.) values.

- Income-generating activities that will not contradict the target/objectives of the area are determined.
- Strategies for field-specific product development and marketing are created.
- Written and visual materials are prepared for the promotion of the area.
- Programs are created for the maintenance, repair, and improvement of problem areas.
- Methods and processes are defined for activity monitoring and control.
- Recreational activities should have a budget and accordingly income targets and expense limits.

Recreation Area Governance Organization

The governance organization is the holistic organization of the authorities and responsibilities, standards, values, rules, practices, and processes for the protection and use of the recreational area according to the specific conditions of the recreational area by the authorized institution. The governance organization approach includes the principles of transparency, fairness, responsibility, broad-based participation, unity, systematic, sustainability, reliability, and accountability. For an effective and competent governance organization;

- A multi-layered and broad governance structure should be established. Relevant departments and services should be established, and roles and responsibilities defined.

- Managers and technical and administrative personnel are defined in terms of quality and quantity.
- The tools, equipment, and equipment to be used are defined.
- The organizational chart should be associated with the current legislation and institutional structure.
- Cooperation and coordination between management and stakeholders should be ensured.
- An “Advisory Board” should be established for the decision-making and implementation process.
- Organization management should be consistent with plan objectives and policies.
- It should take advantage of technological opportunities.
- Annual and 5-year work and activity programs and budgets should be defined.
- Performance evaluation should be done every 3 years.
- Financial resources should be determined to develop resource conservation and recreational use options.

Recreational Visitor Management (RVM)

Recreation Visitor management (RVM) is used to evaluate environmental, social, and managerial conditions and take measures for resource and visitor management.

RVM is a roadmap where standards, indicators, measures, capacities, decisions, and principles are defined for the identification, association, analysis, and solution of adverse effects or problems resulting from recreational uses.

In this context, standards and rules are defined for attitudes and behaviors towards general visitors, monitoring, and control processes within the framework of strategic management plan decisions and action programs foreseen for recreation areas and activities.

Stage 7: Institutional Approval, Management, and Implementation

The **ORSMP** is updated and finalized by the authorized institution in consultation with the relevant stakeholders within the framework of its procedure. It is accepted and approved by the authorized institution and the implementation process is started.

After the ORSMP is approved, the governance organization chart is created by the relevant institution, and the plan decisions and projects are put into practice. All administrative work and services such as personnel, vehicles, tools, equipment, budget, design project preparation and implementation processes, work and activity programs, monitoring, control and inspection, maintenance, repair and renewal, cooperation with stakeholders, and logistics are carried out by field managers and personnel. Annual reports are prepared. Performance evaluations are made.

Stage 8: Feedback, Feedforward Revision (Re-planning)

Feedback is a process that includes reviewing, future-oriented modification, correction, and feed-forward revision of plan decisions and actions made by planners and managers based on their past experiences. Feedback can come from the planner himself, the local community, political decision-makers, and other stakeholders. Re-planning is a process that makes the whole planning process

continuous and dynamic. It includes the revision of planning as a result of the change of plan decisions and values over time according to social, economic, environmental, and spatial conditions.

In this context, management planning is restarted with a cyclical process. Thus, the plan decisions, actions, and activities are reviewed by the relevant stakeholders in consultation with the current conditions, and the planning process is completed. In general, it is recommended that management plans be reviewed and replanned at least every 10 years.

6. Conclusion and Suggestions

Today, demand and trends for outdoor recreation areas increase and diversify due to sociodemographic, economic, environmental, and technological changes. The need for new areas to meet the recreational demands and needs brings with it a direct competition with other land use sectors (agriculture, settlement, industry, mining, etc.). For this reason, it requires the organization of effective, sustainable, and holistic planning and management processes to prioritize them for recreational purposes within the framework of land use competition.

The recreation planning approach can be considered as a combination of interdisciplinary science, art, and social branches that can be associated with recreation spaces and activities that the individual and society can evaluate their free/leisure time in public and private spaces. In this context, the decision-making process in recreation planning (e.g., use of space, site selection of activity areas, design and

positioning of recreational facilities and structures, meeting recreational demands and needs) should be prioritized by taking into account the protection of resource values and public benefits.

Although there are many approaches and tools for planning outdoor recreation areas, there is no consensus on an ideal planning approach yet.

NEPA has identified the strengths and weaknesses of each of the wide variety of available recreation planning tools (Cervený et al., 2011). In addition, it also reveals the negative interaction and competition between the protection of resource values and the level of recreation use in the recreation planning process. Therefore, there is a need to develop new paradigms such as effective, efficient, proactive, creative, minimizing negative effects and competition, broad-based participation, etc. (Cervený et al., 2011).

For this purpose, the approach of ensuring the integration of holistic, scientific (analytical), participatory and sustainable management planning and decision-making processes with ecological/environmental, socio-cultural, and economic/political information is adopted.

This approach is possible with the recreation management planning process suggested above. The proposed **Outdoor Recreational Strategic Management Planning (ORSMP)** approach follows a process whose stages are interconnected. That is, there is a cycle of interdependence between the stages of the planning process, which includes both feedback and feed-forward. Features of **ORSMP**;

- It has a cyclical process.
- It presents a systematic approach.
- Plan decisions are made as a result of inventory and survey data analysis, stakeholder engagement, and suggested actions and activities that are acceptable and feasible.
- It includes future targets/objectives, tools, actions, activities, indicators, capacities, governance organization, etc.
- Provides a mechanism to present the current situation in the analysis processes and to advance the exchange of ideas among the participating stakeholders toward the solution. Identifies and brings together public and private stakeholders.
- It has a broad perspective with its multidisciplinary approach. It takes into account a variety of issues, opinions, and ideas.
- It is continuous, it is suitable for change to reach the targets and it is flexible, not static.
- Provides functional short- and long-term vision, goals, and strategic actions at different levels, monitoring, feedback, evaluation, adaptation, and revision.

Visitor management for recreational use in recreation areas is very important. Visitor management decisions should be taken and included in the management planning by researching the attitudes and behaviors of visitors, demands and tendencies, expectations, satisfaction levels, increasing awareness, educational activities, etc. in each recreation area.

Visitor management plans of a few protected areas or carrying capacity studies that will form a basis for this plan have been made by the relevant institutions (General Directorate of Nature Conservation and National Parks, General Directorate of Conservation of Natural Assets) in our country (Göktuğ & Yenilmez, 2016; Göktuğ & Yenilmez, 2015; Göktuğ & Zengin, 2021; Göktuğ et al., 2021).

In addition, a national visitor use monitoring network should be established in our country. For this purpose, a "visitor monitoring system" should be established by the responsible Institutions in areas with protection status and other public recreational areas.

Thus, it will provide a great convenience for planners, researchers, managers, and decision-makers in terms of understanding the characteristics and preferences of visitors in public recreational areas and predicting recreational demands and needs in the future.

Recreation Management Plan decisions should be flexible and revised according to the foreseen time frame, taking into account resource values, goals/purposes, and social and spatial changes. It is of great importance to investigate the effects of recreational activities and determine the results of the effects in each recreational area. Thus, it will facilitate the mitigation, repair, and management of adverse effects. A well-made recreation management plan and foreseen goals will only be successful if there are field managers, technical personnel, local people, and visitors who have awareness of conservation, prioritize public interest, have a broad vision, share, and are honest and well-intentioned.

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The article complies with national and international research and publication ethics.

Author Contribution and Conflict of Interest Disclosure Information

Only one author contributed equally to the article. There is no conflict of interest.

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The Importance of Sports Recreational Areas in University Campuses

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1. Introduction

University campuses are one of the areas where recreation is carried out, which renews the individual spiritually and physically, gives life force, and also makes the individual a part of social life in the society. In today's world, where the needs, demands and expectations of communities with different ethnic structures and sociological textures for different recreational uses are accelerated, university campuses where scientific and social developments are experienced not only provide academic education, but also contribute to their physical and spiritual development with the social opportunities they offer. The individual and social developments of the students show parallelism with the social usage areas on the campus. For this reason, it is inevitable for the student profiles in these semi-autonomous institutions to restructure their behavioral expectations.

Many of the university campuses, which act as a catalyst in the society-human-environment triangle, still do not have the number and quality of facilities or structures where students can spend their leisure time productively. On the other hand, in the campuses with sufficient usage areas, there is no recreation information system and management regarding how students should use these areas optimally. The role of universities is to determine the internal dynamics that will provide social development and thus gain new perspectives. These dynamics can come to life in many social, cultural, scientific, recreational and sports fields. All these constitute the traces of keeping

up with the era that develops in proportion to the globalizing and changing world.

In this study, the importance of sportive activities, which is one of the classes of recreation, in terms of university campuses is examined. In this context, information is given about the importance and development of sports, the needs that direct the individual to sports, and the basis of the relationship between sports and recreation. At the same time, information is given about how recreation and sports are structured in universities, recreation and sports management, recreation and sports education in universities, recreation and sports information system and the place and policies of sports in universities depending on Higher Education Institutions (YÖK).

2. Leisure Time-Recreation Relationship

The intense work pressure that increased with the industrial revolution caused people to break away from social life and have a monotonous lifestyle; in fact, the increase in working hours to 12-14 hours (Hacıoğlu et al., 2003), resulted in both physical and mental depression. For this reason, in order to get away from the destructive effect in question, people felt the need to turn to some recreational activities (Karakucuk & Gürbüz, 2007).

At this point, a new concept called "leisure time" has been included in the life circle of people. Leisure time is a time period that individuals evaluate in line with his/her own desires other than the physiological needs (eating, drinking, sleep, etc.) and working time (Tümer, 1975;

Uzun & Altunkasa, 1991; Veal, 1992; Karaküçük, 1997; Ekici et al., 2006) (Figure 1).

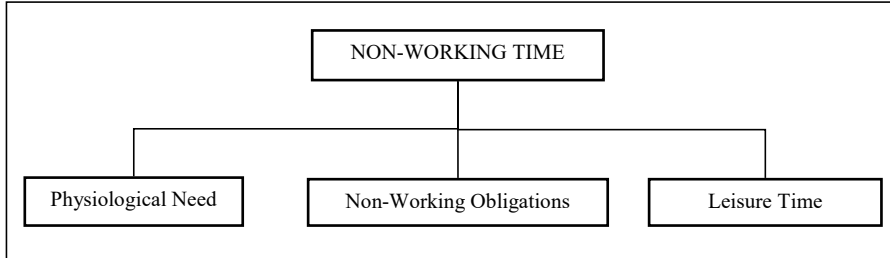


Figure 1. Relationship between Non-Work Time and Leisure Time (Hacıoğlu et al., 2009).

Recreation, on the other hand, is the activities that people do in their leisure time on a voluntary basis (Kraus, 1985; Ozankaya, 1995; Karaküçük, 1997). In today's modern society, it has been determined that recreation is the key point of physical and spiritual development on people with the rise of the comfort area that industry and technology add to daily life (Çubuk, 1981). At this point, a discharge-charge model has emerged where people can regain their social and psychological productivity through recreational activities (Figure 2).

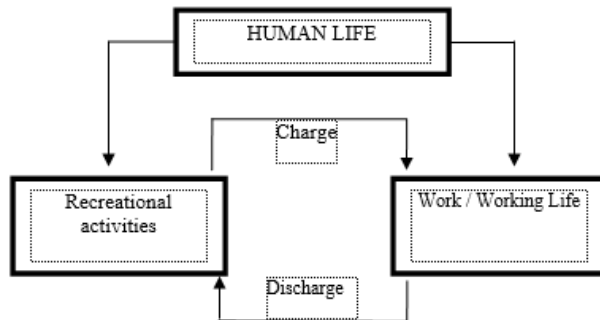


Figure 2. Discharge-Charge Model

This model forms the basis of the recreation concept, which supports the individual and the society to gain energy, dynamism and efficiency apart from non-work and compulsory activities. In this context, recreation is classified in leisure time using different methods. These classes are (Sağcan, 1986);

- Touristic leisure activities
- Creative (artistic) leisure activities
- Social leisure activities
- Sportive leisure time activities.

3. Recreation - Sports Relationship

The entry of sports into human life began with the concept of "movement", the only sign of vitality, shaping life activities. It is seen that the concept of movement, which is one of the main tools of body training, has gained a very different biological dimension on the way from primitive people to today's modern people (Kale, 2002).

Recreation, which is known as the most effective tool for people to use their in leisure time as they wish in line with their wishes and needs, can be carried out both in open and closed areas today. Sports activities, on the other hand, are the most common recreational activities in which the individual can take an active role in both open and/or closed areas.

Today, sport is not seen as a source of materiality, but only as a source of happiness and joy, and prioritizes self-esteem, self-respect and self-will in order to gain a more respectable place in society under the roof

of "more success = more identity" as well as physical and psychological needs. The feeling of establishing close relations with people in a cultural and social sense is one of the basic elements of the need for sports.

In fact, the effects of sports on people lie as the main source of all these needs that lead human beings to sports. Wilkerson & Dodder (1979) argue that sport has the following social functions;

- Emotional discharge
- Confirmation of identity
- Social control
- Socialization
- Exchange tool
- Collective conscience
- Success

Based on these functions, whether a person sees sports as a part of his/her professional life or only in his/her physical and mental development, the thing that directs the individual to sports and puts sports into his/her life is the existence of some biological, psychological and sociological needs.

Some researchers, such as Keller, Svoboda, Wankel, Sefton, Reid, and Collins, observed the people participating in sports and obtained the following basic answers about why individuals want to engage in sports (Coalter, 2003);

- Physical fitness and health

- Mental health/ Psychological well-being; Fear/ Stress/ Feeling of happiness
- Self-improvement; Increasing self-esteem/ Self-esteem/ Confidence/ Willpower control
- Socio-psychological advantages; Empathy/ Tolerance/ Social skills/ Teamwork
- Sociological effects: Social identity/ Convergence/ Integration

3.1. Recreation and Sports Structure in Universities

In addition to being an education and training institution, universities appear as institutions that provide social and sportive activity opportunities, improve the physical and mental training of students with the services they offer, and host structures such as associations, clubs, etc.

Universities contain the structures that meet the physical needs of students such as eating, drinking, accommodation with their indoor and outdoor services and social needs such as entertainment and rest, recreational areas, sports facilities that meet their sports and physical needs, and a cultural center that meets their cultural needs such as theatre, cinema, music, conferences. Various sports organizations held at universities are activities designed with activities such as conferences, cultural panels, artistic events, symposiums, youth festivals, spring festivals in order to equip students socially and culturally.

During the education process, students learn to participate in social life, to establish correct relations with the environment, as a part of social groups, to take social responsibilities, by participating in and organizing social activities, and they grow up as individuals ready for social relations.

The individual and social development of students is directly related to the social and cultural activity areas and uses in universities. Today, the important point in planning and organizations in terms of making recreation and sports activities in university institutions is the existence of structures or spaces where these two concepts are considered together. Organizations that are intended to be created by integrating sports and some recreational activities bring together a "recreational sports program" in universities. In some universities, recreational and sportive activities are under the control of the Director of the School of Physical Education and Sports (BESYO) or the director of student activities.

3.2. Recreation and Sports Information System

It is a regular practice where many more information is followed, such as the determination of clubs and associations that should be opened according to the preferred activities, from their participation in the service courses given within the body of BESYO at universities, to the activities organized by the students during or at the end of the year, and to the recreational and sports activities organized under the roof of clubs and associations. An information system for recreation and

sports is created with the social database. This information system creates a data bank about what the students' sports and recreation activities should be during the term, the distribution and rates of students' participation in individual and/or organizational activities throughout the year. This information system, which is created with a data bank that is updated every year, provides the projection of the social, sports and recreational structures that should be in the campus.

3.3. The Place of Recreation and Sports in Universities Affiliated with YÖK and Policies

The study reveals the importance of sports and recreation in line with the principles and conventions put forward by UNESCO and the UN on an international scale, as well as the development plans of the SPO and the regulations of YÖK on a national scale in our country.

Pursuant to the articles in the part that UNESCO signed and announced under the name of "Physical Education and Sports Convention" on 21 November 1978 (Krotee & Bucker, 2007);

With the article "Physical education and sports contribute to the protection and improvement of health at the individual level, provide the opportunity to have a healthy leisure time activity and enable people to overcome the objectionable aspects of modern life", the importance of sports in making use of leisure time is revealed (Article 2.2)

“Every general education system should give enough importance to physical education and sports in order to balance physical activity and

other elements of education and to strengthen ties,” and draws attention to the importance of sports in education and its connection with other materials in institutions and organizations that provide education (Article 2.3).

It is stated that “Physical education and sports programs should be designed in accordance with the needs and personal characteristics of the participants as well as the institutional, cultural, socio-economic and climatic conditions of each country” (Article 3.1).

He stated that “Personnel who take professional responsibility in physical education and sport should have appropriate training and qualifications” (Article 4.1), while “the responsibility to cooperate and prepare plans to procure facilities and equipment and to use them appropriately is the responsibility of all levels of government, local government, school and private sector organizations” (Article 5.2), it expresses in a way how the structuring in universities should be or the details of organization and planning.

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According to the objectives, principles and policies determined by the State Planning Organization (D.P.T) in the development plans; “Non-formal and formal education programs will be used to develop the culture of making use of leisure time” (Köktaş, 2004).

In the 1985 annual program of the Fifth Five-Year Development Plan of the SPO, it is mentioned that efforts will be given to the establishment of voluntary work camps in which young people will participate, that the establishment of youth centers in various parts of the country will be accelerated, that the medico-social services of universities will be given importance, and that efforts will be made to prevent young people from acquiring bad habits (Köktaş, 2004).

The subject of recreation was included in the Sixth Five-Year Development Plan and as one of its principles and policies, it was decided to establish a recreation department in universities to train staff (Köktaş, 2004).

Emphasizing the importance of recreation in the Seventh Five-Year Development Plan, it was aimed to establish a Recreation Department at the university. It is pointed out in the plan that efforts to establish multi-purpose facilities will continue in order to develop facilities that will allow recreation in a way that will ensure the benefit of all segments of the society (Köktaş, 2004).

In the Eighth Five-Year Development Plan of the DPT, “Leisure time activities; It is carried out by central and local governments,

universities, non-governmental organizations and by individuals themselves (DPT, 2001).

Article 47 of the Higher Education Law No. 2547 in our country says: "In accordance with the plans and programs of Higher Education Institutions, to protect the physical and mental health of the students, to meet the social needs such as nutrition, work, rest, and leisure time, and for this purpose, reading halls within the budget possibilities, It is responsible for opening inpatient health centers, student canteens and restaurants, providing meeting, theater halls, gymnasium and fields, camp sites and taking necessary precautions to ensure that students benefit from them in the best way possible (Kitapçı, 1997; Önder, 2003).

Article 25 of the Higher Education Credit and Hostels Institution no. 351 draws attention to the importance of this issue by stating that "all kinds of measures are taken to meet the social and cultural needs of students during extracurricular hours and holidays" (Önder, 2003).

4. Conclusion and Suggestions

Today, there are various reasons for the diversity of structures for making use of students' leisure time in the world and in Turkey, and the diversity of potential areas that allow these structures. The most important of these is especially university campuses. In order not to be affected by climatic factors, especially in sports branches, many sports activities played outside are also established inside structures called recreation centers. Thus, in a sense, it is thought to be minimally

affected by external factors that will negatively affect the activities. In such universities, which have specialized departments, the presence of experts on various subjects who can guide students in order for them to use their leisure time efficiently reveals the necessity of taking into account the lack of education that has gained importance in our country.

University campuses have assumed a leading role among the actors that make up the city, with their social and physical structures that produce products both nationally and internationally and work with an approach focused on the problems of the region.

The new university phenomenon that is developing in the world is student-centered approaches shaped by organizational formations that will enable students to establish an organic connection with the environment in which they study and make them happy.

With the increasing number of students and buildings, increasing traffic volume and diversified uses, it is developing in a way that consumes open spaces. Factors such as the size of the university campus, the existence of potential areas, and the possibility of using areas loaded with different functions alternately are important data in the field use evaluations to be made by the university administration for the future. The ways to increase these limited areas can only be overcome by increasing the size of the university campus. It is also a measure of whether supply can meet demand.

Ensuring adequate transportation network, having recreation leaders and educators in recreation-centered structures that can inform students about different activities, directing activities for sports and recreation, and revitalizing existing areas with continuous innovations are the points to be considered.

In this context, the necessity of creating a "leisure education model", which aims to teach students to use their leisure time more effectively and economically, both in faculties and departments, which are educational institutions, and under the responsibilities of administrative institutions, is one of the issues that stand out and should be examined in this study.

In this context, the following recommendations have been developed;

- An education system for sports and recreation should be established.
- A branch of science such as “recreation” should be handled in an integrated manner with different departments.
- The inadequacy of infrastructure in terms of number and quality of social and sports facilities and structures in the campuses should be eliminated.
- A "Leisure Time Education" model should be created that will enable students to spend their leisure time more efficiently and consciously.

- A “Guidance Center” should be established where sports and recreation activities are carried out and students are informed about these activities.
- By increasing the variety of sports activities, activities that can appeal to all students in individual and team branches should be supported (organizations for different sports branches).
- A systematic campus recreation program should be established by the university administration.

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This article produced from doctoral thesis.

The article complies with national and international research and publication ethics.

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All authors contributed equally to the article. There is no conflict of interest

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Spatio-Temporal Change of Land Surface Temperature Distribution in Istanbul, Türkiye

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1. Introduction

Land Surface Temperature (LST) has become very popular topic especially in the past 20 years after Landsat 5, 7, and 8 imageries were delivered through internet for free by the U.S. Geological Survey (USGS). LST is quite important because it is one of the key parameters in the popular studies of climate change, vegetation monitoring, urban climate, and evapotranspiration. It can be simply described as the temperature of the earth's top surface.

With the help of remote sensing, we can retrieve LST for large areas with sufficient spatial and temporal resolution rather than measuring it at single point (Li et al., 2013).

Many methods or techniques have been developed in order to calculate LST from satellite imageries but the following three are the most popular ones; single-channel (SC), split-window (SW) and radiative transfer equation (RTE).

In the past 30 years, several articles have been published on thermal analysis using satellite imageries such as MODIS, ASTER, Landsat TM, Landsat ETM, and Landsat 8 data (Li et al., 2013; Barsi et al., 2003; Cristobal et al., 2009; Jimenez-Munoz & Sobrino, 2008; Jimenez-Munoz et al., 2009; Oguz, 2013; Oguz, 2015; Oguz, 2016a; Oguz, 2016b; Oguz & Ozturk, 2017; Oguz, 2018; Oguz et al., 2019;

Oguz, 2020a; Oguz, 2020b; Oguz et al., 2020c; Tuğluer, 2021; Tuğluer & Çakır, 2021; Oguz, 2021).

For this particular study, two Landsat 8 scenes with different years (2013 and 2022), both cover the province of Istanbul, were downloaded from the USGS webpage. The main objective of this study was not only to retrieve the LST for Istanbul but also to analyze spatio-temporal change of LST.

2. Material and Method

2.1. Input Data

Landsat 8 imagery is the core part of this particular study. Two Landsat 8 scenes acquired on July 30, 2013 and July 23, 2022 were downloaded from USGS website. Landsat 8 captures images of the earth every 16 day and can be downloaded free of charge from USGS webpage (USGS, 2022). Landsat 8 has two sensors on board: the operational land imager sensor (OLI) and thermal infrared sensor (TIRS). OLI has 9 bands with 30m spatial resolution (except for panchromatic band) while the TIRS has two thermal bands with 100m spatial resolution as illustrated in Table 1 below (USGS, 2022). Having two thermal bands in Landsat 8 is the main improvement compare to previous versions of Landsat.

Table 1. Landsat 8 Band Descriptions

BandNumber	BandWidth	Description	Resolution (m)
Band 1	0.435 - 0.451	Coastal/Aerosol	30
Band 2	0.452 - 0.512	Blue	30
Band 3	0.533 - 0.590	Green	30
Band 4	0.636 - 0.673	Red	30
Band 5	0.851 - 0.879	NIR	30
Band 6	1.566 - 1.651	SWIR-1	30
Band 7	2.107 - 2.294	SWIR-2	30
Band 8	0.503 - 0.676	Pan	15
Band 9	1.363 - 1.384	Cirrus	30
Band 10	10.60 - 11.19	TIR-1	100
Band 11	11.50 - 12.51	TIR-2	100

Among the popular methods, the radiative transfer equation method has been employed for this particular study. The detailed information regarding the RTE methodology can be obtained from the papers published by (Oguz, 2016a; Oguz, 2016b).

2.2. Study Area

The study area, Istanbul, historically known as Constantinople, is the most populous city in Turkey and the country's economic, cultural, and historic center. Istanbul is a transcontinental city in Eurasia, straddling the Bosphorus strait (which separates Europe and Asia) between the Sea of Marmara and the Black Sea (See Figure 1). Istanbul is one of the world's most populous cities and ranks as the world's fourth-largest city and the largest European city with the population of 15 million. Istanbul is viewed as a bridge between the East and West. Istanbul was named a European Capital of Culture in 2010 and is also the world's fifth most popular tourist destination. The

city's biggest attraction is its historic center, partially listed as a UNESCO World Heritage Site, and its cultural and entertainment hub can be found across the city's natural harbor, the Golden Horn, in the Beyoğlu district (Wikipedia, 2022).

In the Köppen–Geiger classification system, Istanbul has a borderline Mediterranean climate (Csa), humid subtropical climate (Cfa) and oceanic climate (Cfb), due to its location in a transitional climatic zone. Since precipitation in summer months ranges from 20 to 65 mm, depending on location, the city cannot be classified as solely Mediterranean or humid subtropical. Due to its size, diverse topography, maritime location and most importantly having a coastline to two different bodies of water to the north and south, Istanbul exhibits microclimates. The northern half of the city, as well as the Bosphorus coastline, express characteristics of oceanic and humid subtropical climates, because of humidity from the Black Sea and the relatively high concentration of vegetation. The climate in the populated areas of the city to the south, located on the Sea of Marmara, is warmer, drier and less affected by humidity. The annual precipitation in the northern half can be twice as much (Bahçeköy, 1166.6 mm), than it is in the southern, Marmara coast (Florya, 635.0 mm). There is a significant difference between annual mean temperatures on the north and south coasts as well, Bahçeköy 12.8 °C, Kartal 15.03 °C (Wikipedia, 2022).

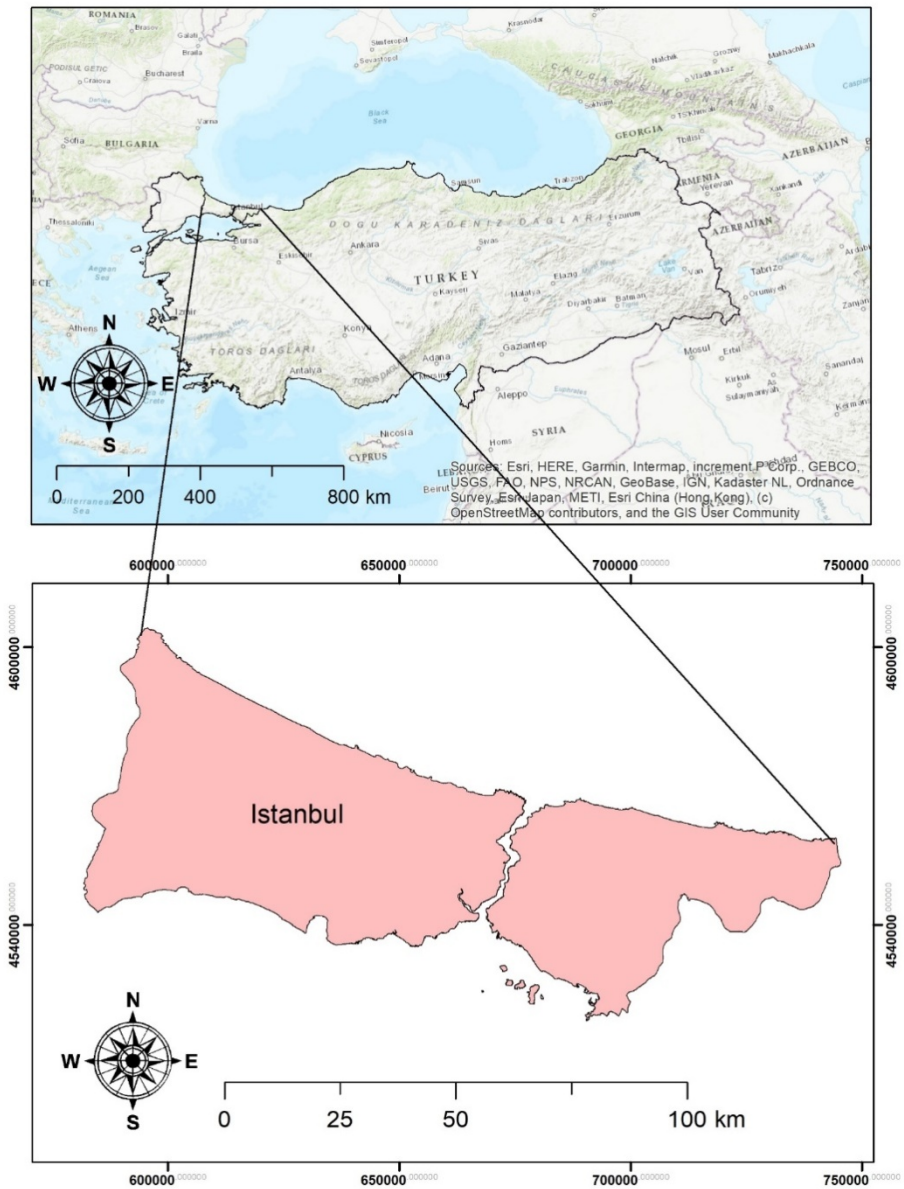


Figure 1. Location Map of Istanbul.

In order to retrieve LST from the Landsat 8 satellite imagery, LST Calculator tool developed by Oguz (2016a) has been employed. The tool follows the following flow diagram as shown in Figure 2. Figures 3 and 4 illustrate both Landsat scenes in false color composites downloaded and used for LST retrieval.

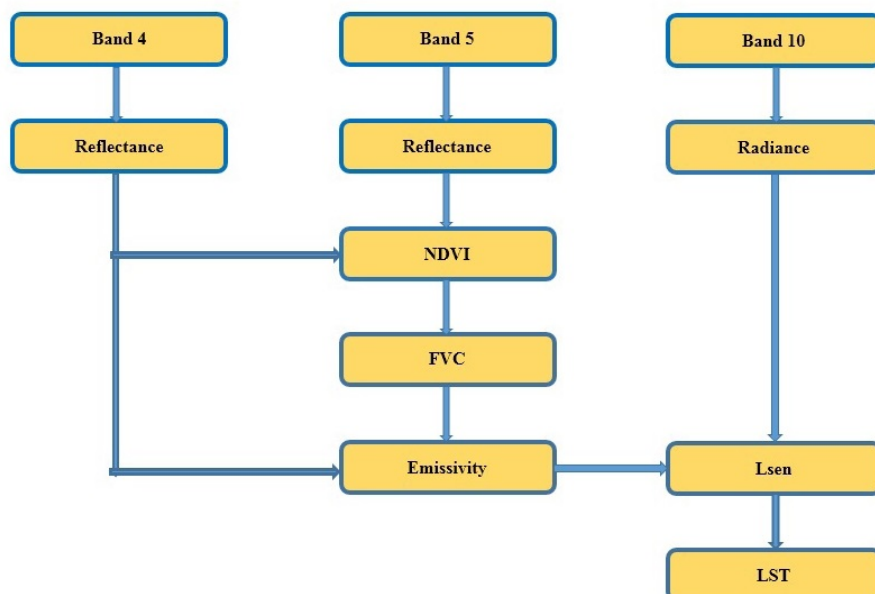


Figure 2. Flow Diagram of the LST Retrieval

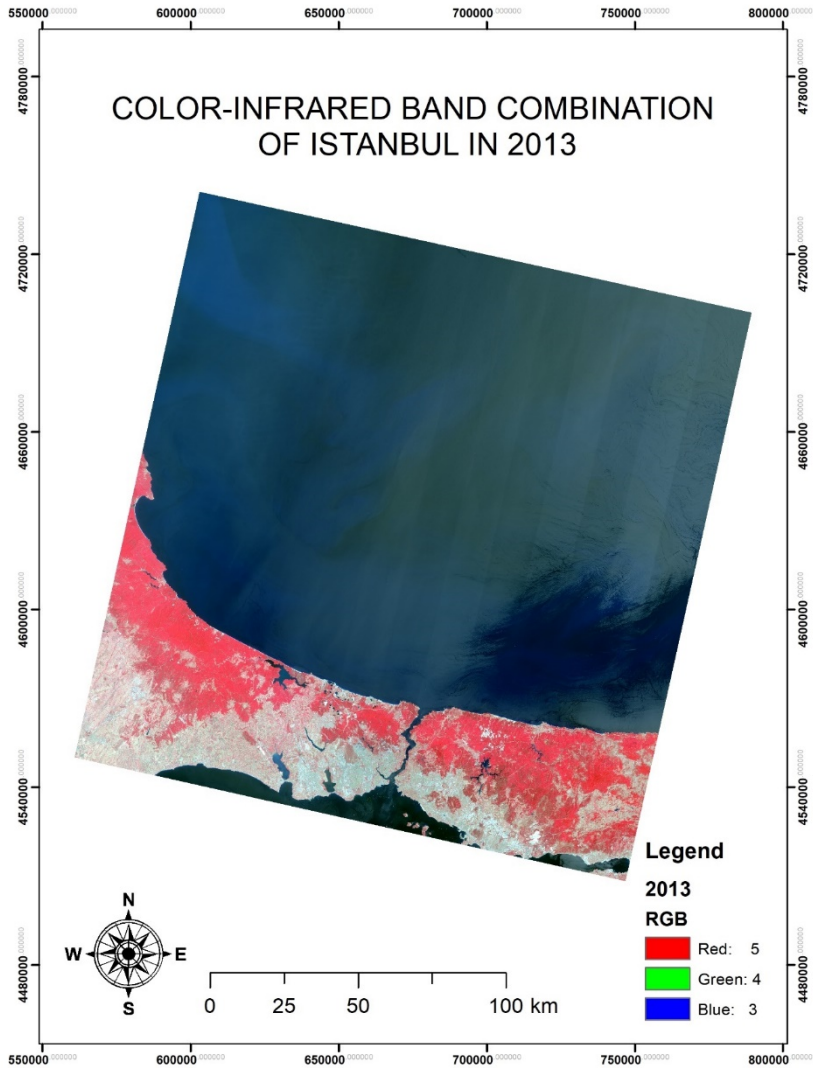


Figure 3. 2013 Landsat 8 Scene in False Color that was Used for LST Retrieval

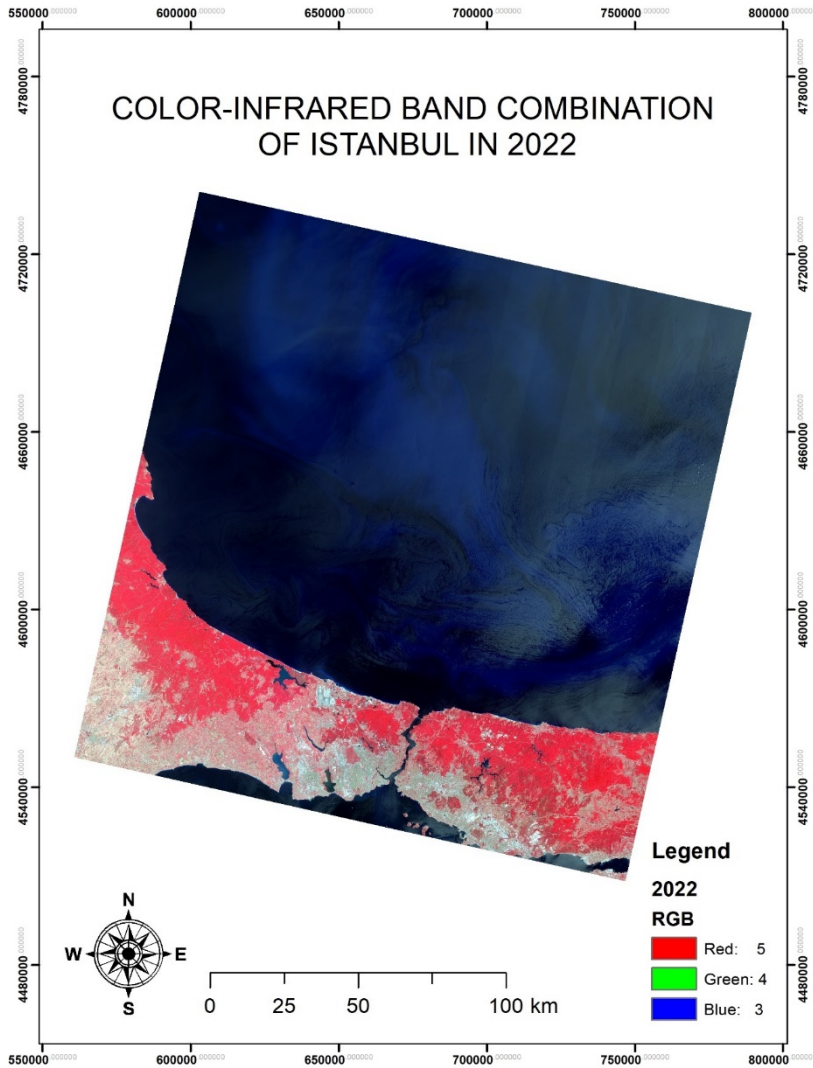


Figure 4. 2022 Landsat 8 Scene in False Color that was Used for LST Retrieval

3. Findings and Discussion

In order to retrieve LST from Landsat 8 imageries, atmospheric correction parameter calculator developed by Barsi et al. (2003) has been used to obtain required coefficients for our model as illustrated Figure 5 (a and c). Atmospheric correction parameter calculator is used to calculate the atmospheric transmission, upwelling radiance and downwelling radiance as shown in Figure 5 (b and d).

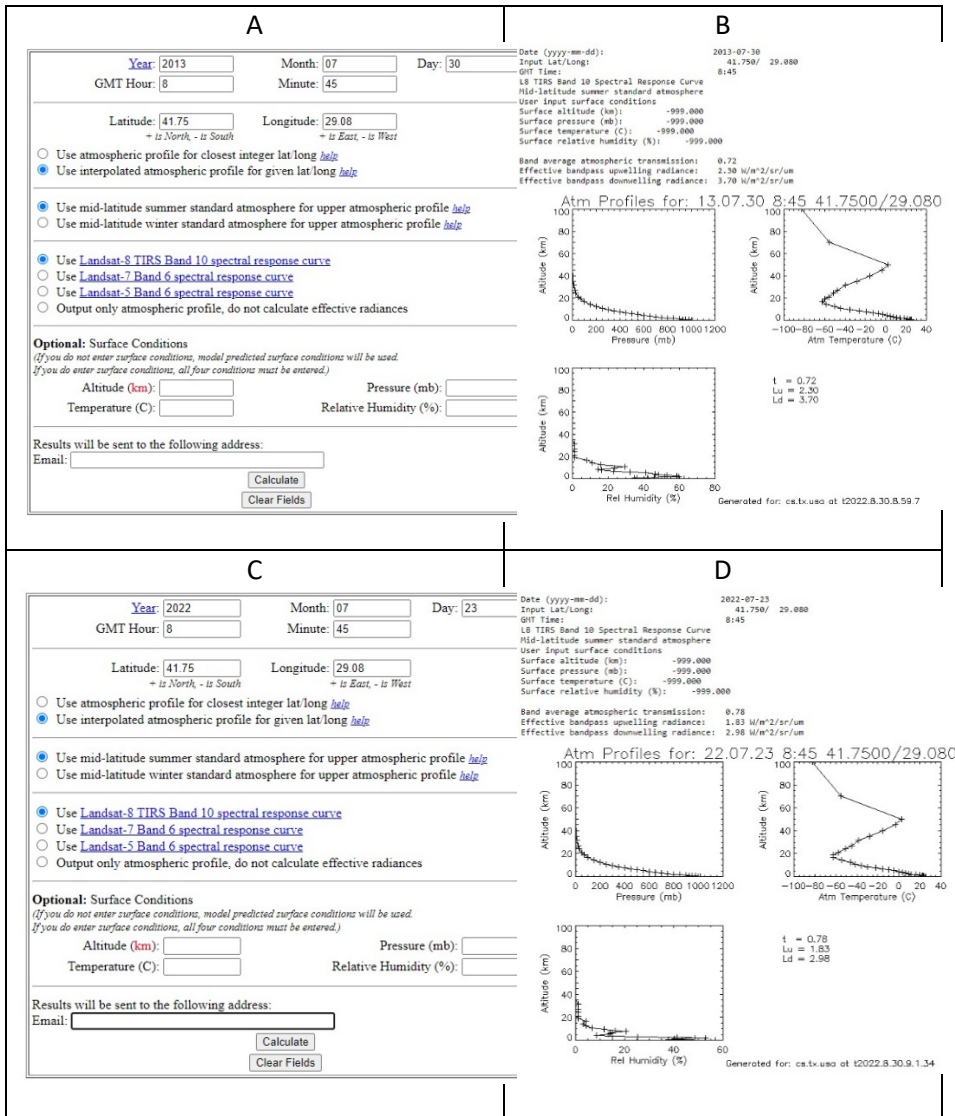


Figure 5. Atmospheric Correction Parameter Calculator (a) 2013, (b) Output for 2013, (c) 2022, (d) Output for 2022

After required coefficients obtained, the LST tool developed by Oguz (2016a) was employed as illustrated in Figure 6 below.

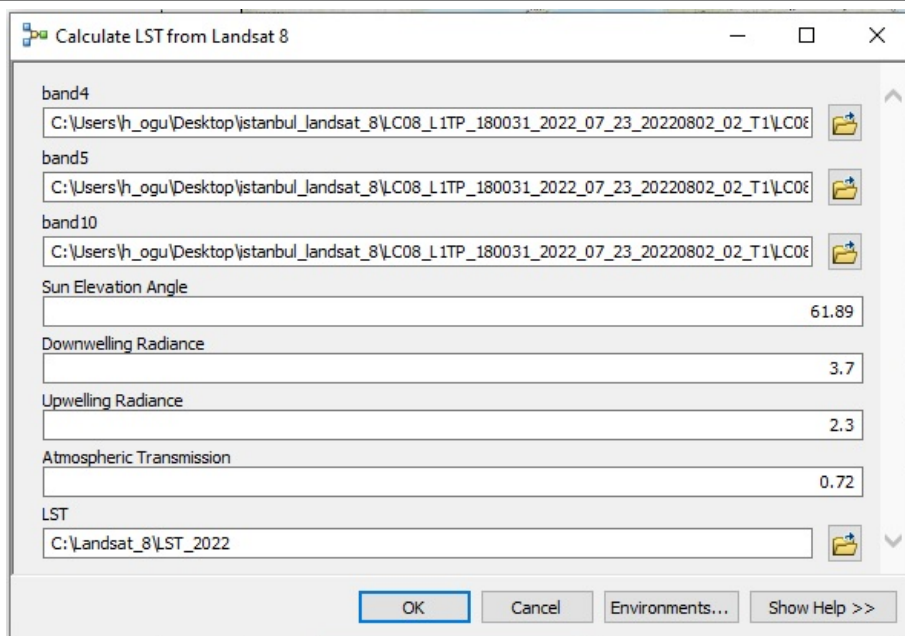


Figure 6. LST Tool

LST values for the both scenes were finally calculated and then the spatial distribution map of LST for the years 2013 and 2022 were created using ArcGIS 10.8 software as illustrated in Figures 7 and 8 below.

As shown in Figure 7 below, minimum and maximum surface temperatures were found to be 12.2 °C and 43.2 °C respectively.

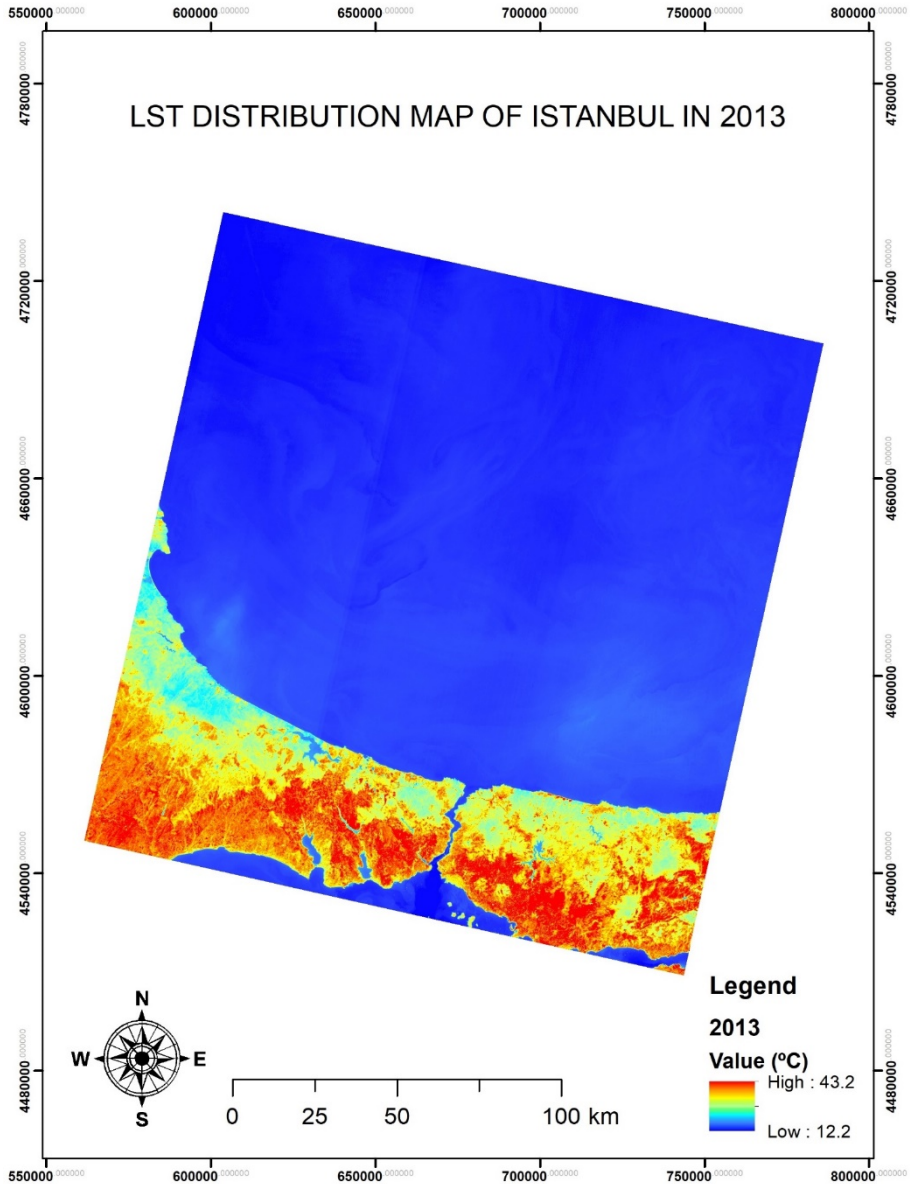


Figure 7. Spatial Distribution Map of LST in 2013 for Whole Scene

In Figure 8 minimum and maximum surface temperatures were found to be 11.5 °C in water surfaces and 43.4 °C in bare land and urbanized areas respectively.

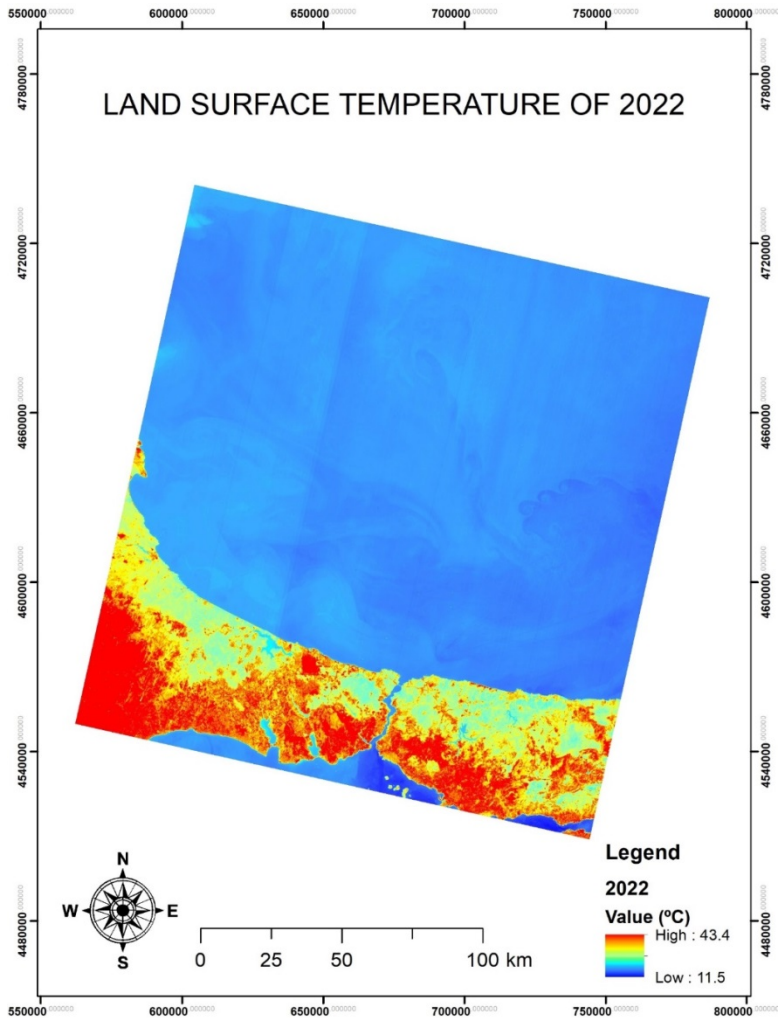


Figure 8. Spatial Distribution Map of LST in 2022 For Whole Scene

In order to see the variation in LST over the study area, difference map was created by subtracting 2013 1st imagery from 2022 1st imagery in ArcGIS. The difference map is illustrated in Figure 9 below.

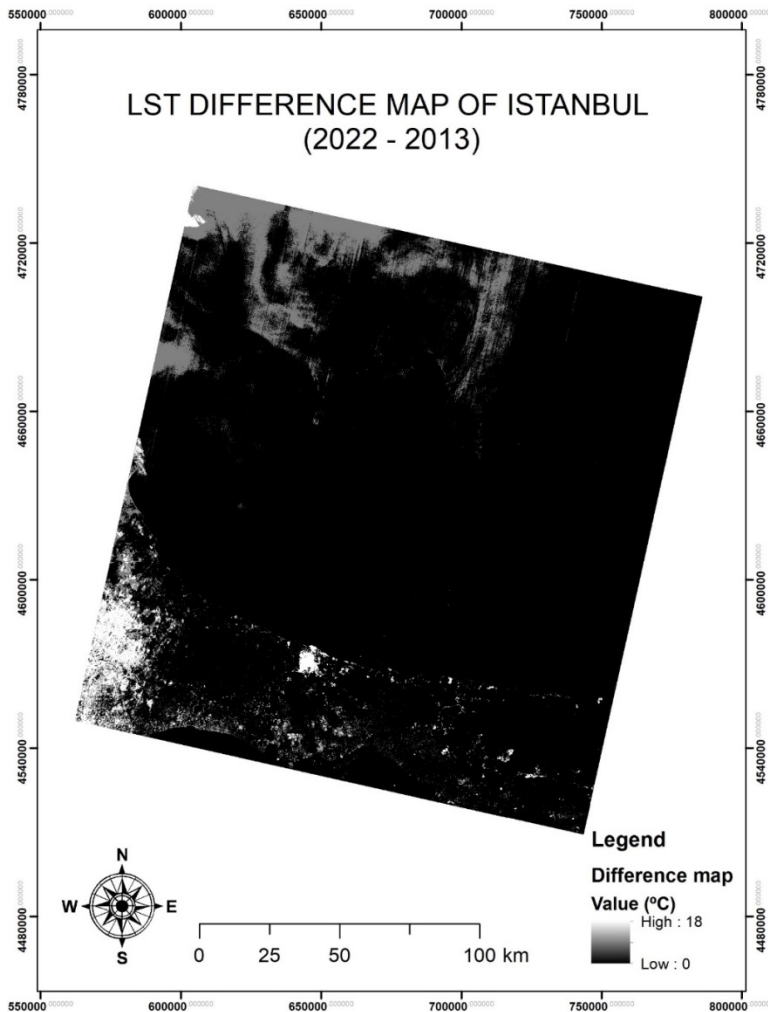


Figure 9. The Difference Map of LST in Istanbul

The difference map illustrates the temperature differences between the two dates. The temperature differences can go up to 18 °C as shown in Figure 9 above. The majority of the differences are located in the newly built Istanbul Airport. Istanbul Airport is the new airport in the city. It was built in 2018 and located at the Çatalca- Göktürk-Arnavutköy area, in the European side of the city, 40km from Taksim and 52km from Kadıköy.

4. Conclusion and Suggestions

Land surface temperature is one of the key parameters in thermal analysis studies. The popularity of LST is being increasing for thermal analysis. Accurate calculations of this parameter is an essential and challenging topic for the global change research. Therefore, the RTE method has been used in this study because of the accuracy of the model compare to single channel and split window algorithms.

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Fire Safety in The Cities

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1. Introduction

In order to develop risk management process; all the risk factors should be determined, numerical data should be revealed and analyzed. Fire risk factors differ from other disasters with its manageable characteristic. Being manageable should be taken into consideration with all disciplines which are responsible for all parameters, past cases and potential risks. Fire cases cause dramatic damages all around the world like it happened in the past and fire factor is a big problematic in urban scale as well as building scale. Fire risk optimization should be thought as a part of overall concept and actions to provide safe and sustainable cities. Fire cases which spread across the city and couldn't be controlled because of unawareness and imprudence might destroy all common wealth of the cities and this case might bring out reliance and belonging problems for users. This study is done in order to raise awareness about the risks of fire for the city and to reveal the factors that need to be analyzed.

2. Material and Method

Within the scope of the study, literature research was conducted on the phenomenon of fire in the city, past urban fires and their results, international studies on fire safety in cities. After the literature review, the steps taken in the studies were analyzed and summarized. Through this summary study, parameters affecting fire safety in cities were determined, classified and explained.

3. The Concept of Fire in Cities

It is possible to say that the risk parameters of a potential fire risk at the urban scale are quite diverse. Population density and building density constantly increase. New expectations and demands from cities; development of technology; creation of new materials and facade systems; planning different functions together also diverse fire scenarios. When all these factors and the existing building stocks are considered, it will not be possible to completely eliminate the risk, but the principles and strategies to be created for risk management and possible fire scenarios will gain importance.

The Industrial Revolution has brought out the concept of risk after increasing migration from small residential areas to cities. High density of building and population cause an increase in the parameters that will create a risk environment (Kuzucuoğlu, 2013). Although this is an important transformation in terms of life quality, it has also brought out many problems that need to be overcome and managed.

Fires that may occur in cities depending on many parameters are one of these problems. Fires can occur due to faults in electrical installations, unwairness in traditional buildings, poorly maintained shafts, wrong application of materials, climatic conditions and urban planing (Uluç, Şenol Balaban & Yıldırım Esen, 2021). While a fire situation can be the primary risk factor, it can also occur after disasters such as earthquakes and volcanic eruptions (Kalley, 2020). The fire that broke out after the earthquake in 1995 in Kobe, Japan, could not

be taken under control for days and caused much greater damage than the earthquake (NFPA, 2015).

Fire situations do not only cause damage of buildings and human life, they also destroy the urban identity, important historical values and records. The fire that took place in the Brazilian National Museum in 2018 destroyed nearly 20 million artifacts (Uluç, Şenol Balaban & Yıldırım Esen, 2021). Fires can irreversibly destroy the urban identity and might require the city to be rebuilt. In the fire that took place in London in 1666, approximately 14000 residentials and 90 churches were destroyed (Ender, 1975). (Ceylan & Arpacioğlu, 2014), Fire situations have played a big role while development process of the urban texture in Istanbul. The fires that come up as a result of unwairness in the dense texture of wooden buildings spread over large areas and caused serious loss of life and property in the past in İstanbul. Major decisions have taken such as road angles, road widths, building positions, building mass ratios, fire walls in order to provide fire safety and it has begun to change the urban texture as much as the change in building materials (Ceylan & Arpacioğlu, 2014).

In the 18th century, fires in important trade centers in America spread rapidly and caused great destruction because of the negative wind conditions and wrong structure metarial. Steel and iron structures were mostly used in the area that the fire occured because of the thought that those metarials were more durable and stronger than wood. The fact that the steel material used in the buildings is not resistant to fire has emerged with this sad experience. 17th century, decisions were

taken changed the urban texture and the behavior of the people living in the city. It is not allowed to have grass piles in front of the houses and to store flammable materials in uncontrolled areas. In addition, decisions that affect user's behaviors are also noteworthy. Smoking was banned on the street and insurance companies were established for the first time. In addition to these, fire extinguishing equipment and firefighting system were developed (Gürbüz, 2002).

In the fire that occurred in the Istanbul Odakule Building in 1991 which didn't happen in the old history, the extinguishing efforts were interrupted by an important urban design mistake. The fire spread rapidly in the multi-storey building which fire resistant materials were not used on its facade. No sprinkler system was used on the facade to prevent the spread of the fire. Extinguishing works were limited and the relationship between the building and road was not appropriate for firefighter's access (Arpacioğlu, 2009). To explain fire safety only as fire-resistant buildings creates major security weakness. There are many parameters that affect the potential risks of fire in the cities. The fire in the Odakule Building is an example of how important the urban design and building-road relationship is in this sense.

4. International Investigations in Terms of Fire Safety in Cities

While the perspective of fire safety aspects were limited in the early ages, more major precautions were taken with the development of the cities and the fire safety approach changed from the understanding of fireproof buildings to the understanding of fire resistant buildings since the beginning of the 20th century (Arpacioğlu, 2010). This

concept is still mostly perceived as fire resistant buildings, providing safe evacuation plan and extinguishing systems. These preventions are important for fire safety. It is seen that there are some regulations and practices that include fire safety measures all over world. In this section, some decisions were taken for cities will be examined.

4.1. 1995 Fire in Kobe, Japan

1995 earthquake in Kobe, Japan with the result of the collapsed roads, infrastructure systems and fire in the city shows the fact that fire is not always a primary hazard and it might be a secondary hazard that may arise as a result of other disasters. In Kobe, which is frequently exposed to severe earthquakes, wooden structures were preferred in order to minimize the loss of life in the earthquake. The fire that broke out after the earthquake increased rapidly due to the density of the wooden structure and spread over large areas due to the fact that wood is an easily flammable material. In the city, where there was no extensive planning and security measures regarding the fire, 6,433 lives were lost and 10 trillion Yen worth of financial loss occurred and the city was able to be rebuilt in more than 10 years. After this earthquake and fire disasters, Kobe has become safer against the risk of fire. Preventions and decisions taken after this disaster have become a guide for Japan. After this fire, wooden materials were used as little as possible in the buildings. The weak infrastructure systems, the large number of fires, the insufficient water resources and pumps did not make it possible to take Kobe fire under control. Whether it is a primary risk or a secondary risk, the possibility of a fire in a

residential area is difficult when fires occurred at too many points. The fire was realized too late by the fire response teams and the response was delayed and both the intervention equipment and water resources were insufficient (Shiozaki, Nishikawa, Deguchi & Watanabe, 2006). It is necessary to develop risk management systems and it is also not easy to transform the existing texture to get away from risk factors. Necessary actions should be determined and put into practice; a program that includes systems such as equipment, resources, workforce, training, awareness should be prepared. Earthquake resistant infrastructure systems, fire resistant building facade should be designed, water tanks should be available, information systems should be improved to ensure communication (Shiozaki, Nishikawa, Deguchi & Watanabe, 2006).

It has planned and defined large-scale parks, small neighborhood parks, disaster prevention zones. The distance between each of these open areas are also considered. Education programs for adults and children have been established in various organizations in Japan. It was aimed to prevent the spread of the fire by early intervention and to be able to do it extinguishing hoses inside the buildings might be used by the people to have easy access (Kuzucuoğlu, 2013).

Japan, which has been exposed to many disasters such as storms, earthquakes and fires has created a disaster culture that should be taken as a guide. The possible damages caused by these disasters were minimized in Japan with the risk analysis and management systems that is conveyed in training program of the Japan International

Cooperation Agency. In order to get advantage of this system, it is important that risks are constantly analyzed (Kuzucuoğlu, 2013).

4.2. Toronto Fire Master Plan

In Canada, inclusive reports are prepared periodically for fire extinguishing activities and new strategies are made for the future by constantly improving them. Master plans have great importance in terms of guiding the future strategies. The purpose of this study has been defined as protecting the city from threats such as fire, disaster and accident, providing a safe living space, raising public awareness in this process and providing all kinds of knowledge, experience, technology in order to ensure security. During this five-year period, technological improvements in the master plan evaluating whether the existing technologies will be functional in the future and addressing solution-oriented approaches. Factors such as climatic conditions, budget adequacy, technological opportunities and institutional analysis are included in this plan (Oduncu, 2018). All kind of issues that may affect fire safety in the city are discussed and reported within the framework of the master plan. It is aimed to develop the master plan and maintain safe living spaces over the changes in these issues, determine criteria, qualifications and deficiencies in every five years.

4.3. 2017 Grenfell Tower Fire

London's Grenfell Tower fire in 2017 shows that the use of materials might cause a result in the city. Although the main cause of the fire is the electrical infrastructure and the aluminum composite material on the facade, it is seen that there are some communication, management,

intervention deficiencies and failure as stated in the published public investigation report (Grenfell Tower Inquiry, 2019).

The main goal in a fire is to provide human life safety and evacuation. When the fire is understood that it has gone out of control, necessary organization and strategy changing for safe evacuation has not been made. The intervention phase, which has great failings in terms of command and control, was also poor in terms of practical solutions to be taken according to the risks. The lack of the emergency services come up with the fact that there is an education gap. After the fire, a large research commission was established and studies were carried out to clarify these risk factors and related datas. Facade materials within the scope of this evaluation such as aluminum composite panel material, which is the cause of the Grenfell Tower fire will be replanned by involving everyone responsible (users, emergency services, etc) in order to ensure fire safety in the city (Grenfell Tower Inquiry, 2019), (GOV.UK, 2020). Although accidents, disasters and mistakes cause great irreversible losses, it is very important to get lessons from them and make the necessary analyzes and evaluations to guide the future. This study is an important example both to clearly reveal the causes of this fire and to prevent them by drawing attention to the existence of similar problems in the city.

4.4. Basic Principles of Fire Safety in CFPA-E

This guide, which was created to increase fire safety in historical buildings and protect the historical texture, is a study that informs the all responsible people from property owners to consultants, security

officers and it also requires the most basic, low-budget measures to ensure fire safety. This guide includes sections such as a checklist that will ensure fire safety in historical buildings, personnel training, technical requirements of the fire brigade and control. It includes the measures to reduce the fire risk in terms of the building and it also includes the access to the building and water resources which are important points for the cities. Electricity, gas lines, and deliberate fires are other criterias included in this guide (CFPA-E, 2021).

5. Parameters of Fare Safety

5.1. Summery Of Fire Safety Aspects In International Studies

Each experience is a significant guide for potetial risks of the future as long as all datas are used and analyzed correctly. The examples examined above are important outputs for the analyze system that will be established within the scope of this study. Examples that are mentioned above are summerized and abstract steps are specified in the table below.

Table 1. Summery of Fire Safety Aspec-ts in International Studies

1995 Fire in Kobe, Japan	Education programs for emergency services Safe and durable building for earthquake disaster Safe and non flammeble facade metarials Adequately safe infrastructure for earthquake Review of urban plan Awareness of users and all responsible people Systems to get the fire localized Risk analyze systems
Toronto Fire Master Plan	Risk analyze systems and evaluation for current risks Education programs for emergency services Review of urban plan Awareness of users and all responsible people
2017 Grenfell Tower Fire	Education programs for emergency services

	Safe and non flammeble facade metarials Risk analyze systems and evaluation for current risks
Basic Principles of Fire Safety in CFPA-E	Education programs for emergency services Preparing a checklist for fire safety Risk analyze systems and evaluation for current risks Adequately safe infrastructure for earthquake Budget plan

5.2. Fire Risk Parameters in Cities

The following parameters regarding the risk of fire in the table below have been listed on the light of the examples examined and the steps taken for fire risk management in cities. These parameters are important for assessing and analyzing the fire risk of a residential area. Within the scope of the study, the following parameters will be schematized first and then these parameters will be explained.

Table 2. Fire Risk Parameters in Cities

Urban Design Aspects Before a Possible Fire	Urban texture Roads and Access lines The relationship of different functuins The relationship of building and road
Insufficiency Of Infrustructue	
Factors In Terms Of Users and Enviroment	Geographical features Climate conditions Budget Education and Awareness
Technical Insufficiency During The Fire	Lack of knowledge and awareness of response teams Technical insufficiency of fire truck Insufficiency of water sources and hydrants Capability of localization the fire

5.2.1. Urban Design Aspects Before a Possible Fire: Urban Texture

Fires might occur depending on many parameters in a building or open area and spread to large areas as a result of the disadvantages and carelessness of the urban texture. The facade materials might cause fires to spread rapidly and to spread sparks easily depending on the material used. The location and distance of the buildings to each other are factors that directly affect the spread of the fire to large areas in the city. Some part of urban texture such as building height, mass form and open area (window, door) dimensions of the facade are also factors that should be taken into account in risk analysis and assessment in order to control the fire. All these actions shape and change the urban texture. These fire cases which significantly shaped the construction in the past period of Istanbul, brought out the decision to build a fire wall between the buildings in order to prevent the spread of fire in some regions (Arpacioğlu & Ceylan, 2017). These walls, which aim to prevent the localization of fire and spread to large areas, have also become components that change the urban texture.

5.2.2. Urban Design Aspects Before a Possible Fire: Roads and Access Lines

Transportation arteries are an important parameter that has been taken into consideration to ensure fire safety since the old fires occurred in the cities. Design decisions such as road width, turning angle, dead-end street concept, stairs, road slope should be evaluated with the fact that fire trucks can move uninterruptedly.

5.2.3. Urban Design Aspects Before a Possible Fire: The Relationship of Different Functions

Different functions such as education, health, industry, commerce, office, residence are included in different fire risk classes depending on factors such as building size, user load, number of floors and high risky places such as kitchen take a role in a fire case. Location of buildings with different function shouldn't effect each other while fire situations and the fire should be localized when it is needed.

5.2.4. Urban Design Aspects Before a Possible Fire: The Relationship of Building and Road

The risk of fire is a fact that can not be eliminated and must be managed. It is not possible to build cities without flammable materials and get away from oxygen and sufficient warmth for fire situation requirements. It is necessary to reveal all the risks to determine possible fire scenarios and to prevent the spread of large areas by providing the necessary intervention in a fire situation. A city and the buildings that creates the urban texture of that city should not be considered separately from this phenomenon. When considering the urban design and the location of the buildings in the areas and their relations with other buildings and roads, it is necessary to take into account the possibilities of the fire and should not cause any limitations in the intervention. As examined in the example of the Odakule fire, the inability to provide access on all facades of the building made fire response very difficult and posed a risk for the city.

5.2.5. Insufficiency of Infrastructure

The Kobe fire, reviewed above, shows that there can be serious problems in accessing and responding to the fire when infrastructure is inadequate. The Kobe fire emerged after an earthquake and the electricity and gas infrastructures became a serious danger for the fire. With the collapse of transportation and communication systems, access and coordination to the fire point has become a major problem. Based on this example, it is necessary to consider the fact that fire may not always appear as a primary danger. Critical systems for responding to fire, such as electricity, gas, information and communication, transportation, infrastructures of extinguishing system, infrastructures of water tanks should be planned within safety limits not only against fire but also against other disasters.

5.2.6. Factors in Terms of Users and Environment: Geographical Features

The geographical features of a city are one of the most important parameters that shape the urban texture. The position of the buildings; its location within the area; its relationship with the street; local materials belonging to that region in rural settlements affects many parameters such as the width, slope, turning angle of the roads. It may not be easy to reach the fire point when there is narrow and sharp roads. When the roads are very sloping, it can be difficult to use the water efficiently in the fire truck. Considering such factors, the disadvantages of a settlement should be clearly identified and necessary precautions should be taken.

5.2.7. Factors in Terms of Users and Enviroment: Climate Conditions

Fire might be defined as the tendency to spread away from the point where it started with sufficient ignition temperature, oxygen and flammable material (Eriç, 1983). These three parameters that create the combustion event are defined as the Fire Triangle. When one of these three factors is removed, the risk of fire also disappears or changing one of them' s amount during a fire changes the fire severity (Küçükosmanoğlu, 1997). Even the oxygen in the air can be sufficient for ignition under high temperature in an environment where flammable material is present. A wood material can burn under 275 °C without a flame-sourced igniter (Le Van & Winandy, 1990). Wind is another factor that affects the spread of fire. Factors such as wind and temperature differ in each residential area and sometimes they can make it difficult to take the fire under control. For this reason, the climatic features of the settlements are significant factors that should be taken into account in order to ensure fire safety in cities.

5.2.8. Factors in Terms of Users and Enviroment: Budget

All measures to be taken to ensure fire safety in the city, such as fire response systems, firefighting equipment, infrastructure and architectural mistakes that need to be revised, training programs require a budget planning. Managers and administrations should plan the budget that needs to be allocated by taking into account all the necessary parameters for fire safety and check it' s adequacy at certain periods. Unchanged equipment or an unfixed infrastructure system

due to lack of budget can cause much greater financial losses and worse loss of human life later on.

5.2.9. Factors in Terms of Users and Enviroment: Education and Awareness

The population of the city, the level of awareness, sensitivity to fire risks are important factors affecting fire safety. When the Toronto Fire Master Plan is examined, community awareness and education programs are a significant part of the project. After the Kobe fire in, budget and time were spent to the training programs in Japan and the society was included in the actions for fire safety when it is necessary. When we look at the measures taken in the past times in Istanbul, it is seen how important the awareness of the people is both for their own safety and for the course of the fire. In residential areas with high fire risk, people were required to have a full water barrel in their homes and a stair that would allow easy access to the upper floors. In addition, the people were required not to run away in case of a fire and to make an effort to extinguish it until help arrived (Arpacioğlu, 2017). Due to today's fire scenarios and the diversification of fire sources, it may not be possible to expect the public to be involved in the extinguishing process in the same way but the public's awareness of what to do or not to do in the case of a fire has a great importance in terms of the course of the fire and human life safety. Education programs that should be given importance for fire safety get shaped by the dynamics of the city, the requirements of today's technology and opportunities.

5.2.10. Technical Insufficiency During The Fire: Lack of Knowledge and Awareness of Response Teams

Even though the technological infrastructure and equipment requirements are provided, if the correct resource usage can not be provided due to problems such as awareness, lack of coordination and experience regarding the area to be intervened, malfunctions may occur in the fire response. Awareness of response teams has a major importance in terms of street texture, building height and density of buildings in the city. Lack of communication and coordination turn into important risk factors when it comes to fire safety. Training programs for firefighters can be seen in all of the international study examples examined above. In the example of the London fire, one of the main reasons for the loss of human life is lack of coordination and communication of the firefighters and this case made it too difficult to take the fire under control.

5.2.11. Technical Insufficiency During The Fire: Technical Insufficiency of Fire Truck

Each city differs in terms of density, building height, road width, road slope, water resources and has its own dynamics. Intervention opportunities required by each settlement area should be sufficient to respond to the requirements of that settlement. If the hose length, water pressure and height of stairs are not appropriate in a region with high buildings, the efforts and intervention of fire officers may be limited and it may become difficult to control the fire. On the other

hands, regular preventions should be done and checked whether the systems are working properly or not.

5.2.12. Technical Insufficiency During The Fire: Insufficiency of Water Sources and Hydrants

It is possible to see each of the fire safety measures as a part of a chain. Any failure of these precautions may cause a risk and one little failure might effect other preventions negatively. In a scenario where the training and coordination of extinguishing equipment and crew do not have any failure, if there is a lack of water resources in terms of the location, number and pressure of hydrants, extinguishing operations would be interrupted. The damage to the water tanks from the earthquake in the Kobe fire caused insufficiency in water resources and had a significant negative impact on the extinguishing efforts. Hydrant systems and water resources calculations in old residential areas according to the current regulation should be confirmed and necessary revisions should be made in terms of security.

5.2.13. Technical Insufficiency During The Fire: Capability of Localization The Fire

It is seen that residential areas with historical wooden structures, a fire could spread rapidly from the point where it started and affect much larger areas. Examples such as the Istanbul fires, the great London fire, the Chicago fire and more recently the Kobe fire reviewed above. In the fires of Istanbul, walls were proposed to act as a barrier between the wooden structures. They were applied in some regions and have

been affecting the urban texture. In addition, road widths were planned according to building heights and it was desired to prevent the spread of the fire to larger areas (Arpacıoğlu & Ceylan, 2017). It is important to prevent a possible fire in the city by design approach of the urban such as applying approaches that will localize the fire as much as possible.

6. Conclusion and Suggestions

Fire risk management and safety measures should be thought from urban scale to building scale in order to ensure full fire safety. As a result of this aspect, the decisions to be taken at the urban scale have a significant importance. Looking at all the examples examined above, the principles of the urban design are very critical in order not to spread the fire to large areas and to ensure easy intervention during the fire. The width, turning angles, slope of the roads and the relationship of trees with the roads should be planned in such a way that they do not restrict the flow and intervention of emergency vehicles. A planning should be evaluated for the industrial areas where the fire risk is higher, the areas where the buildings with flammable materials, the case where the forest areas located in the city in terms of fire risk. Infrastructure systems such as electricity and gas can be the cause of the fire or it can accelerate a fire. It has been observed that after disasters such as earthquakes, large fires can occur due to these infrastructure systems. The 1995 Kobe fire, which emerged after the earthquake and could not be taken under control for days and caused great loss of human life and property is an important example in this

regard. Considering that such risks always exist, infrastructure systems should be planned and implemented within the safety limits. Factors such as the location of the fire brigade and the locations of the support systems should be considered within the framework of the relevant standards at the urban planning stage. Industrial areas, forest areas and historical buildings where the fire risk may be higher should be taken into consideration when choosing the location of fire brigade centers. Urban texture and dynamics are constantly changing because of the requirements and expectations and it came up with the issues that need to be discussed under different conditions and situations. It will be possible to provide safe living spaces in terms of fire with periodic analysis and evaluation studies. In this direction, it is necessary to consider each street with the risk factors and to optimize these risks.

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The article complies with national and international research and publication ethics.

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Investigation of Urban Sprawl in Isparta in the Case of Çünür Neighborhood

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1. Introduction

The city and urban environments are the locations most directly impacted by shifting global dynamics. Concrete changes in cities unavoidably alter the identity and memory of the city. While the physical structure has experienced development and change with globalization and the transition to modern life in 21st-century cities, the vital areas and lifestyles of individuals/societies have also changed. The impact of technological developments and the breakthroughs in industrialization processes guides recent urbanization processes. Technological advances accelerate the development of modern life in cities, and industrialization breakthroughs increase the attractiveness of cities. These factors have come to the fore in the urbanization processes that started to be felt intensely after 1980 in Turkey. Economic factors have become the dominant force of urban formation. With the economic growth of cities, increasing job opportunities have intensified the population, and this situation has led to housing demands. The pressure of economically and socially developing cities to experience physical development at the same pace has been the beginning of unplanned urban formation. In our country, in terms of planning and design theories and practices, it is not possible to keep the city and the countryside separate or independent from each other. Urban, rural and green areas must be designed as a whole in the context of their relations and interactions with each other (Gül et al., 2019).

The de-definition of cities in the face of rapid changes, their deliberation of their urban values, and the disappearance of those who remained from their past also coincided with this period. The university is not only an educational institution but also a region of power that attracts many economic, social and cultural factors around it. A university area that will occur in any part of the city creates an interaction area that spreads, starting from its surroundings. When a university region is formed, first of all, transportation axes are shaped, even developed in line with demand, then there is an increase in commercial activities and housing needs and housing demands are shaped. The university regions, which establish a chain of interaction network, also affect the direction of direct development of cities. New urban developments are often based on the region where universities choose to take their place. It is like a pharmacy, optics, florists, etc. around a hospital area it shows an interaction, such as choosing commercial entities. In investment decisions, every value that physically changes cities also changes socially. Especially in the decisions of the university region, the social structure that will come to a newly developing area or redefines constitutes the reason for an urban differentiation in itself. Just as the stakeholders of the houses clustered around an industry or industrial area are mostly people employed in these areas, the people who will choose a place around an education zone are mostly people who have connections with the institution. If the urban structure shaped in the face of an investment

decision or economic development is in an existing order, it experiences only a social change by preserving the visual value of its physical environment. But if the urban structure triggers the formation of a new order, then this order is shaped depending on the variables of development. In this case, 2 different situations arise to define the city. In the first case, there is a city that is experiencing a cultural transformation in the face of the social structure that has undergone changes while carrying the values of the past. In the second case, it is a new piece of order that is far from the past values of the city and has emerged in a completely different way. In both cases, it becomes difficult to define the city around a set of values. Does every urban development draw a direction that distracts cities from their values in this way, or why does it take them away?

The most basic elements that make up the socio-cultural and economically emerging and shaped cities are their morphology, which has changed and transformed over the years. Urban morphology is a general concept used to express part or the entire urban built environment in its most general terms. Urban images play an important role in defining urban morphology and analyzing its past and future (Kaya & Akdemir, 2020; Cesur & Gül, 2021). In the formation of the vital space, it is transformed in physical, cultural, identity and economic structure and transferred to the changing city. Each element transferred to the city constitutes the concrete and abstract elements of the city. All abstract and concrete elements in

urban spaces are perceived and stored in the memory of the individual/society. These elements are sharp formations that describe and define the place (Balci, 2021).

In the world of design, the interest in the physical is not enough to understand the city or to study the relationship between the physical components in order to make an arrangement; it is necessary to understand the relationship between the 'physical' and the 'factual', between the 'abstract (symbolic, conceptual, imaginary, memorable) and the 'concrete'. In this way, objective steps are taken towards comprehending the experience of space and a place (city) is evaluated by considering all its dimensions (Çil, 2006).

In this study, at the end of the education area location selection process, which is one of the triggering elements of urban developments, the change and transformation process of Çünür Neighborhood in the city of Isparta is examined. While Çünür Neighborhood is a region that lives a rural life in a city, it integrates into the city completely shortly, with the university established very closely. The study is based on social reflections on the morphological development of the field. In the study; it is aimed to reflect the cultural and social consequences of the change in the fast processes in Çünür Neighborhood.

2. Method and Material

2.1. Method

Within the scope of the study; the factors related to the space are examined in the area of Çünür Neighborhood in the city center of Isparta, which is an urban development area. While determining these factors; the most obvious form of growth of cities, which triggers the expansion and development of an urban space and is expressed as fringe or spread in cities, is utilized. Urban fringing or sprawl; It is defined as "scattered, low-intensity development on the edges of urban areas, characterized by fragmentary and strip developments" (Arribas-Bel et al., 2011). These areas, where cities are fringed or spread, are generally seen as a form of settlement with punctuated, decentralized, single-function land use, automobile-dependent, unplanned, band-shaped, poor accessibility and no functional open spaces (Öncel & Meşhur, 2021). Since Çünür Neighborhood, which is a research area, is also seen as an urban fringing or spreading area, the findings are evaluated in this direction. The field readings to be carried out within the study are structured under 7 headings that cause urban fringing, as determined by Öncel & Meşhur (2021). These topics are; macro-economic factors, social factors, urban problems, micro-economic factors, demographic factors, transportation and planning. While all these factors form the framework for the findings of the study, they also produce the causes and conclusions.

1968, there is no settlement order for Çünür Neighborhood. However, with the 1968 plan, a new road axis is formed in the north of the city. This axis also prepares the ground for new settlements.

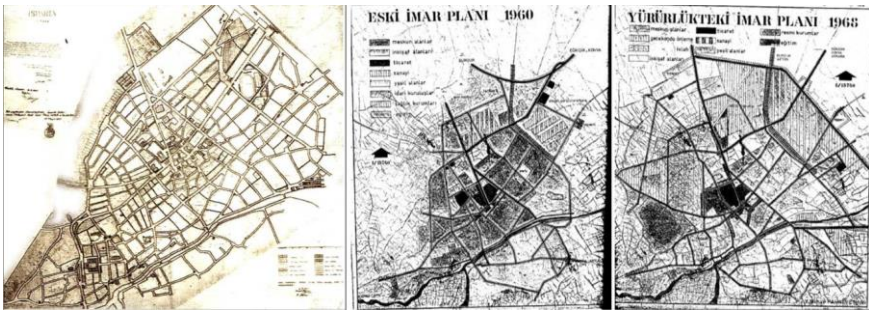


Figure 3. Isparta Zoning Plan for The Years 1938-1943 / 1960 / 1968 Respectively (Isparta Municipality Archive)

It is seen that the settlement of Çünür Neighborhood was first determined in the plan prepared in 1973 and entered into force in 1976. The first stage of the plan, which was prepared in 1973 with 2 stages, covers the central region. The 2nd stage is the additional zoning plan that creates the high school and new housing development areas to be located in the north of the city. With this plan (Figure 4), which entered into force in 1976, the development speed of the city has increased significantly. The first information about the boundaries of Çünür Neighborhood is included in the 2nd stage of this zoning plan. Çünür village or settlement was defined as a residential area according to the plan and included in the new development zone of the city.

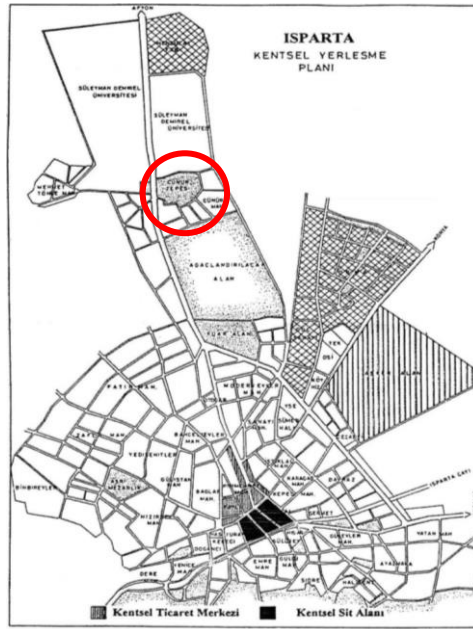


Figure 4. Isparta Urban Settlement Plan 1976 (Türk, 1995)

Çünür Neighborhood was the region defined as a village by the people of Isparta between 1976 and 1992, where the residents were engaged in agriculture and animal husbandry. Region; It is seen as a residential area in which there are 2-storey detached houses (Figure 5), reeve, school and coffeehouses. While transportation to the area located on the axis of the main transportation road was provided by village buses in the past, it is known that the residents of the neighborhood often came to the city center by horse carriage. The residents living in Çünür Neighborhood sell these products in the city center and provide

their income by cultivating agricultural areas (Figure 6) and mostly engaged in animal husbandry.



Figure 5. Old Çünür Houses (Url 1)

Figure 6. Çünür Agricultural Lands (Url 1)

While Çünür Neighborhood continued its village life, it experienced a radical change in a short period with a development in 1992. Isparta State Academy of Architecture and Engineering, founded on February 21, 1976, moved to the university's completed building in today's West Campus in the north of the city in 1988 (Url2). Officially, on July 11, 1992, the efforts to become a university in Isparta, which started in the 1980s, were embodied in 1992. The most important leap in the development of the city was experienced during this period. Together with the university, the city has determined a developing direction in the north and on this axis, first commercial areas and then housing areas have started to develop. While the city began to expand in the northeast and northwest directions, the constructions gained momentum with the TOKI residences in the northeast and completed in 2007. For Turkey in the 2000s and after, the state refers to a process

focused on urban transformation and TOKI in housing policies. In the new period entered with the urbanization emergency action plan adopted on January 1, 2003, social housing production was accelerated by giving priority to housing problems in cities (Ulusoy, 2020).

Çünür Neighborhood, which is located in the area where the university was established, has been the area most affected by these change processes. Çünür Neighborhood has been confronted with both mass housing production and other constructions in these processes. In 2007, a zoning revision was prepared in Çünür Neighborhood. According to the zoning revision, the proposed residential areas were created around the neighborhood. 18 applications (Article 18 of the Zoning Law) were made in an area of 1 million 200 thousand square meters in the neighborhood. In the planning target; It is envisaged to build 6 thousand houses, 450 thousand square meters of green space, 20 thousand meters of rainwater lines, 20 thousand meters of sewer lines and 20 thousand meters of drinking water lines. In addition, it is projected that the region will bring 30 thousand inhabitants (Url3). This change for Çünür Neighborhood is shown by settlement stain analysis in Figure 7.

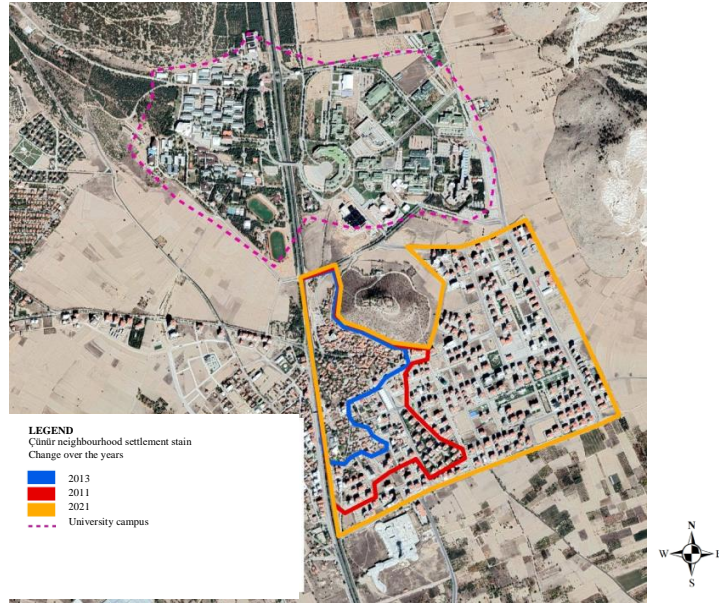


Figure 7. 2003-2011-2021 Çünür Neighborhood Settlement Staining Exchange (Prepared in Arcgis program.)

With a short process called the transformation of a village into a city in printed sources, the neighborhood has completely moved away from its old texture. With the university, it has become an area where continuous transportation is provided with the city and the demand for land use is changing. In the area, which started to be demanded by the students, academics and administrative persons of the university, zoning permission was granted to agricultural lands on the grounds of construction and independent housing owners started to sell their houses to contractors. With the effect of TOKİ residences and other constructions completed in 2007, the population graph curve of the

neighborhood (Figure 8) also followed a balanced or increasing course.

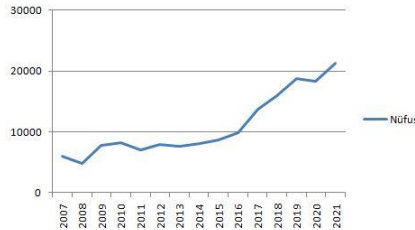


Figure 8. Çünür Neighborhood Population Curve by Year (TÜİK, 2022)

In 2014, Antalya-Burdur-Isparta Planning Region 1/100.000 Scale Environmental Plan entered into force. According to this plan, from the city center to Çünür, both sides of the highway were opened to urban development. As a result of the fracture thought to be related to this after 2016, the population exceeded the 10,000 band and experienced a rapid increase. The construction of a new city in Çünür Neighborhood was started without considering the protection of agricultural lands.

2.2.2. Current Situation Çünür Neighborhood

When it comes to today's Çünür Neighborhood, a residential area called a new city is encountered. With a zoning revision, within approximately 10-12 years, the whole of Çünür Neighborhood has turned into a completely different place in terms of physical, social, cultural and socio-economic sense. In the photographs below, the old Çünür Neighborhood texture in Figure 9 and the new Çünür Neighborhood texture in Figure 10 are seen.



Figure 9. Old Texture of Çünür Neighborhood, Author's Personal Archive, 2022



Figure 10. New Texture of Çünür Neighborhood, Author's Personal Archive, 2022

Today, the old texture of Çünür Neighborhood exhibits a physical structure that remains only in old buildings, including multi-storey houses, secure sites, wide roads and streets. The zoning plan covering the whole of Çünür Neighborhood and the land use situation are shown in Figure 11 and Figure 12. In the master plan, the gap on the northernmost right side of the Süleyman Demirel Boulevard axis is Çünür Hill. The houses of the old Çünür Neighborhood are also located around this hill. This area is also part 1 on the left side of the figure, given with focus from the zoning plan. As can be seen in the plan, these parcels, which are more organic, now have old Çünür houses, square, cottage and commercial equipment, and 10 meter roads, even if they constitute a very small area of the area. This region, which is defined by light brown color in the land use sheet, tends to decrease gradually with various parcel arrangements. To the east of the area, the parcel and road texture with grid layout are seen. This texture constitutes the newly developing urban area. In the newly

developed texture, the dwellings were dense and the building heights were released with a precedent value of 1.00 and the roads were planned as wide streets of 20, 15 and 12 meters.



Figure 11. Çünür Neighborhood Implementation Zoning Plan
Isparta Municipality, 2022

This region, which was planned and implemented in Çünür Neighborhood, is a concrete example of the process of zoning an empty land. When the land use situation (Figure 12) is examined, it can be read that the limited green space use of the old texture is planned in the new texture and a green axis is tried to be created. However, in addition to the constructions on agricultural land, the use of this green area does not carry a measure that can replace the old losses.



Figure 12. Çünür Neighborhood Land Use Status Isparta Municipality, 2022

In these new zoning islands, which are planned and implemented, multi-storey apartments and secure sites have taken place. Construction processes are continuing quite rapidly.



Figure 13. Author's Personal Archive, 2022



Figure 14. Author's Personal Archive, 2022

In the new texture, the old houses and the new houses are located together in the neighborhood. However, as can be seen in the

photograph on the left side above (Figure 13), the old residential texture is located in a very small area, while the new urban texture (Figure 14) shows a dominant image. Detailed spatial information for the neighborhood is not available in academic sources except for a master's thesis. In this academic resource on the residential structures of the area, it is emphasized that the local characteristics of the region are still rural features even though they remain within the urban area (Aydemir, 2019).

3. Findings

The area considered within the scope of the study is an area of 156 hectares that includes the old texture of Çünür Neighborhood and new zoning areas. The borders of the region are bounded between Süleyman Demirel Boulevard Road in the west, 5491 Street in the east, 245 Street in the south and 277 Street and Çünür Hill in the north. Çünür Neighborhood, where the new texture and the old texture are together, is seen as a change zone. In this part of the study, it is aimed to read the change in the spatial field. Reading an environment is a process that occurs when spatial information is obtained from that environment, processed in the mind and used appropriately (Köseoğlu & Önder, 2010). In the next stage, after the observation of urban spaces, it gives the results of reading the perception created by this observation in the mind. The first method in spatial readings is the researcher's observations on the field and years of experience. In the second research method, a qualitative technique was used as a

conversation and interview with the authorized reeve and religious commissary of the neighborhood during the observation in the area. The two research methods and the 7 leading factors of urban fringing or spread were also evaluated together in the transmission of perception. First, the zoning plan status of the region is given in detail in Figure 15.

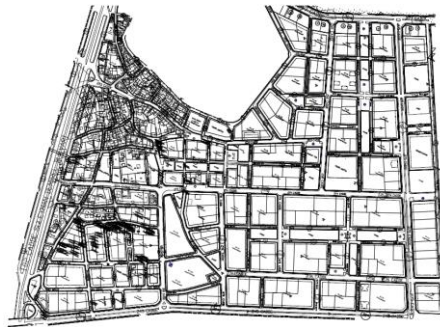


Figure 15. Çünür Neighborhood Implementation Zoning Plan (Isparta Municipality, 2022)

In the zoning plan (Figure 15), the new development of the region and the old texture of the corner parcel are revealed in detail. This appearance describes a form of the region that is fringed and spreading within the city.

3.1. Field Readings

1. Macro-Economic Factors

Economic growth in cities is the most important triggering factor in urban development. In today's cities, globalization creates an effect that increases the growth trend, while technological advances bring

about changes in the spatial use of cities. These factors constitute the macro factors of urban development (Öncel & Meşhur, 2021).

Macro factors play a major role in the transformation of Çünür Neighborhood into a fringed or spreading region within the city of Isparta. The presence of Süleyman Demirel University on the periphery of the city is the most important macro factor in the construction of a new urban order for Çünür Neighborhood and in directing the development from the city center to the university. Süleyman Demirel University's site selection decision in 1992 was the first driving force of urban spread and leap forward in choosing Çünür Neighborhood.

2. Micro-Economic Factors

The increase in the land value of urban areas in the center causes the population to flee to the periphery of the city and fringe development with the idea that the lands located outside the city bring more profit as an investment area (Öncel & Meşhur, 2021).

One of the biggest changes in the settlement of Çünür Neighborhood is the change in the social structure of the population you host. This process of change is also seen as an example of micro-economic factors. Some of the residents of the houses where the old texture continues to live on provide their livelihood with animal husbandry and trade. Some of them are employed at the university and some of them continue their lives with the income they earn from their land. The social structure has not changed with the new population in Çünür

Neighborhood, and the social structure of the existing population has also changed. When compared to the city of Isparta, people who earn 10-15-20-35 apartments from this region, which has the most yielding land, are mentioned. This reflects a rather difference compared to the past income sources of the current population (Interview notes with the neighborhood religious commissary, 2022).

The social structure has evolved from a community that subsists on the land at average levels to a community that can live in a higher status. The texture of the old Çünür Neighborhood reflects the social activity situation of a small village settlement with its square coffee house. Men work in the household, while those who do not work spend time in coffeehouses and parks. It is observed that women spend more time at home. In the new housing fabric, the level of education is high in households and men and women are in the world of working together. For this reason, they prefer the common use areas of closed sites, park areas and other socio-cultural facilities. The reflection of economic differentiation on social activities also emerges here. There is a total of 40,000 meters of parking space in the area where the new constructions are located (Interview notes with the neighborhood reeve, 2022). However, open and green areas do not have an equal and balanced spatial distribution (Akten & Yücedağ, 2022). According to Akten & Yücedağ (2022); the biggest opportunity of the neighborhood is to increase the qualitative potential of the open and green space presence through effective planning and design. For

residents of both old and new residences, the presence of these parking spaces has increased the process of social activity spent outside. According to neighborhood observations; socio-spatial unification in new housing areas is greater than in old residential areas. The neighborhood headman also supports the observation by stating that there are not many gathering areas for the past, and that there is a coffee shop for men and a social facility for women where they organize entertainment from time to time. In addition, the construction of the TOKI buildings within this new texture was completed in 2007. The fact that the families here consist of families with narrower income groups shows that there are mixed groups in the neighborhood. The neighborhood is inhabited by people of all ages. In fact, if the majority has the right to 3 apartments, they have shared it with their children. Therefore, it is stated that there is no environment for people to leave (Interview notes with the neighborhood religious commissary, 2022). The residents of Çünür Neighborhood are very pleased to open their agricultural lands and land to this new physical situation. Residents are now waiting for zoning to be opened in places where zoning is not opened. He sees this as a chance (Interview notes with the neighborhood religious commissary, 2022). Because new constructions have been a source of economic, return for the residents.

3. Social Factors

With the effect of technology in urban area production in developing cities, the majority of the population prefers new and comfortable

housing areas. Especially the high and middle income group prefers the city peripheries instead of the chaos of the city center. Housing preferences also determine the social factors of urban fringing and spread (Öncel & Meşhur, 2021). In the old urban texture (Figure 16) detached dwellings are preserved. Organic formation is maintained with mosques, commercial uses, residences scattered in squares and narrow streets. Since the families living here are related to each other, they are located in such a way that one of them has a house in the garden of the other. There is a recessed, protruding and irregular construction in the present place (Interview notes with the neighborhood reeve, 2022). This explains the organic texture. According to the interview with the neighborhood reeve; the first inhabitants of the neighborhood determined the parcel boundaries with cunning, etc., until the cadastre crossed. Then, when the cadastre came, everyone wrote about the place they wanted. This is the reason for the resulting housing and area appearance.



Figure 17. Author's Personal Archive, 2022

The appearance of the old Çünür settlement with a garden house has been replaced by an apartment area. Each of these apartment buildings also represents an example of the new century urbanization as it is newly built and state-of-the-art building materials are used. Çünür Neighborhood settlement no longer describes a rural area, but an urban housing area. In terms of Isparta urban identity, both the type of construction and the building heights have a different appearance than the usual texture of the city. For the residents of the neighborhood, it has been easier to adapt to this physical situation than thought. When considered as a peasant, the designs made were asked to stay in 2-storey houses. However, the neighborhood quickly got used to the large sites and new apartments (Interview notes with the neighborhood reeve, 2022).

4. Urban Problems

Growth and development in cities is not only to meet the demand of a new population. It also carries the pressure of an existing population that wants to move away from the region where it is located. Especially with the transformation of the urban centers of metropolitan cities into an intensive business, commercial and social activity area, security problems, environmental degradation and socio-economic reasons are driving individuals away from urban centers. Individuals prefer less noise, more open and green space and comfort around their housing areas. It is seen that those who belong to the upper income group of individuals tend to the peripheries of the city

(Öncel & Meşhur, 2021). In this new housing area built in the immediate vicinity of the university, students and university staff are expected to choose a place. This prediction indicated a change in observations made in the field. University students prefer rental apartments in accordance with their budgets. However, prefer regions closer to the city center, Isparta and shopping areas. The university student does not constitute the dominant profile of this residential texture formed in Çünür Neighborhood. The social structure for residents of new buildings is divided into two. In the first structure, there are people who come to these new areas from the existing houses, and in the second structure, there is a new incoming population. The residents of the old neighborhood who come from the existing dwellings are the ones who own housing in exchange for their land. In the neighborhood where the old dwellings are located, almost everyone has a house on new sites. Some have not closed these old residences (Interview notes with the neighborhood reeve, 2022). For example, if he is a farmer and has a tractor, he comes to use it in the summer. Some of them are rent it out (Interview notes with the neighborhood religious commissary, 2022).

In the second structure, university personnel, especially faculty members, administrative staff and military unit personnel in the region, prefer these new residences in Çünür Neighborhood (Interview notes with the neighborhood religious commissary, 2022). The fact that the houses are the newest constructions in the city center of

Isparta, their comfortable, common use area and security create the appearance of a region that appeals to the upper income group. When looking at the values of new houses, for example; the fact that the houses that will appeal to a nuclear family in the 3+1 format are in the 700.000-1.000.000 TL band strengthens this inference. It can be said that the groups that prefer new houses are different from the old Çünür resident groups in terms of occupation, education level and income level.

5. Demographic Factors

The current population of Çünür Neighborhood is 21,334 (Interview notes with the neighborhood reeve, 2022). Çünür Neighborhood is experiencing a change in the population curve according to the years with the increase in housing areas. Since the opening of the new zone to zoning, there is a projected population number in the area. This population started to come over time and is still increasing. While the population is increasing, there is not only an increase in housing areas. There is also an increase in educational areas, parking areas, mosques and commercial activities. With families choosing to live in this region, institutions at all levels have been needed in the fields of education. Schools were built. Parks (children's toys, seating area, sports equipment, etc.) have been opened that allow children and adults to spend time and be in a healthy environment. While 1 mosque was sufficient in the old Çünür settlement, a larger mosque was built with the increase in the population. Apart from this, the commercial

activities of the people living in the old Çünür Neighborhood are shaped around basic needs such as barbershops, butchers, bakeries, grocery stores, food and pharmacies. In the area where the new residential texture is located, in addition to basic needs, different markets, cafes, children's play cafes, stationery, restaurants and other functions are also included. Apart from these functions, a new market area has been built. Around the market area, commercial areas such as markets are clustered.

According to the interviews with the neighborhood reeve, it is learned that there are two primary schools, one middle school, one high school and private and public kindergartens in the neighborhood boundaries today. It is seen that high school and kindergarten level schools are built in new settlement areas. It can be interpreted that this situation depends on the increase in the population and the increase in the level of education of the social structure.

6. Transportation (Access)

Another important trigger of the spread and fringe in cities is the changing transportation infrastructure of cities and the diversification of transportation vehicles. In the cities of the world that are developing with technology, individual car ownership makes all areas accessible in and out of the city. Only the use of private vehicles is sufficient for the fringing of these areas, and public transportation may be insufficient. Or, it seems possible to trigger sprawl in areas where public transportation is developed (Öncel & Meşhur, 2021).

The creation of a wide transportation axis between the city center and Çünür Neighborhood together with the campus of Süleyman Demirel University has turned the region into an attraction point. Public transportation provided comfortable travel to the city center, which was previously reached by horse-drawn carriage. For those who live in the city center, it has become a region that must be seen when reaching the university. In fact, various projects for the development of transportation and transportation infrastructure connected to new housing areas are now being implemented and contributing to the transformation process.

During the conversation, the neighborhood reeve states that in the next zoning revision, the floor height will be requested for the area within the old residential texture. Because it is thought that the area where the old residential texture is located will remain in the bay. When the planned transportation routes close to 50 meters at the neighborhood borders are implemented, there will be nothing left except one or two passengers to be taken by the buses passing through this region. It is said that the interest and interest shown in this region will finish (Interview notes with the neighborhood reeve, 2022).

In the old settlement of Çünür, the streets are narrow and organic. The number of vehicles and the demand for vehicles are quite small for residents here. The vehicle needs of these individuals, who make their living through agriculture, animal husbandry and trade, are focused on business and special situation. For this reason, they use public

transportation services more. In the area where the new houses are located, the roads are wide and the houses have parking areas. Those in this new area have more vehicle ownership. The owners of the new houses are vehicle-oriented in line with their social needs and luxuries in this region, which is located a little further away from the city center. They prefer their private vehicles rather than public transportation types.

7. Planning

The reflection of the planning understanding of the cities can be clearly read from each period city. Today's planning approach goes to the way of positioning urban area uses separately from each other. This situation causes the separation of cities and the spread of each separated area within itself. Gathering the business centers in the center, throwing the factories and all investment areas out of the city and tidying up the housing areas in another region is the most common urban planning system. As mentioned, the spread of cities can have more than one reason. But the most effective force that can implement or prevent these causes is still planning (Öncel & Meşhur, 2021).

When defining the old texture and the new texture for the Çünür Neighborhood, it feels like two completely disconnected settlements are being mentioned. But these two textures are intertwined and two different settlements of the same neighborhood. There is no border or path separating these tissues. It creates the same perception as the

impression when you go to a wide street while passing through a narrow road. However, in the conversation with the neighborhood reeve, according to the residents, there is no such thing as a new city. The existence of a continuous area completely connected to the Çünür Neighborhood was taken for granted. This new form of the neighbourhood does not go beyond an appearance that tries to fill the void. However, it is much easier to plan an empty space holistically. The fact that the concept of empty space for Çünür Neighborhood consists of agricultural lands and that the lands are sold in parcels and taken by contractor companies makes this situation difficult. Buildings or enclosed sites in the area are developed in pieces. Large circle masses, wide roads and spaces define the whole area.

4. Conclusion and Suggestions

As can be seen from the zoning plans, the city of Isparta felt the need for urban development and expansion after a certain period. This need has been seen in almost all the world's cities. The reason is attributed to industrialization and economic developments in the face of the advancing age. Because the number of cities that are industrializing and keeping pace with economic development has started to increase and existing cities have started to grow. This process is called urbanization. Urbanization; it is a process of population accumulation that creates an increasing degree of organization, division of labor and specialization in the structure of society, leading to urban-specific changes in human behavior and relations (Koçak, 2011). The concept

of economic development within the urbanization process has become identified wherever (Kayan & Mardinli, 2020). Urbanization, which has a direct relationship with economic development, has also caused significant changes in society in social and cultural terms (Keleş, 2018: 21-22; cited in Kayan & Mardinli, 2020).

The increase in population accumulation in the city of Isparta and an investment area such as a university for Çünür Neighborhood; it has set aside all urban values. It has caused urbanization to spread and increase. Among the urban values, the most important for Çünür Neighborhood has been agricultural lands. In response to increasing demand, growth has included these lands. According to Yeter (2008); rent anxiety is devoid of all ethical values and virtues. It ignores environmental values and sees everything as legitimate in order to achieve its purpose. The spread of this understanding is the most negative situation that a society can face (Koçak, 2011). It is necessary to maintain a balance between responding to the need for social housing and pursuing economic interests. It may be considered normal and necessary to open new zoning areas for a city or region in the case of social housing and demand. The discipline of city planning also brings suggestions with an expert perspective in ensuring this necessity. When we look at the Çünür Neighborhood settlement; it is a debatable issue whether there is a need for a new city in the city of Isparta. Moreover, this new city development has gone beyond meeting. It has replaced the housing demand of the university

environment and by closed and secure sites that appeal to the upper income group. At this point, it becomes difficult to think that the new zoning occurs in the face of the need for housing and housing. On the contrary, it raises the question of the population fleeing from the old and complex urban fabric and choosing a luxurious and isolated life. The variables that contribute to the emergence of such a problem are listed in the study. When one enters Çünür Neighborhood, one gets the feeling of entering a different urban settlement from the city of Isparta. This feeling can be attributed to the fact that it was established in an area disconnected from the city center and continued its development towards the city center.

The construction of high-rise and dense houses within the island, the presence of very wide streets and alleys, but the lack of a traffic demand passing through these streets strengthens the feeling of emptiness in the space. The area offers the appearance of an isolated living space rather than a living residential area. Çünür Neighborhood settlement is adapted from rural life to urban life in a very short time. There can be many reasons for this. But the most dominant thing is that the income from agricultural production and agricultural land and the income from the construction sector are quite different. In this case, which is based on urban policies, the construction sector provides much more economic returns. Urban land is highly valued in economic transformations. "In developing countries, it is difficult for capital to shift to production when land speculation provides the

property owner with great returns without any risk and without significant effort. There is no reason for him to engage in risky pursuits." (Tekeli, 2009: 9 cited in Uyaniker, 2011). "Land speculators buy land over the value of agricultural land in the process of transforming agricultural land into urban land. Then they sell it on the urban land that is formed as a result of zoning and has a higher value" (Uyaniker, 2011). It contains exactly this definition in the situation that is experienced and is being experienced in Çünür Neighborhood.

A new city was built in the city of Isparta. This city is quite detached from both its neighborhood and the patterns of the province in which it is located. This disconnection is not experienced because it is a new construction process. As long as life continues, shelter areas will continue to increase. However, creating regions that develop in parts within the city is not a correct planning approach. Especially in urban plots obtained from agricultural lands in the city are the causes of a dangerous spread. On the contrary, it is necessary to make progress in which all environmental factors and values have been calculated in advance and directed towards development.

Çünür Neighborhood is only an example of economically developing cities. Especially today, it is possible to find areas that have experienced or are experiencing similar processes in almost every city. The cities of the future need to be considered as a legacy to future generations. But as those who continue to live in the neighborhood think, economic concerns take precedence over every value. Even if

these values are social, cultural, physical and ecological, they succumb to economic values in the conditions of the day. In Çünür Neighborhood, too, the neighborhood did not look at the results for the future, but at the marginal benefit provided to them and the comfort of life. After all; it is seen that socio-economic factors completely change the physical structure of cities. The future of cities and the life benefits of individuals need to be brought together at a common point of balance. Otherwise, the economy that saves today will prevail. But the future livable cities will be lost.

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Evaluation of Visitor Impact Regulations With A Participatory Approach Within The Scope of National Park Long-Term Development Plans

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1. Introduction

The field of action of planning is the space as a whole country. All actors of the country, different disciplines and their interests, solution proposals and the products they put forward, one is not independent of the other and there is direct or indirect interaction between them.

The physical planning paradigms accepted as valid in the world have been formed according to the social realities of these countries. Therefore, it is consistent with the realities of the society in which it develops, both in terms of social support and economic resources (Tekeli, 1984).

The concept of planning, if defined as a "*set of intellectual actions*", accepts the existence of a thinking/rational society. J.J. Rousseau points to this fact by saying that Paris is "the capital of every thinking human." The entire physical environment is the culture of the society, the philosophy of life, the way of life, and the institutional structure. Planning is the intellectual preparation for the determination of the future lifestyle, environment, and conditions of the individual and society.

As Baykan Günay states, "*a process that deals with abstract and concrete processes together, arrows, circles, squares that depict numbers, relationships, directions, and their densities...*

The process of creation that we desire could become a reality...

The emergence of planning as a discipline coincides with the beginning of the 19th century when uncontrollable urban growth began. It can also be noted as the years when urbanites have not yet

experienced a serious orientation to natural areas and the demands for use of rural and natural areas have not been felt very much. With this approach, do not say that "planning" is called a *–thought revolution* – indexed to the beginning of the 19th century (Aydemir, 2004¹). Planning has existed in every aspect of life since the day human beings existed. However, the dimension that we will discuss here today will be a little different. "Institutionalization of Planning" takes place in later years. Planning alone cannot fill in itself. It establishes itself with several complementary elements; Research, and Analysis. Therefore, if we consider the planning that we classify under four headings as social, physical, management, and object planning on a professional basis, we see that our field of interest – physical planning – is focused on. Physical planning (Köseoğlu, 1982); is a comprehensive research and technical system that affects and coordinates the methods and research results of the natural and socioeconomic sciences. Another definition of physical planning by Bruton (1974) is a type of planning that seeks the solution of the equation with many unknowns in space, it is related to development and change' (Aydemir, 2004²). Physical planning, which deals with change and development, has itself changed. Today, there is no concept of a finished or static, optimum or ideal environmental plan. Physical planning is not just about changes in the physical environment. Such changes are the domain of social scientists, and they are engaged in the monitoring, analysis, and explanation of social, economic, and behavioral changes related to location selection

in society. Planning, then, as part of a broad social program, is to provide the physical foundations for better community life. To do this; it is necessary to establish order and balance in land (urban-rural-coastal) use, reconcile demands for limited land use, and to create a better physical environment.

In today's world, where distant geographies are transformed into a form that will be made open to exploitation by being controlled by dominant powers thanks to communication and information technologies, and where a phenomenon called "globalization" is experienced, Turkey is obliged to eliminate the negative aspects of this danger on the one hand and to reconsider its entire institutional structure and functioning in the process of integration into the European Community and to quickly implement the technology required by the information age. Because "planning", which is the way to design the future with foresight, has to keep up with the new approaches and steps of the differentiating world. This may be even more of a priority for our country than for developed countries, but what is sad is that we cannot put forward the sanctions that are seriously aimed at implementing all these developments and go beyond being a spectator beyond putting them into our legal legislation with imported concepts. The main reason why we say that it is more important for our country is the process of the rapid disappearance of our natural and cultural values. Sustainable Development is still repeated as an empty concept and planning has ceased to be an end and has become a tool of rent fights in our

country. However, the purpose of planning; is to prevent costly losses to the society by acting in a planned manner.

2. Country Spatial Planning Hierarchy

Spatial Plans Construction Regulation (Official Gazette Date:

14.06.2014 Official Gazette Number: 29030)

Spatial Strategy Plan

Maps of scale 1/250,000, 1/500,000, or higher

Landscape Plan

1/200.000, 1/100.000, 1/50.000, 1/25.000

Land-Use Plan (Master Development Plan)

1/5,000 scale, 1/5000 to 1/25,000 in metropolitan municipalities

Application Master Plan

1/1,000 scale

In addition, there are Transportation Master Plan, Long-Term Development Plan, Integrated Coastal Areas Plan, Conservation Development Plans, and Urban Design Projects. Regional Development Plans in 26 Regions (by Regional Development Agencies) have been made by the Ministry of Development. But these plans are not physical plans.

3. Protected Area and Planning

Article 25 of Forest Law No. 6831, which entered into force in 1956 and is still in force, The concept of "National Park" was mentioned for the first time in the Article, and within the scope of this law, in 1958,

Yozgat Çamlık, (264 ha) It has been declared the first national park in our country.

Zekai BAYER, who returned to his homeland after studying at the National Parks Service in the USA and was appointed as the first Head of the National Parks Department in 1965, published the book titled National Parks- Importance, Relations and Planning in 1966, which talks about planning for the first time.

The "Regulation on the Separation, Administration and Operation of National Parks" dated 1959 and numbered 6885, which was issued after the declaration of the first National Park, was abolished and the "Regulation on the Separation, PLANNING, Implementation and Management of National Parks" published in the Official Gazette dated 1973 and numbered 14456 was accepted and the concept of Planning took its place in the legal texts for the first time.

Within the scope of the Tourism Commission established in 1967 within the body of the State Planning Organization (D.P.T.), the first National Park Master Plans were started to be made in our country under the leadership of 12 experts working in the American National Park Service and with the help of the International Development Department (USAID). Technical staff working in the National Parks Service and university faculty members also participated in these studies. These plans, which were completed in 1971, are mostly suggestions and recommendations in the light of current developments. Until the 1990s, no planning work was carried out in

the National Parks Department, and in 1991, the Commander-in-Chief's Historic National Park Master Plan could only be completed. After the 1990s, the Master Plan Studies for the protected areas gained momentum, the preparation of the UDGP for all protected areas was accelerated, and in July 2000, the General Directorate of National Parks and Hunting and Wildlife Office Bureau Coordinator of the Long-Term Development Plan to complete the planning studies and to start the implementation created. As of this date, tenders have been opened to private sector organizations and universities for the preparation of UDGP for 33 areas. Today, in 2022, we have a total of 48 National Parks (884,566) and 259 Natural Parks (106,775). The master plan studies of 38 national parks have been completed.

- National Park lands belong to the public.
- In cases where the areas belonging to individuals meet the national park requirements through the options such as expropriation, transfer, allocation, or donation are nationalized by the Ministry of Agriculture and Forestry based on the Expropriation Law and declared as a national park.
- The Ministry of Agriculture and Forestry has the right to regulate, manage, operate, or have national parks operated.
- The said right of operation applies only to national parks that are not covered by the state forest, and the right to operate state forests cannot be transferred by Article 169 of the Constitution.

In Turkey, planning principles for National Parks and other protected areas are regulated in Article 4 of the National Parks Law No. 2873.

This article states "Taking into account the characteristics and characteristics of the areas designated as National Parks, the development plan covering their establishment, development, and operation to realize their protection and use purposes shall be prepared and put into effect by the Ministry of Environment and Forestry with the positive opinions of the relevant ministries and, when necessary, their actual contributions. In addition, this article states that the necessary plans will be prepared for the areas designated as Natural Park, Nature Monument, and Nature Reserve.

Within the scope of the "Decree with the Force of Law on the Organization and Duties of the Ministry of Forestry and Water Affairs" dated 2011 and numbered 645 (T.C. Ministry of Agriculture and Forestry), the General Directorate of Nature Conservation and National Park within the ministry was held responsible for carrying out the duties given by the National Parks Law dated 9/8/1983 and numbered 2873 and was obliged to carry out the works and operations related to planning.

The Decree Law No. 644 dated 2011 and the said regulation issued based on it; It is not acceptable that the authority related to the registration, declaration, and planning of protected areas, including the areas under the responsibility of the General Directorate of Nature Conservation and National Parks, has been gathered in a single ministry, the Ministry of Environment and Urbanization of the Republic of Turkey, regardless of the field of expertise and application experience to create a confusion of authority.

Latest Status: Natural Park and National Park Development Plan is put into effect by the Ministry of Agriculture and Forestry of the Republic of Turkey. The zoning plans for the settlements in the Development Plan are approved by the Ministry of Environment and Urbanization of the Republic of Turkey with the appropriate opinion of the General Directorate of Nature Conservation and National Parks.

Within the scope of the relevant article of the National Parks Law No. 2873 described above; 'General Technical Regulation of Long-Term Development Plan and Management Plan' was prepared by the General Directorate of Nature Conservation and National Parks (Arda, 2003). In this Charter, it is stated that Long-Term Development Plans for National Parks and Natural Parks, and Management Plans for Nature Reserves and Natural Monuments will be prepared. "Long-Term Development Plan; Taking into consideration the ecological planning approach and their characteristics and qualities, the planning principles related to the protection of the areas with the status of National Park and Natural Park, ensuring the continuity of resource values, development, management, and promotion; means the physical plan of 1/25.000 or lower scale when necessary according to the size of the area, which forms the basis for all kinds of settlement and other use decisions in the conservation and development zones foreseen in this plan and the application zoning plans of all scales to be made for the development areas of the settlement units and the application projects and application programs, determines the decisions and provisions related to them, is a whole with its scientific report.

Long-Term Development Plans are special purpose development plans defined by various laws, prepared by the zoning law, and invalidating the provisions of the development plans. According to the National Parks Law No. 2873 dated 1983, "It is the plan prepared for the protection, development, and operation of the places designated as national parks by their characteristics and qualities. Taking the positive opinion of the relevant ministries (National Defense, Public Works and Settlement, and Culture and Tourism Ministries), is commissioned by the General Directorate of Nature Conservation and National Parks under the Ministry of Environment and Forestry of the Republic of Turkey and approved by the Ministry."

In our country and all over the world, national parks are often expressed as equivalent to nature protection areas. For this reason, the stages and processes applied in the national park long-term development plans (master plan), known as national park planning, are similar to other protected area forms but have similar characteristics (Demirel, 2005).

Article 13 of the "National Parks Regulation" dated December 12, 1986, is about the Nature Protected Areas specified in the National Parks Law No. 2873 enacted in 1983; " The plans to be prepared for the places determined as natural parks, natural monuments, and nature protection areas shall be prepared by the national park planning procedures and techniques, the objectives, criteria, general policies and principles of the status applied, and taking into account the

resource values and characteristics of the planned area, taking into account the opinion of the Ministry of Culture and Tourism and approved by the ministry and put into effect."

Long-Term Development Plan Stages Were Carried Out in Our Country Until The 1990s

National Park Long-Term Development Plans, which were used in the USA and Canada for a short time between the 1970s and 80s and continued in our country until the 1990s, were more commonly called the Classical Planning approach (Table 1). Since the plans made were unrealistic and the plan stages showed a continuity that was not very related to each other, it was abandoned and replaced by the Management Plan, Unified Plans, and Strategic Plans.

National Park Plans should be compatible with plans such as 5-Year Development Plans, Regional Plans if any, Upper Scale Physical Plans, and Environmental Layout Plans and Development Plans in terms of planning technique.

First of all, two plans are prepared for the areas determined to have a national park character.

- National Park Long-Term Development Plan that brings decisions on scales of 1/5000 and less
- There are two other important studies besides the National Park Local Development Plan, Long-Term and Local Development Plans, which bring decisions on a scale of 1/5000 and larger. The first is the Implementation Projects and the other is the Resource Management plans.

Survey-Inventory Studies to Determine Resource Values Information collection about the natural, cultural, recreational, and touristic resource values of the area.

Determining Planning Purpose Plan aims and principles are determined in line with inventory studies.

Limitation Considering the resource values of the park, natural and realistic boundaries are determined to ensure the integrity of the resource, landscape, and management.

Zoning In line with the purpose, the boundaries of the protection-use area are determined. Usually, there are 3 zones, and these are absolute, buffer, and growth zones.

Development Planning Planning the services and facilities required for park management as well as the facilities required for visitors

Socio-economic assessment and feasibility studies In terms of the economic dimensions of the actions, the social and economic structure of the local people is examined. As a result of the restrictions to be imposed by the actions to be implemented in the park, alternative ways are determined so that the people here are not victimized.

Investment Programming Planning the investments for the park when will start and end and service staffs are determined for visitors.

Coordination and approval It is the last stage in which universities and local governments are asked to participate and evaluate the plan. Then, it is put into effect by the relevant ministry by taking the opinions of the relevant public institutions and organizations.

Table1. National Park Long Term Development Plan Stages

Survey-Inventory Studies to Determine Resource Values	Information collection about the natural, cultural, recreational, and touristic resource values of the area.
Determining Planning Purpose	Plan aims and principles are determined in line with inventory studies.
Limitation	Considering the resource values of the park, natural and realistic boundaries are determined to ensure the integrity of the resource, landscape, and management.
Zoning	In line with the purpose, the boundaries of the protection-use area are determined. Usually, there are 3 zones, and these are absolute, buffer, and growth zones.
Development Planning	Planning the services and facilities required for park management as well as the facilities required for visitors
Socio-economic assessment and feasibility studies	In terms of the economic dimensions of the actions, the social and economic structure of the local people is examined. As a result of the restrictions to be imposed by the actions to be implemented in the park, alternative ways are determined so that the people here are not victimized.
Investment Programming	Planning the investments for the park when will start and end and service staffs are determined for visitors.
Coordination and approval	It is the last stage in which universities and local governments are asked to participate and evaluate the plan. Then, it is put into effect by the relevant ministry by taking the opinions of the relevant public institutions and organizations.

Long-Term Development Plan Features

- Assumes that the will to implement the plan is sufficient "plan culture" and "plan experience",
- It is a physical plan, it has integrity with its report,
- It is included in the planning legislation,
- Includes multidisciplinary work,
- Plan decisions carry continuity and flexibility,
- It has a feedback process,
- Describes application projects and programs,
- Recommends the management organization,
- Creates a database.

Long-Term Development Plan Stages in Our Country

UDGPs in Turkey are prepared by the General Directorate of Nature Conservation and National Parks of the Ministry of Forestry and Water Affairs of the Republic of Turkey. The UDGP Technical Specification consists of four parts: (Düzgüneş, 2015).

Chapter 1

Article 1. Purpose and Scope

Article 2. Descriptions and Definitions

Article 3. General Principles

Article 4. Where This Specification Applies

Article 5. Planning Principles

Article 6. Prohibited Activities

Chapter 2

Article 7. Regulation of UDGP

Article 8. Analytical Study Report; Current Due Diligence Synthesis

Article 9. Planning

Chapter 3

Article 10. Maps to Edit

Chapter 4

Article 11. Drawing Techniques

Plan Stages

1. Analytical Study
2. Analysis of Synthesis Data
3. Planning
4. Consent

10 Logical Steps Are Followed (Koşdemir, 2018)

1. Defining
2. Assessment
3. Ideal Goals
4. Limitations and Supporters
5. Application Objectives
6. Activities
7. Plan Decisions
8. Application
9. Monitoring
10. Renewal

Before Planning

- Maps of the area to be planned are provided
- Before starting the planning process of the area, the General Directorate of Nature Conservation and National Parks is informed by the Regional Directorate that the plan work has been started.

- Information is collected from all relevant public institutions and organizations.

For example;

- From the General Directorate of Forestry, forest roads, forest delimitation boundaries or forest cadasters boundaries and forest management plans;
- Regional/local meteorological station records from the General Directorate of Meteorology for the past 20 years (monthly and annual meteorological data, the effect of precipitation, climate types, etc.)
- From the General Secretariat of the Special Provincial Administration, land use, soil capability, slope, village roads, rural infrastructure, irrigation projects, ponds, etc. facilities, projects for agricultural irrigation purposes, and new settlement studies, if any, approved village plans
- Administrative and legal processes for the preparation of the plan are initiated taking into account the vegetation period (allocation of appropriations if it is to be tendered, preparation of specifications, tender process, signing of the contract, etc.)
- A planning team is formed according to the characteristics of the area.

Working Method and Work Schedule

- The methodology for the whole and parts of the plan is determined
- The timeline of fieldwork is determined

Table 2. Analytical Study and Data Collection

Stage I: Analytical Study and Data Collection

Locational	Natural	Historical and Cultural	Socio-Economic	Administrative and Statutory	Technical and Social Infrastructure	Environmental Problems
Geolocation	Geology	Archeological Features	Agriculture	Ownership	Social Infrastructure	Air Pollution
Transportation	Geomorphology	Historical Features	Farming	Land use	Technical Infrastructure	Water Pollution
	Climate	Socio-cultural Features	Forestry	Administration	Roads	Soil Pollution
	Hydrology		Tourism and recreation	Statutory status	Drinking and Utility water	Noise Pollution
	Soil			Regional projects	Wastewater and treatment	Visual Pollution
	Ecology				Solid Waste	Excessive and Uncontrolled Use
	Ecosystem				Parking	
	Vegetation				Energy Transmission and Communication Lines	
	Habitat					
	Biodiversity					
	Flora					
	Fauna					

Stage I: Analytical Study and Data Collection (Table 2)

For the planning studies carried out in nature protection areas to be healthy and feasible, in addition to determining the values of natural and cultural resources, it is necessary to determine the socio-economic and demographic characteristics of the people of the region and to reveal the way and expectations of benefiting from the area. At this stage, the data obtained from the field and literature studies are collected and the current situation is revealed, and information sheets are created by transferring them to the existing maps.

Stage II: Synthesis and Evaluation (Figure 1)

This section aims to identify and understand why the protected area is important. It is the section where the resource values of the protected area are defined and these values are related to each other, and the problems and possibilities are defined. At the same time, legal, natural, and anthropogenic limitations, threats, and opportunities are also defined in this section.

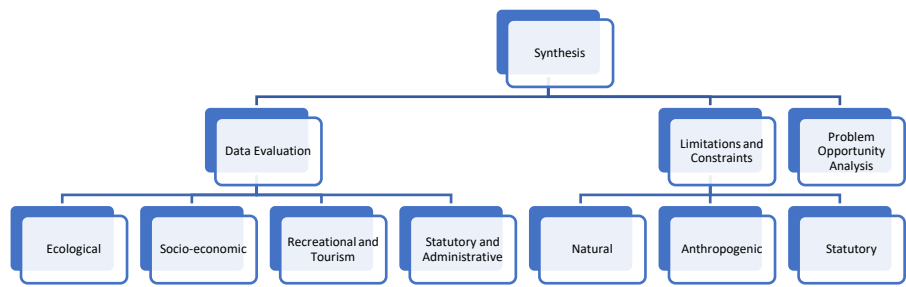


Figure 1. Synthesis and Evaluation

Stage III: Planning

- Vision (Goal)/Mission (Objective) and determination of plans
- Defining strategies, specific objectives, and activities

- Zoning
- Defining a sustainable management mechanism
- Defining the financing mechanism
- Defining the monitoring program

In Zoning;

- Main resource values of the field,
- The precision of Source Values,
- Rarity,
- Repairability,
- Endemism,
- Risk Factors,
- Ecosystem Integrity,
- Landscape Diversity,
- Species Internal Habitat Width etc.,
- Traditional Uses and Socio-Cultural Values,
- Property Status,
- Legacy,
- Environmental,
- Anthropogenic and Physical Factors,
- Other Limitations and Other Possible Elements Specific to the

Area are taken into account.

Plan decisions are prepared under two general headings.

1. General Provisions, regulations relating to the entire area,
2. Special Provisions shall include arrangements for regions based on zoning made in the area.

Within the scope of Notice No. 2012/9 on 'Determination of Conservation Zones in Protected Areas', 4 regions were determined (Table 3).

Table 3. Distribution of Conservation Areas: An Analysis in a Protected Area Example

Conservation Zones	Area (Ha)	Percentage (%)
Strict Conservation Zone	5.589	17.93
Sensitive Conservation Zone	24.296	77.96
Sustainable Use Zone	521	1.67
Controlled Use Zone	759	2.44
TOTAL	31.165	100

Stage IV: Approval Process

- Preparation / having the Draft Plan prepared and evaluated by the Regional Directorate
- Examination of the development plan at the General Directorate and finalization of its final form
- Submission of the draft plan to the Authority by the District that prepared the plan
- Submission of the Draft Plan to the opinion of the relevant institutions and organizations
- Evaluation of the obtained opinions by the Regional Directorate that prepares/has the plan prepared and reviews the draft plan in coordination with the General Directorate

Finalization of the Plan

- Submission of the final version of the plan to the Undersecretariat

- Sending 2 initialed plan sets (report, plan sheet, approval page signed) to the General Directorate to obtain approval authority from the Ministry
- Receipt of approval authority from the Ministerial Authority by the General Directorate
- Sending the Approval Authority to the Regional Directorate by the General Directorate and requesting copies of the reproduction
- Sending the plan to the General Directorate by making duplicates for approval
- Approval
- Distribution of plans by Regional Directorates

Revision

In cases where the plans do not respond to the needs and there are problems in their implementation, the plan is renewed and named the Revision Plan (Figure 2).

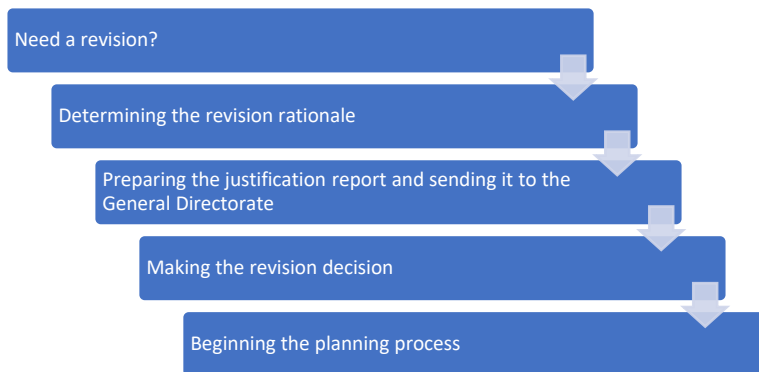


Figure 2. Revision Plan Process

Nature-Based Tourism Master Plan

Within the scope of the studies initiated by the Ministry of Forestry and Water Affairs of the Republic of Turkey by the General Directorate of Nature Conservation and National Parks (DKMP) to promote Turkey's national parks, natural parks, and natural monuments in the world and to ensure that domestic and foreign tourists to host in these cities have a good time, a "Special Action Plan" has been prepared in each city.

Within the scope of the studies, the "Nature-Based Tourism Master Plans" prepared for 81 provinces and the "Nature-Based Tourism Implementation Action Plans" foreseeing the budgets of the activities to be carried out were completed in 2016. The plans prepared are expected to contribute to the conservation and sustainability of resources, provide new income opportunities to the local people in the application areas, and the preservation of cultural values.

The Ministry has determined that 2498 areas suitable for Nature-Based Tourism activities have been determined among a total of 531 protected areas to be subject to nature tourism. These detected activities are given below.

Trekking Canyoning and Orienteering, Botanical Tours (Plant Watching, Mushroom Tours & Scientific Tours), Cycling and Equestrian Riding, Luxury tents, Caravans, Camping, Mountaineering (Rock and Waterfall Climbing, Paragliding), Water Sports (Underwater Diving, Boat Tours, Rafting-Canoeing), Photo-safari, Hunting tourism (Angling), Caving, Presentation of Local Dishes,

Winter Tourism (Cable Car, Skiing, Heli Skiing), Culture (War, History, Village Tours, Local Product Sales, Gastronomy, Agrotourism, Permaculture, Highland Tourism Tours), Outdoor Activities (Sports, Festivals, Drawing, Kite, Recreation, Picnic, Listening, Adventure Trail, Zipline).

Subscale Master Plans

Site Plan, Landscape Architecture and Architectural Projects

- Within the scope of the National Parks Law No. 2873, Article 4 of the Law "By the Development Plan, according to the zoning legislation for the places to be the subject of settlement and construction; Zoning Implementation Plans are prepared by the provisions and decisions of the national park development plan and put into effect with the approval of the Ministry of Environment and Urbanization.
- In the National Park Development Plan in Article 12 of the National Parks Regulation titled Zoning Implementation Plans, it is stated that "Zoning application plans by the zoning legislation in the character of local development t plan for the places subject to settlement and construction shall be prepared or have prepared by with the provisions and decisions of the National Park Long-Term Development Plan".

In our protected areas, the identification of recreation areas is completed during the construction of the Long-Term Development Plan/Development Plan. In line with the high-scale decisions made, taking into account the physical and legal limitations, for various uses

in the areas deemed appropriate within the field (administrative visitor centers, administration centers, panoramic museums, day use areas, nature education centers, access control units, promotion units, camping areas (tents, caravans, bungalows), bird watching units, information and guidance signs, rain shelters and again in the field to the visitors on the opened tour routes; landscape observation terraces, stopping points and stopping points according to the characteristics of the site, etc.) plans and projects are being prepared.

Master Plan studies are carried out in areas where development plans have been completed. In 2016, 8 zoning plans were approved in the protected areas. Architectural and Landscape Projects are being prepared to ensure the sustainable management and use of protected areas in areas where development plans have been completed and a master plan for conservation/master protection has been approved. In 2016, 55 architectural and landscape projects were carried out.

One of the biggest deficiencies is the capacity calculation of the site for Project and Application, land analysis, project drawing technique, material selection, and the lack of a Technical Prospectus for the application. Training activities on Project Applications in Protected Areas and ensuring the professional and personal development of the personnel, increasing their productivity, preparation and examination of the zoning plan, architectural project, and landscape project in protected areas are organized to improve institutional capacity.

Visitor Impact Management (ZEY)

The carrying capacity, introduced by Wagar in 1964, at first only expressed the number of visitors and their level of influence in the area with mathematical data within certain methods (Wagar, 1964). However, today it is not the maximum limit that an area can carry, but the acceptable change limit (LAC), which can vary according to the ecological, social, cultural, and economic characteristics of that area (Stankey et al., 1985). Therefore, it is very difficult to express the limit of change of a field mathematically and it can change over time.

In the protection and planning of natural areas, it is important to make Visitor Impact Management and Regulations effective. In 1991, the UK Ministry of Environment the Department of Employment, and the English Tourist Board (ETB) stated that there are 3 important ways to manage visitors in a report revealing the relations between visitors and the environment (Mason, 2005). These are;

- Limitation of visitor capacity and distribution
- Ensuring the compatibility of visitors with the source and minimizing damages
- It is the modification of visitor behavior.

In this direction, different models related to carrying capacity have been developed for effective visitor management;

- Recreational Opportunities Spectrum (ROS, 1978),
- Limits of Acceptable Change (LAC, 1985),
- Management Process for Visitor Activities (VAMP, 1985),
- Visitor Impact Management (VIM, 1990),

- Visitor Experience and Resource Protection (VERP, 1993),
- Carrying Capacity Assessment Process (C-CAP),
- Protected Area Visitor Impact Management (PAVIM, 2002).

The ZEY mainly focuses on 3 main issues: the current conditions causing the problem, the possible factors causing the problem, and the possible management strategy actions (Eagles et al., 2002). Possible factors that cause the problem are physical, biological, and social factors and are evaluated in 3 groups (Giongo et al., 1993; Farrell & Marion, 2002; Mason, 2005).

Stages of The Zey Method

- 1- Review of managerial initial evaluation data,
- 2- Reconsideration of management objectives,
- 3- Selection of key indicators,
- 4- Selection of standards affecting indicators,
- 5- Comparison of current conditions and standards,
- 6- Identification of possible causes of the effects,
- 7- Defining the management strategy,
- 8- Implementation (completion).

Environmental Impact Assessment

- The natural beauties exhibited by natural resources, which are the most important attraction elements of tourism and recreation, and the fact that they create a suitable environment for countless activities are the most important reasons why human activities are concentrated in areas with these features.

- Tourism planning is a multidimensional study and must consider many social, economic, political, and psychological factors.
- Environmental Impact Assessment studies are a tool that reveals the environmental structure in the whole planning.
- Land uses arise in different forms; Agri-forestry, roads, mining, residential settlement, tourism, industrial and other land uses (defense-security service units)
- At this point, the concept of "ecological planning" comes to the agenda.
- Ecological Planning; cross-sector compliance planning. It is planning that coordinates various uses of space.

4 Main Issues That Constitute the Core of the EIA

- Analysis of the Current State of the Environment?
- Projection of Environmental Loads Before and After Project Implementation?
- Evaluation of Data?
- Comparison of Options? (Yücel, 2008).

Main Purpose of EIA Study

- To ensure that the planned project is carried out by the principles of ecological planning.
- Joint analysis and evaluation of all data related to the project and the results obtained should be interpreted in line with the principles of ecological planning.

In Achieving the Main Objectives of an EIA Study, Answers to the Following Questions Should Be Sought (Yücel, 2009).

- What is the suitability of the stage factors for various field uses?
- What is the effect of different land uses on environmental factors?
- What is the limit and sensitivity of the environmental factor?
- What are the consequences of the effects of various forms of land use on other forms of use?
- What are the relationships between the uses of various lands?
- What are the relationships of the environmental factors with each other?
- What changes are expected in the environment with the realization of the proposed use?
- How should these changes be evaluated?
- What precautions should be taken against those negative effects?
- Are there any other options?

Social Impact Assessment

It defines the processes of analyzing, monitoring, and managing the targeted and undesirable social consequences of the announced interventions (policies, programs, plans, and projects) and all kinds of social change processes initiated by these interventions, both positive and negative. Like environmental impact assessment (EIA), it tends to dwell on negative (undesirable) impacts even though positive (beneficial) impacts can be predicted.

Participatory Planning

Participation and Participatory Approach as the term defined below (Republic of Turkey Ministry of Environment and Forestry, 2007).

Participation: All parties and interest groups that set forth their demands and expectations participate in the decision-making, planning, execution, monitoring, evaluation, and inspection stages of any management process, sharing authority, responsibility, and distress.

Participatory Approach: It is an approach in which interest groups that directly or indirectly benefit from the resources of the protected area living within and near the protected areas are involved in the planning and management processes of the protected areas to the extent of their interest.

For sustainable resource management and use in these areas, it envisages the participation of local people and other interest groups living in these areas in management processes. However, there is no standard for the extent of public participation or the process and methods to be used. The reason for this is that different dimensions of participation, processes and methods can be more successful in different socio-economic or cultural conditions. There are different degrees of participation, and what degree is desirable can be decided by looking at the conditions of the region and the desired form of management. In general, there is a rating from passive participation to interactive participation (Arpa, 2011).

Table 4. Different degrees of interest group engagement (Jain and Triraganon, 2003) (quoted from Arpa, 2011)

Passive Public Participation	The public hears from the planner or managers what has been done or what will be done in the planning or management process. The opinions of the experts have been conveyed to them, but the public's comments are not listened to. Therefore, public participation is limited to only hearing and is passive. It does not take responsibility.
Public Participation by providing information	The public is directing and transmitting their knowledge and opinions to managers and planners by responding to surveys or interviews prepared by planners or their advisors. However, not being able to see the reports of these surveys or surveys cannot check whether their information and opinions are considered or what kind of results they produce. The public has provided information, but there is no opportunity to influence the planning or management process. They have only answered the questions asked. Their participation is limited to answering only the questions asked.
Public Participation by expressing opinions	The manager, the planner, or the consultants consult with the public and express the opinions and opinions of the people. However, in the end, they are the ones who complete the problems and produce solutions. They can shape and change this work with the ideas of the people, or they cannot change it (there is no obligation for them to change it). The public cannot participate directly in decision-making processes.
Operational Participation	In return for some financial support, resources, and assistance given by the managers, the public contributes labor, materials, or money to the process. However, there is no other layer, such as knowledge and ideas, or it is not involved in the decision-making process. Although it appears to have participated because it has provided a resource such as labor or material, participation usually ends when the most material or similar support from the managers ends.
Functional Participation	Based on the decisions taken by managers or consultants, the public establishes groups (e.g., working groups, cooperatives, associations) in the framework of certain determined objectives and carries out the activities determined in the implementation of these decisions. However, the decision has already been made, and the objectives are determined (the people are not involved in the decision-making process, but in the process of

	implementing the decisions). However, work is ensured domestically, and these groups, previously dependent on managers, consultants, or facilitators, can later develop into solid structures that stand on their own two feet.
Interactive Participation	The public participates in the process of information and analysis by the managers, and until they reach action plans, they can shape decisions and outcomes, and groups working in this direction can form new local institutions or strengthen existing ones. These groups and the structures they transform have the authority to decide on a local scale, and it is also prevalent to establish and maintain these structures to protect their profits.
Public Participation by taking initiative	Without receiving support or authorization from external institutions, managers, and consultants, the people spontaneously take the initiative to participate in the administration, make decisions, or change them, and contribute to the process.

Participatory Methods

Participatory methods were first used in the agricultural sector, which is the most common field of activity in rural areas, and then spread to all sectors such as health, tourism, nature conservation, environment, education, industry, urbanization, etc. Some of the well-known participatory approaches that were used, especially between 1980 and 1990, are given below (Jain & Triraganon 2003; Excerpt from Barley, 2011).

- Brainstorming
- Mapping
- Matrix Ranking
- Mobility Map
- Use of Picture
- Seasonal Calendar,
- Section (Transect Walks)
- Trend Line: Historic and Future Trend Analysis
- Venn Diagram
- Surveys, research, and study studies (rural assessment, SWOT, etc.)
- Duo, multiple interviews, and group work
- Voting, demonstrating, lobbying, campaigning, etc.
- Telephone, teleconference, e-mail, and television
- NGOs, associations, pressure groups, etc.
- Conferences, meetings, workshops, etc.
- Committee, board, council, etc.

In the National Park Long-Term Development Plan studies, which are still ongoing in our country, participation is not included except for the stages of "interest group analysis" and "interviews with interest groups" (Republic of Turkey Ministry of Agriculture and Forestry, 2017).

New Management Plan (Strategic Plan)

Regarding the National Park Plans in the 4-year Strategic Plan (Ministry of Forestry and Water Affairs, 2017-2021) prepared by the Ministry of Forestry and Water Affairs and covering the years 2017-2021 (Ministry of Agriculture and Forestry, 2019);

DETERMINATION 1: The absence of explanatory, clear, and precise statements in the law regarding the construction procedure and content of the plans to be prepared for the protected areas.

DETERMINATION 2: Determination and management of protected areas outside the forest and forest regime (national park, nature park, natural monument, nature protection area, wildlife development area, wildlife protection area, etc.) to be proposed to the Council of Ministers by the Ministry of Environment and Urbanization, although it is under the auspices of the Ministry of Forestry and Water Affairs

DETERMINATION 3: Defining the plan to be made for each protected area in the Law and the construction procedure and content as the basis and making the necessary legal arrangements in this regard.

In the light of these above-mentioned findings, The Ministry of Forestry and Water Affairs, General Directorate of Nature Conservation and National Parks, which has the authority to make plans in these areas in our country, with the latest adjustments made in the Protected area planning studies in 2007, has brought the UDGP's closer to international standards ('Management Plans' for protected areas).

In 2007, the new regulations made in the General Technical Regulation of the Long-Term Development Plan on two subjects can be considered important steps in these planning studies carried out in our country (Cırık, 2007).

First, the ACTION PLANS include the action, the unit responsible, the place of implementation, the time of implementation, how and why it will be implemented, the outputs, the success indicators, and the monitoring/evaluation method.

The second important regulation is the inclusion of ALL INTEREST GROUPS (local people, NGOs, universities, other public institutions, organizations, etc.) in the planning process.

The concept of protected area management was first introduced in 1972 at the 2. World National Parks Conference. At this conference, it was recommended to prepare an annual park environmental report for national parks, which examines environmental factors inside and outside the park and reveals actions for improvement (Hockings, et al., 2004).

The BASIC PRINCIPLES in protected area management planning are as follows (Demirayak, 2006);

- To ensure the sustainability of resource values by preserving them,
- To effectively implement scientific data in all kinds of investments and uses,
- To create the institutional structure that provides sectoral coordination and coordination,
- Minimizing or eliminating the pressure and impact on resource values,
- Ensuring public participation in planning and decision processes

MANAGEMENT PLAN put forward according to the new management model proposed by IUCN,

- Planning Process,
- Documentation of the management approach,
- Decisions taken,
- It is the basis of these and the guide for future management.

Along with the MANAGEMENT PLAN, some other Plans and Documents are either inspired by it or that support it. These are;

Business Plans: These are plans that help the protected area become more economically self-sufficient.

Unified Plans: Demonstrate the performance of protected area management together with personnel working for the protected area organization.

Area Management Plan: It is made for areas that require intensive management, such as certain visitor points within large protected areas.

Development Plans: May be required to guide any investment that affects the area (such as a visitor center).

Sector Plans: These plans are developed for visitor management and species conservation.

Implementation Plans: These plans contain detailed information about how and when to perform specific management actions.

In recent years, various models (Governance) have been developed especially to make all stakeholders common to management. New planning approaches have been developed based on Common Sense-Common Good.

Planning Gains: Planning Earnings

Planning Obligation: Planning of Obligations and Responsibilities

Planning Agreements: Contract Planning

Strategic Critical Thinking

- A land use scenario focusing on long-term strategies and a decision to choose a development area location,
- Defining problems with strategic critical thinking techniques, dealing with problems in a limited time, turning to a defined area, making innovative, rational decisions,
- There will be no single solution to any problem, solutions can always have alternatives,

Strategic Critical Thinking Systematics

The integrated Evaluation and Synthesis Process consists of 5 steps.

1/ Actor analysis and role determination (Public-Private, NGO, Association, etc.)

2/Problem Analysis

3/Goal Setting (list of setting goals)

4/ Testing Goals

5/Creating a Development Vision

The effective protection of the increasing number of protected areas in the world is also becoming more difficult proportionally. For this reason, the World Commission on Protected Areas (WCPA) within the IUCN has established a new management and planning model for effective protection. According to the IUCN, the management plan model is as follows (Thomas & Middleton, 2003).

Management Planning Consists of Three Main Rings;

1/Creation/Preparation of Management Plan

2/ Implementation of the Plan

3/ Monitoring and Reviewing the Plan

DISCUSSION AND CONCLUSION

With the changes stated in the draft text of the *"Presidential Decree on the Presidential Decree on the Organization of the Presidency and the Presidential Decree on the Organization of the Affiliated, Related, Associated Institutions and Organizations and Other Institutions and Organizations"*, the General Directorate of Nature Conservation and National Parks was closed and the General Directorate of Forestry operated within the scope of the General Directorate of Forestry. It is

envisaged that it will be structured in the form of three separate departments.

The General Directorate of 7 Departments (National Parks, Nature Conservation, Sensitive Areas, Wildlife, Game Management, Biodiversity and Management Services) within the organizational structure of the General Directorate of Nature Conservation and National Parks is a structure that has been shaped as a result of experience. With the Presidential Decree, these gains are ignored.

Our country, which became a party in 2003 to the "European Landscape Convention" signed in Florence in 2000, has started the studies of the country Landscape Atlases as a requirement of this contract, and it continues to work on the "Yeşilırmak Basin Landscape Atlas" and "Büyükmenderes Landscape Atlas". The "Landscape Protection Branch Directorate", which is affiliated to the Sensitive Areas Department of the General Directorate of Nature Conservation and National Parks, which is the only institution that coordinates these studies and is the only institution where the word "LANDSCAPE" is mentioned, unfortunately, with a recent arrangement, has major problems such as coordinating the preparation of country atlases. This structuring, which assumes a responsibility and is represented at the branch manager level, has been reduced to the level of SECTION ADMINISTRATION. With the new draft law, this unit is completely abolished.

The "Draft Law on Conservation of Nature and Biological Diversity" sent to the Grand National Assembly of Turkey on 17/5/2012 by the

Prime Ministry General Directorate of Laws and Decisions, in the 24th Legislative Period and 2nd Legislative Year of the Turkish Grand National Assembly. The report, which was transferred to the Environment Commission and prepared after the evaluations made by the commission on the draft law, was submitted to the Turkish National Assembly on 18/06/2012.

When the draft text of "NATURE AND BIODIVERSITY CONSERVATION Draft" is evaluated, it is possible to reach the following conclusions.

- There are no regulations for the Landscape Atlas and Landscape Planning, which are a part of our domestic law with the International European Landscape Convention.
- Regulations that will ensure the protection of areas that do not yet have a conservation status, for the adaptation of the European Union Habitat and Bird Directives to our domestic law, have not been addressed in the draft law.
- The Draft Law is being shaped in a way that will serve to pave the way for all kinds of uses, including investments that may destroy nature, instead of protecting biological diversity.
- The most dangerous regulation that came with this Bill is the section titled "Permissions". The Council of Ministers is authorized to grant permission, usufruct and easement with the definition of "outstanding public interest and strategic use".
- When Article 9, which determines the protected area status, is examined, it will be seen that there is a confusion. In Article 9,

where 13 different protection statuses are set, for example, the definitions of Species Protection Area and Nature Protection Area overlap. There are no Natural Protected Areas within these protection statuses. Natural Site and Nature Monument definitions are removed.

- Wildlife Protection Areas in our country, which is very rich in terms of wildlife and has genetic resources, are eliminated with this project.
- It is pleasing that the Ecological Impact Assessment (EIA) Report technique is included in a national legislation for the first time. It is worrying that over time, as a result of the EIA (Environmental Impact Assessment) processes, the destruction experienced in our country's nature is similar.

Table 5. New Management Plan (Strategic Plan) Plan Stages

Pre-Planning	Determines what the process achieves, how it is implemented, scheduling issues, and who participates.
Information Collection	Data Collection, Infrastructure Research, and First Field Study
Evaluation of Information	<u>A two-step process:</u> 1/Identification of rare values and key elements, 2/Presentation of the "Summary Protection Report" to Special Interest Groups and Local People
Possibilities With Limiting Features	Identifying Pressures, Threats, and Opportunities
Management Purpose	Developing Management Vision, Philosophy, and Goals
Alternatives	Determination of Management Zones
Draft Management Plan	Draft Plan; budget, management philosophy, the decision of the management organization, and handling of the management plan for
Participatory Approach	Public consultation, public display of draft plan
Evaluation of Recommendations/Presentations	Review of the draft and the creation of the final plan, adding the opinions of the people as a separate document
Assent	Approval of the plan
Application	Implementation of the management plan
Control and Evaluation	Observation and examination
Review	The decision to review and renew the management plan

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The Pre-Pottery Neolithic Age Land Use Layout of the Euphrates River Basin: Three Akarçay Tepe Plaques

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1. Introduction

Historical geography, history, urban planning, planning history and archaeology disciplines concern themselves with space. These disciplines have produced relatively few academic works about the location of ancient spatial cultural assets, the patterns and types of settlements and their positioning or their relational spatial composition, settlement and road networks or about trade axes and the land use layout.

The disconnected way in which the disciplines operate (Paranina & Grigoryev, 2017), the lack of communication among them and the absence of a multi-disciplinary point of view can also have a negative impact on the results of field work (Eren, 2019). The studies which exist, moreover, are inadequate in terms of addressing spatial information from a holistic standpoint. Meanwhile, studies that change our knowledge are unable to break down the ingrained perceptions within the disciplines.

During field studies, spatial relations cannot be identified, and may even be completely disregarded, since no analysis is conducted of spatial relations such as the proximity between settlements, the land regime, spatial networks or the settlement typology, or of the pattern and nature of the settlement or the use of the surrounding land or the logic behind land use layout. Only the boundaries of built-up areas that are to be given priority in terms of preservation are identified. Together with the effects of human damage, this limits the degree to which the extent and nature of the influence of a historic place in its

day, its spatial relations with other settlements and the spatial systems to which it belongs are perceived. Some data may be lost irretrievably or cannot be provided to and/or shared with other disciplines.

In spite of the technical and technological progress and accumulation of knowledge achieved through increasing interdisciplinary studies, cooperation and participation and the use of digital technology, work conducted within the discipline of archaeology is still carried out on specific sites or in certain subject areas with limited support from the state and/or the private sector. Due to the large quantity and density of data, these studies concentrate on the Pottery Neolithic Age, South (Lower) Mesopotamia, the mounds of Anatolia, ancient settlements or findings from more recent periods such as Rome and Byzantium.

Archaeology-related work conducted in the discipline of architecture, meanwhile, focuses on sites, cemeteries, walls, gates, monumental structures, residences, together with the construction techniques and materials used and the pattern of settlements. Urban archaeology has emerged within this context. Studies in historical geography, for their part, describe the specific spatial relations and/or networks of limited areas or topics with the use of Geographical Information Systems (GIS) and Remote Sensing (RS).

Studies of the geographical regions and land regimes of ancient civilizations, and in particular of the settlement patterns, land use layouts and socio-cultural relations associated with these arrangements, are limited in the urban planning discipline. Related to the condition of cities today and low professional gains achieved,

urban planners do not attach importance to the study of ancient periods. The disciplines in question ignore ancient land regimes, arrangements and layouts and the characteristics of the cultural landscapes which they create. This is why, representatives of the urban planning discipline and settlement history subdiscipline are obliged to undertake urgent studies (Tekeli, 2011). Studies should be conducted and explored in conjunction with the theory of the city, urban life and urbanization.

The Lined and Marked Stone Plaques (Linear Decorated Stone Slabs) from Akarçay Tepe (Arimura et al., 2000; Özbaşaran et al., 2007; Özbaşaran, 2008) should be studied with this purview.

It was figured out from the design and sloping structure of the Akarçay Tepe Plaques that they have a spatial dimension, and present the land use layout of its time in the form of a three-dimensional land model. Pre-Pottery Neolithic Age Lime Stone Plaques (Özbaşaran, 2008) are on exhibition in the Şanlıurfa Archaeology Museum (Şanlıurfa Museum). Three plaques shown in Figure 1 to which permission to analyze were given were examined in 2017 on the basis of the statement that these plaques contain traces of Anatolia's early human settlements and agricultural cadastral pattern. And, they are the representation of land use layout of this order in the form of a 3-Dimensional land model.



Figure 1. Three Akarçay Tepe Plaques: The Plaque A (Centre), the Plaque B (Left) and the Plaque C (Right)
(Photographed by the Şanlıurfa Museum, 2020)

The plaques are investigated from mapping, site planning principles, in addition to settlement location, settlement and residential area, agricultural area, pathway, water and material and presentation systematics. Plaque locations, scales and mapping technique are also questioned. Here, the assumption is that the topography has unchanged, and that the settlement pattern and land use layout of today have the traces from the past.

Other than the conclusive remarks the chapter sections are ordered as follows: The study material and method section covering the process of study and research method; the archaeological knowledge on the Akarçay Mound and the three plaques; the settlements to which they refer to and their exact locations; and measurements and timing details. General remarks are given in the conclusion section.

2. Material and Method

This study examines the relationship between three Akarçay Tepe Plaques and urban planning discipline, encompassing their spatial dimensions, from a multidisciplinary perspective and with an interdisciplinary methodology. The plaques were questioned in terms of mapping system, settlement positioning systematic, settlement macroform and pattern systematic and housing areas systematic, agricultural areas systematic, road systematic, well systematic and exhibition systematic. This research on the plaques includes a System Theory perspective to the discipline of urban planning, as they represent different systems and symbolism of a spatial unity.

The relations between route networks and settlements of that period and the relations between settlements and the topography are evaluated. The system of belief, formulae for the calculation of inclinations, productivity calculations based on the amount of land and the demographic structure, and the settlement population and population pressures all fall outside the scope of this study. It is considered that an evaluation of these matters may be possible once all the findings have been combined and other plaque locations are identified.

While mention is made of the material of which the plaques are produced and the techniques by which they were created, so as to point out that their manufacture was a conscious, skilled and artisanal activity, separate studies would be needed to examine these matters and their technical features in detail.

The research was made based on the author's own means and on the prediction that the plaques are a representation of the land arrangement in Akarçay Tepe and its immediate environment. Permissions were granted from the Şanlıurfa Museum and the excavation site director on 31 August 2017 for only three plaques. During the stage of pre-analysis, the plaque motifs did not present any resemblance to the cadastral pattern of the Akarçay Tepe or its immediate environment.

Another exhibited plaque, which is shown in Figure 2 and is known to be larger than 42cm when completed (Özbaşaran, 2008:835), was found from its Google Earth Pro image to resemble the cadastral pattern of the Kelekli village (36°54'45.87"N 37°59'36.63"E). Several residential plots of Kelekli coincide with the motifs on the Plaque D (Kelekli Plaque). Their dimensions and proportions also match. Permission to examine the Kelekli Plaque could not be obtained.



Figure 2. The Plaque D, Şanlıurfa Museum
(Photographed by the author, 2017)

Kelekli is in line with Akarçay Tepe and on the opposite bank of the Euphrates. The settlement is close to the Euphrates River. The village is connected to Gaziantep Province Karkamış District. The village is at a junction point on the Birecik-Karkamış and Nizip-Akarçay Tepe road axes. On the Nizip-Suruç axes, the Euphrates River is passed between Kelekli and Akarçay at the shortest distance.

As the Kelekli Plaque (Plaque D) belongs to another settlement than Akarçay Tepe, plaques under evaluation can belong to other locations. Therefore, it can be stated that the Plaque D played the key role in determining which settlements the plaques originate from. In other words, the plans on the plaques are designed in a way as to identify different land uses with same motifs in different settlements.

Today, a number of traditional settlement patterns exist in the region. Among these patterns, the pattern defined by narrow streets or buildings or garden walls which can be seen from Figure 3 is a common form observed in the old city sections (Eren & Arslan, 2020). Because of the similarity between this configuration and the hill-top linear compositions occurring on the plaques, the latter motif was taken in the analysis to represent residential areas and housing lots. The residential lots on the plaques extend along East-West, North-South or Northwest-Southeast axes. There is a ring road around the settlement.



Figure 3. Detail, Housing Area Motif (Plaque C).
(Photographed by the author, 2017)

The three plaques were photographed as shown in Figure 4a-6a and their plans were drawn at the Museum on 18 December 2017, using technical drawing instruments. These plaques have again been photographed by the Şanlıurfa Museum in 2020.

Technical features of the plaques and their methods of measurement and presentation are noted. The measurements may have a partial margin of error of $\pm 0.1\text{mm}$. In measurements, the centers of the blocks were used as measurement reference points. The strip (pathway) dimensions were also noted. Damaged dimensions were drawn, but were not taken into consideration. Following the measuring process in the museum, Plaque layout (plans) were redrawn in accordance with the measurements taken of the plaques and the drawings were scanned and presented in Figures 4b-6b.

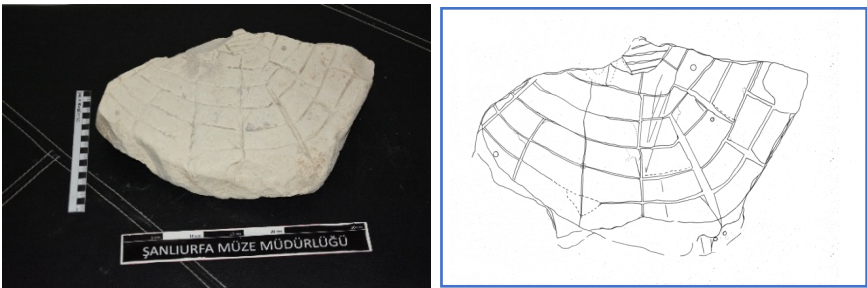


Figure 4. a. The Plaque A (Photographed by the Şanlıurfa Museum, 2020), **b.** The Plaque Layout (Original hand drawing, 2018)

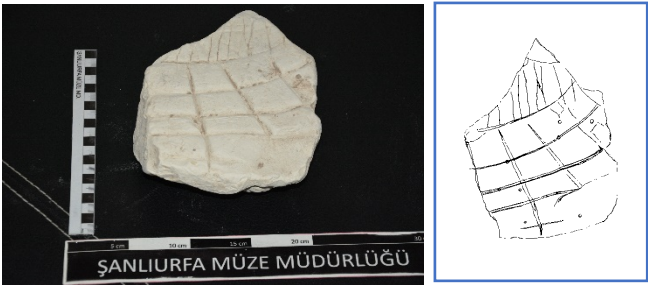


Figure 5. a. The Plaque B (Photographed by the Şanlıurfa Museum, 2020). **b.** The Plaque Layout (Original hand drawing, 2018)



Figure 6. a. The Plaque C (237) (Photographed by the Şanlıurfa Museum, 2020). **b.** The Plaque Layout (Original hand drawing, 2018)

For the analyses of the locations of the three plaques, the Google Earth Pro program views obtained between January 2017 and March 2017 were used at the initial phase. The ESRI Topography Map, which is accessible via internet, is also used for topography cross checks. Preliminary fact-finding control was done on the field in the year 2018 and 2019. The work was supported by a review of the literature and internet search. Old settlements photos were used for photographic analysis to figure out the relationship of the plaque model with the existing topography.

At the initial phase, the settlement locations were identified through the plaque modelling, the current topography, the plaque pattern, the cadastral pattern on the land, settlement pattern, and the transport axes.

Plaque plans were interpreted by examining settlement location selection logic.

Research area, presented in Figure 7, is determined as 13.646 km². Starting from Akarçay Tepe, this area was scanned for the river shore settlements and in the narrow valleys leading down to the river. Given the low level of technology in use at the time, due to the natural environment, and the primitive living conditions and standards, walking on foot was the only possibility of travel. Therefore; walking distances were measured and walking axes between the settlements were presented. It was estimated that a person could walk for 11-13km and 10 hours at most in one day.



Figure 7. Research Area (13,646 km²) (Source: Google Earth Pro 2018, Viewed on 16.01.2018) (Drawn by the Author, 2018)

The fact that the plaques are the models of the landscape, so similar slopes are searched for. The analysis is initially oriented the examination towards the northern part of the region with its sloping topography. Valley settlements located on the slopes leading down to the River Euphrates in the Southern Mesopotamia were also checked out at this stage.

At the next stage, enquiries were made concerning the house-building and agricultural techniques of the time, the settlement location selection principles according to which settlement sites were chosen and the relationship between settlements and walking routes. Form and direction of the plaques, the direction of inclination, the number, the motif of cadastral divisions, and settlement altitudes were also evaluated and compared. During these analyses, the scales of the models were also assessed.

In all the settlements, the plaque plans and cadastral patterns were compared in terms of measures and squares of the Plaque plan to existing cadastral pattern to determine alternative zones for plaque locations. Transparencies were made of the plaque plans to various scales (1:1, 1:2, 1:4) and these were compared with the existing roads, cadastral patterns, geographical reference points and dimensions of the land. Google Earth images were used at this point. Scales of each plaque were calculated separately. Alternatives were prepared to determine the scale, since the cadastral pattern in some locations had multiplied on itself several times. The area of land with which the dimensions of the plaque coincided, and which yielded an equal coefficient for the entire plaque, was accepted as the exact location.

In the scale determination, a second control mechanism was also employed. An enquiry was made to discover whether or not there was a proportional relationship between the plaque measurements taken in the museum and the land measurements obtained from various alternative areas using Google Earth Pro 2018 images. The reason for doing this was that the structure of the current land regime, constantly changed by civilizations, the occurrence of the cadastral patterns of different land regimes in the same place, one above the other, and the damage done to the existing cadastral pattern and land use layout by human activity are essentially misleading for the identification of scale and the determination of the final location.

The scales of the plaques were determined 1:1,000 in case of zero (Eren, 2018; Eren, 2019) or 1:989 in case of no zero (Eren, 2020).

Fresh, clean drawings were then made on the Google Earth images using the final dimensions of all the plaques (including basic data such as paths, garden borders, the lines of houses and the nature of the topography). As it is unclear how the civilization which produced the plaques conceptualized land scale and measurement units, this matter has not been addressed in this study.

This study encompasses the results of two different examinations of the plaques. Firstly, it presents the results of the examination and analyses described above, which were carried out to identify the locations to which the plaques belong, in line with the statement put forward by the author concerning their spatial dimension. Secondly, it includes an evaluation of some conscious technical qualities and means of representation unexpectedly discovered on the plaques at a later stage of research, which turned out to be related to the first proposition. These need to be explained as part of the same study, since they constitute a proof of the statement and part of a unity.

The following section is on the narrative of the Akarçay Tepe Lined and Marked Limestone Plaques in terms of the archaeology discipline.

3. The Akarçay Tepe Mound and the Plaques

The Akarçay Tepe Mound (Akarçay Mound, Cort Mound) (Algaze et al., 1994; Arimura et al., 2000:181; Özbaşaran & Molist, 2006; Özbaşaran & Molist 2007) was identified in 1992. The mound is situated at the intersection of the Gaziantep-Nizip-Ayn-el Arap-Suruç-Şanlıurfa, Nizip-Akçakale and Birecik-Karkamış-Jarablus axes.

Although it is close to the provincial centre of Gaziantep, administratively it falls within the borders of the Şanlıurfa province.

The mound lies on 360m altitude and the East bank of the River Euphrates (as it flows southwards), and to the West, and partially to the South, of the village of Akarçay. It is on an alluvial plain (Arimura et al., 2000:181). Southwest of the stream known as the Akarçay Brook or Su Brook. There was continuous habitation for 2,000 years (Balkan Atlı & Özbaşaran, 2002). By 14C dating, the first period corresponds to V Beta 138584 8750 ± 40 and the late period to 138585 7280 ± 50 (TAY, 2018).

Among the settlements in the Şanlıurfa Region, the mounds or tumuli of Hallan Çemi (10200-9200 BCE), Çayönü (10000-6800 BCE), Göbeklitepe (9100-8750 BCE), Gritille (8400-6600 BCE), Cafer (8300-7300 BCE), Gürcü (8000-7000 BCE) and Hayaz (7500-7300 BCE) as well as the settlements of Akarçay and Teleilat to the North of Kargamış are the Pre-Pottery and the Pottery Neolithic Age settlements (Balkan Atlı & Özbaşaran, 2002; Karul et al., 2002; Schirmer, 1988) as seen in Figure 8.

The local people of Akarçay Tepe are known to have had a certain degree of mutual influence, communication and engagement with settlements further North like Çayönü Tepesi and Cafer Höyük (Özbaşaran, 2008). According to Özbaşaran & Molist (2006), from the stratigraphic sequence obtained, Akarçay Tepe is the vision of a self-sufficient village of the first farmers of the Near East that is a part of a

geographically wide network of interchanges and is similar with the sequence documented in Abu Hureyra and Halula.



Figure 8. Akarçay and the Surrounding Terraces (1-5) and Pre-Pottery Neolithic Age Settlements (Borrell, 2010:120, Fig 1)

The transition to the Pre-Pottery Neolithic Age has been defined as a period when hunting continued while gathering gave way to deliberate sowing and plant cultivation (Kuijt, 2000:86; Willcox, 1996; Smith et al., 1984). It has been shown that the people of the Akarçay Tepe Pre-Pottery Neolithic Age Settlement engaged in agricultural production and continued to gather wild plants and keeping sheep and goats, cattle and pigs. They are also known to have hunted, with a decline towards the later periods. As a result of archaeobotanical studies, it is known that wild barley, wild wheat, grasses and lupins (a legume) were brought under cultivation in the settlement in this period (Hirst, 2014; TAY, 2018).

İLİ : ŞANLIURFA
İLÇESİ : BİRECİK İLÇESİ
MAHALLE : AKARÇAY KOYU
ADI:ÇORT (AKARÇAY TEPE) HÖYÜK

1. DERECE ARKEOLOJİK SİT SINIRI GÖSTERİMİ

ÇORT HÖYÜK

ALANI 52386.29 m²

İ. DERECE ARKEOLOJİK SİT ALANI SINIRI KOORDİNATLARI

nokta no	Y	X
S.1	413020.673	4067817.683
S.2	413003.001	4067802.003
S.3	412881.001	4068230.003
S.4	413083.698	4083148.782
S.5	413042.201	4082239.009
S.6	413275.614	4080171.048
S.7	413277.149	4080045.000

ŞİRKETİNİN MİMARİ ÇİZİMİNE GÖRE ÇİZİLMİŞ
Bölge Kartı: 27.04.2016
Çizim No: 1892

224

Most (83%) of the plaques were discovered in the excavation plan square number 27 (S, T, U, V) and in the open area (corresponding to 27 T and U) like a courtyard. A single plaque was found inside the structure, on the floor in building T among broken pieces of stone containers (Özbaşaran, 2008). Finds from Tell Turlu (Şehzade Höyük), Tell Aswad, Munhata and Wadi Jilat are similar examples to Akarçay Tepe Plaques (Özbaşaran, 2008).

Although none have been flattened, the slightly sloping, concave state of the reverse sides of a very small number of plaques suggests that the stone might have been rested on a stand as presented in Figure 10. The remainder have been left rough after being chipped.

About 25 pieces are marked on both sides (Özbaşaran, 2008). Marks on both sides present the need for changing land use layout. The three plaques analysed are one-sided. Plaque B has also holding and resting features. This Plaque was shaped by hand (See; Nowell (2017) for finger flutings) as can be seen in Figure 11. Finger fluting is a characteristic feature of the Upper Paleolithic. The study of the pieces' artistic purposes is also beyond the scope of the present article.

The settlements and their exact locations found by examining their technical qualities resembling existing cadastral pattern, settlement pattern and topography are given in the next section.



Figure 10. a., b., c. Details for Resting on Stands.
(Photographed by the author, 2017)



Figure 11. a., b., c., d., e. Plaque B, Details of Finger fluting
(Photographed by the author, 2017)

4. Location of Three Akarçay Tepe Plaques

Even though there have been changes in the basic spatial data of the region evaluated, it has been established on the basis of various arguments that these changes have not been so drastic as to destroy the cadastral pattern, land use layout or alter the topography. Hereditary traces of some parts of the land use layouts of earlier periods are observable. The plaque plans are also found to have been maintained, read and preserved for thousands of years for the following reasons:

- if different civilizations want to prove their dominance and there emerges a need to change the principles and conditions of existing land ownership, cadastral patterns are deteriorated and a new pattern belonging to a different order is created;
- the distribution of the plaques, which was determined by the allocation logic in the period they were made, gave way to barter, or sales-like methods over the existing pattern. Although ownership changes, the land boundaries and pattern do not change;
- the cadastral patterns did not present much change after a while the plaques were produced, due to the impact of changing socio-economic relations in a region and the loss of geopolitical importance of the region they originate from as a result of the shift of main roads to other short access lines;
- the settlements did not experience major attacks or occupations;
- they are on or close to the main transport axes which are also used in the later eras;

- the land layout (plaque plan) drawn on the plaques can be far from the effects of urbanization today;
- the non-subdivision of plots for generation after generation due to the logic of passing them on to the head of the family (i.e., from the father to the eldest son) and the influence of inheritance sharing systems in the context of a tribal order and poverty;
- the tendency for the settlement zones to shift gradually to other places within the same area due to different social needs or (on successive occasions, with a similar plan) to grow on itself for many years with a certain logic;
- despite the rise and structuring in the third dimension, the land ownership boundaries in the second dimension have not changed to a large extent;
- the retention of the original patterns, in a very similar manner, due to the growth of the settlements over the same location at times of population increase (The lines of the plots, which were processed on the plaques as agricultural plots at the time they were produced, later turned into residential areas due to the spread of residential uses on agricultural lands);
- the continued visibility of the motif of agricultural areas shown on the plaques on the land today in the shape of the currently existing paths and roads, residential areas or garden walls;
- the correspondence of the measurements of the residential areas to those shown on the plaques;

- the lack of any change of the slope described in landscape model form of the plaques provided, there is no large-scale intervention.

Some paths on the plaque plans were found to have disappeared due to the way the settlement pattern has emerged. Besides these, many lines had come to correspond with the edges of rows of houses or gardens as the roads were filled by housing. And, as agricultural areas are now occupied by roads, housing or other urban facilities, it is hard to claim that every line on the plaque plan corresponds to the present land use. Nevertheless, it is quite possible for the historical paths to superimpose to the design on the plaques. Eren & Arslan (2000) presented that the Plaque C (the Nizip Plaque) plan corresponds to the layout of a part of the Nizip Old City. Superimposition is thought to be possible due to low level of spatial intervention, underdevelopment level of the region and continuous settlement pattern.

As stated in the section on methodology, the second basic aspect of the analysis, apart from the lines drawn on the plaques having a counterpart in the cadastral pattern that forms the basis of the land use layout, concerns the technical characteristics of the plaques. Different motifs were used for the systematic elements of the layout at the time the plaques were produced. The ways in which these distinctions are presented on the plaques, together with the topographical features, define the plaques' spatial aspect (See; Eren, 2018; Eren & Arslan, 2000).

The Akarçay Tepe Lined and Marked Stone Plaques currently belong to specific sections of the settlement pattern in the urban areas of the settlements of Birecik (Plaque A), Yeşilözen (Plaque B (AT 02 261169 2)) and Nizip (237) (Plaque C) as shown in Figure 12. These three plaques belong to settlements ranging between 380-660 m. altitude. Digital Elevation Model showing locations of the three Akarçay Tepe Plaques are given in Figure 13. The altitude of the settlements gives us clues about the location selection principle in relation to seasonal floods, their relation to water transportation and strategic locations for protection purposes.



Figure 12. Location Map of Akarçay Village and three Akarçay Tepe Plaques (Original, 2020, 3D ARCMAP)



Figure 13. Digital Elevation Model showing locations of the three Akarçay Tepe Plaques Settlement with reference to the Euphrates River (Original, 2020, ARCSCE)

Another basic determination, as stated in the section on the method, is about describing the data on the plaques, such as roads, plot boundaries, residential areas, agricultural areas, and water wells, on the plaque plan with different representations. The way these distinctions are displayed defines the spatial quality of the plaques. Since the plaques are broken and plaque settlement areas are incomplete, no evaluation can be made regarding the settlement area and the population size and demographic structure. Therefore; field comparison could not be made. Table 1 presents the number of lots drawn on the Plaques for residential and agricultural purposes.

Table 1. Number of Plots and Land Use Typology

PLAQUE	Housing Plot Numbers	Agricultural Plot Numbers
Plaque A (Birecik)	4	31
Plaque B (Yeşilözen)	10	15
Plaque C (Nizip)	15	28

There is approximately 190 m² (5 plots) of residential area in the Plaque A, 270 m² (8 plots) in the Plaque B and 700 m² (14 plots) in the Plaque C. However, in the comparison of the number of agricultural plots and residential plots, the most homogeneous results are found on the Plaque C. Different areas may be allocated to a family to produce various types of crops. It was determined that the plaques should be supplemented and compared with studies based on periodic settlements (Kramer (1982) & Watson (1979) cited by Kuijt (2000) to calculate settlement population and to determine agricultural production-settlement size relations.

The terrain layout of the plaques shows that the settlements are agricultural settlements. There is a near-standard agricultural land area range varying with slope. It has been accepted that the agricultural cadastral plots of the plaque plans are wide and horizontally positioned. The residential plots are thin and vertically arranged plots. It was also determined that the size of the agricultural plots changed according to the direction in the land.

As can be seen from the land layout of Kelekli settlement, the western plots are wider, while the eastern plots are narrower. This may be related to land fertility defined by sun rays. It can be thought that the productivity is less in western plots. This is tried to be equalized by creating narrow long plots in the east. The length of the plot was extended along the contour lines for this purpose, at the point where the land allows for a narrow plots or where the contour line turns.

Housing areas in all the plaques are broken, therefore; the exact settlement area boundaries and dimensions cannot be read. There is a ring road around the settlement. The housing plot widths on the Plaque A are either 0.9 or 0.4 m. The Plaque B housing plot widths are 1, 1.15, 0.7, 0.8, 1.8, 1.4 m. The Plaque C plot widths and lengths are undamaged. General plot (mouth) width x length measurements in the Plaque C settlement are as follows: 0.5xuncertain, 0.6x0.4, 0.7x0.7, 0.3x0.4, 0.3x0.7, 0.4x0.7, 0.6x0.7, 0.4x0.7, 0.6x0.7, 0.4x0.5, 0.5x0.6 and 0, is 5x0.5.

The sections on the slope extending down from the peak, where perpendicular paths leading up to the settlement and the borders of plots are shown, are the agricultural areas. A significant part of the agricultural plots in the Plaque A (Birecik) are West oriented, inclined and on the margin of 774-2108 square meters. General agricultural (unbroken) plot width x length measurements of the Plaque A are as follows: 7x2,5 (1750 m²), 6,7x2,8 (1676 m²), 6,6x3 (1980 m²), 6,2x2,8 (1736 m²), 6,2x2,8 (1736 m²), 6,2x3,4 (2108 m²), 6,2x2,2 (1364 m²), 5,8x2,7 (1566 m²), 5,7x2,6 (1482 m²), 5,6x2,7 (1512 m²), 5,6x2,7 (1512 m²), 5,4x3 (1620 m²), 5,4x3 (1620 m²), 5,4x2,5 (1350 m²), 5,4x2,2 (1180 m²), 5x2,8 (1400 m²), 5x2,8 (1400 m²), 5x2,7 (1350 m²), 4,4x2,8 (1232 m²), 4,3x1,8 (774 m²), 4,2x2,7 (1134 m²), 3,7x2,2 (814 m²), 3,6x2,8 (1008 m²).

The agricultural plots in the Plaque B (Yeşilözen) are defined by a steeper slope and are in the range of 800-1280 square meters, oriented to the West. General agricultural plot width x length measurements of

the Plaque B are as follows: 3,6x3 (1080m²), 3x3 (900 m²), 4x3,2 (1280 m²), 4x2,5 (1000 m²), 3,7x2,5 (925 m²), 3,8x3 (1140 m²), 4x2 (800 m²), 4,5x2 (900 m²), 4,2x2,4 (1008 m²). The Plaque C (Nizip) agricultural plots are North, West and South oriented, slope is lesser and plot sizes are in the range of 780-1392 square meters. The measurements for the Plaque C (Nizip) are as follows: 5,2x3,7 (1924 m²), 5,2x2,6 (1352 m²), 5,2x2 (1040 m²), 2x3,9 (780 m²), 5,8x2,4 (1392 m²), 1,4x4,4 (616 m²), 4,6x2 (920 m²), 4,5x2,6 (1170 m²), 3,5x3 (1050 m²).

Since approximately 70% of the plots are divided by the number 9, it can be assumed that a squared area measuring 3 m x 3 m (9 m²) is allocated per person.

Based on the route axes analysis, the first results of this examination were yielded by the settlement of Birecik. This settlement is located on the North of Akarçay Tepe. Alternative residential areas are identified in this settlement. The land use layout, topography and old photographs of the settlement were checked, and after making measurements of the plaque plan plots. It was confirmed that the Plaque A belonged to Birecik and the Plaque plan superimposition is presented in Figure 14. In order to determine the places shown by other plaques, an analysis was conducted of the patterns of the cadastral arrangements in the settlements in and around Birecik.



Figure 14. Situation of the Plaque A in the Settlement of Birecik.
(Drawn by the Author, 2018)

The settlements in the valleys leading down to the River Euphrates along its length to the North were examined afresh.

The plot dimensions and plan design of the Plaque B were found to coincide with a part of Yeşilözen. The settlement is in strategic location in a valley which is on the North direction of Birecik. Settlement superimposition is given in Figure 15. This settlement is situated on a geographical gate. The route leads from the mountainous geography in the North to the South, and the settlement dates back to the Paleolithic Age as it has caves used once as housing.



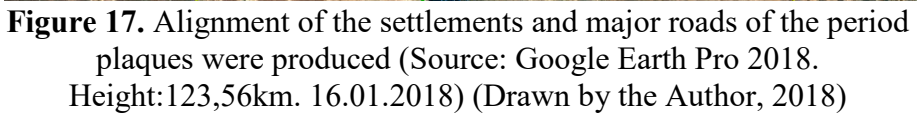
Figure 15. Superposition of the Plaque B in the Settlement of Yeşilözen. (Drawn by the Author, 2018)

To determine the location shown by the third plaque, the distance of this point from Akarçay Tepe was calculated, a circle was drawn and the settlements within the region so described were scanned, along with their relations to routes. Following a review of the settlements along another axis of the period, the Nizip-Suruç axis, and the identification, measurement and examination of four alternative zones in the settlement, the area to which Plaque C belonged was found to be an old settlement area on the banks of the Nizip Brook in Nizip Old City. The exact location is presented in Figure 16.



Figure 16. Situation of the Plaque C within the Settlement of the Nizip Old City. Unscaled (Drawing on Google Earth Pro 2018, 2020, Eren & Aslan, 2020: 429, Figure 10)

An alignment of settlements which is presented in Figure 17 is determined. During the analyses, it was noted that the settlements of Kelekli, Birecik and Yeşilözen are located on the same line. In view of this positioning along a line, it may be possible to speak of a perception of lines of longitude, and it could be suggested that the spatial representations were drawn with reference to this line. However, this is a matter for consideration in a separate study. Eren (2019) have determined similar linings for settlements of the later historical periods. While the relation of Akarçay Tepe to this positioning cannot be established, the settlements concerned here are located at a specific distance from Akarçay Tepe (Plaque A 13km, Plaque B 33km, and Plaque C 23km). And, the plaques were gathered together at Akarçay Tepe for some reason.



238

agricultural lots which are shown as if they were paths are actually natural thresholds but the edges of the threshold cannot generally be traversed.

In comparing the Plaque A, in particular, with the actual state of the land, a hierarchy was identified among the pathways. The Plaque A represents an area close to the river, and there are paths on it that broaden out, starting from the section of the borders of the plaques on the river side that is close to the water. Even today, there is a street in the settlement named “Açılan Sokak” (“Opening Street”) which has the form of a broadening path (towards the settlement not the river). The narrow entrance to the path from the river end may have been built to prevent the entry of flood waters and the resulting erosion.

In Yeşilözen, the settlement to which Plaque B belongs, there is a road which traverses the point where the valley floor meets the slope, and which is called “Pınarbaşı Caddesi” (“Spring-head Road”). This suggests that the point was chosen deliberately with a view to being close to clean water. Among the plaques, this plaque belongs to a settlement close to a stream as it has various carved holes. Another major road drawn on the plaques superimposes to a current road that reaches to the hilltop.

5. Modelling Technique and Dating the Plaques

Maps and physical plans are an outcome of a common consent and a spatial representation of shared reality and system justification. Throughout history, mankind has produced maps and plans for various reasons. Maps are characterized as the graphic of the whole or a

certain part of the earth presented with various symbols. The reduction ratio of this graph is called scale (Tanrikulu, 2017). Scale is the method of spatially describing an area. Land models are a type of display that gives the main character of the topography at scale in the third dimension.

Physical plan, with its current definition, is prepared to protect and to develop physical, natural, historical and cultural values, to define property and land uses, to provide protection-use balance, to create healthy and safe environments with higher quality of life, to meet the needs of the society for the future. It is a spatial intervention tool that determines the land uses, land use layouts and the patterns. Plans are produced with a scale on the existing maps and prepared with spatial analysis, planning principles and technical drawing and production methods.

In order to make some interpretations and land form analysis of the topography, maps are drawn with contour lines. Therefore; contour line is another criterion of the plaque design analysis. On the plaques, contour lines are presented by horizontal lines of plaque plans forming the agricultural plots.

Cadastral patterns of today are formed by the layers of many civilizations superimposed on one another. Property boundaries hardly change and successive generations take into account the previously formed property lines. For thousands of years, only similar patterns are formed, slightly changed or at least the original settlement pattern is retained. It is certain that some properties in any area may undergo

changes of ownership based on renewal schemes or other transformative practices. In other words, the land use layout based on cadastral pattern grows on its own foundations, as well as the property lines themselves, may be altered in later eras, depending on the strength of the hegemonic powers and the different ways in which rights to property is defined. Even so, individual property boundaries, the land regime or urban texture cannot change completely.

The complete erasure, for any reason, of a pattern formed by property boundaries depends on the scale of intervention. In the past century, the damage done to land regimes that retain traces of ancient times has increased, and some regimes have started to disappear altogether, as a result of medium and large-scale investments, migration, land consolidation and the impacts of urbanization (Eren, 2007). No such intervention is observed in the plaque settlements (Eren & Arslan, 2000). Therefore; finding the traces of the plaque plans became possible.

The plaques were made with the same display style and construction material. The conscious use of basic knowledge of mathematics, geometry, astronomy, spatial planning and cartography can be mentioned in the making of the plaques. During the measurement of the plaques in the museum, it was determined that the drawing on the stones was not random. During the analysis it is found out that it was applied with a mathematical calculation and measurement, the drawings gave similar dimensions for the plots. And, decimal and integers were used in the dimensions of the cadastral plots. However,

it cannot be claimed that the same precision drawing was made for the roads. However, Plaque C (Nizip Plaque) vertical roads are 2mm wide, but some are unparallelled.

This community is aware of the four operations in mathematics. These operations should have been used to present the place where lived and agricultural production is made, the equitable distribution of areas, the distribution of square meters of land and the calculation of yield. It is obvious that the community needs to make a simple-scale display by enlarging and reducing the land use layout at a certain rate.

It is seen that the people who made the plaques knew how to make rectangular planned structures and square structures. There is a square Terrazzo structure in Nevali Çöri (14 m x 14 m) (Özdol, 2011; 180, 182; Sagona, 2006:38) belonging to the same period. There are rectangular house plans (Kodaş, 2020:132) in Akarçay Tepe. They were also aware of this geometry with its regular modular repetition and could apply such structures to the land.

While measuring the plaques, it was determined that a straight ruler-like tool was used in the drawing of the vertical lines of the plaque (maximum 10-11 cm). There are 9 cm clear lines as shown in Figure 18. Since flint knives (Childe, 1971:71; Borrell, 2010) and some stone findings have a structure that can function as an oblique square or ruler used by technical people of today, it can be stated that these tools were used during the plaque making similar to construction and carving tools (Childe, 1971: 27) available in the same period as presented in Figure 19.

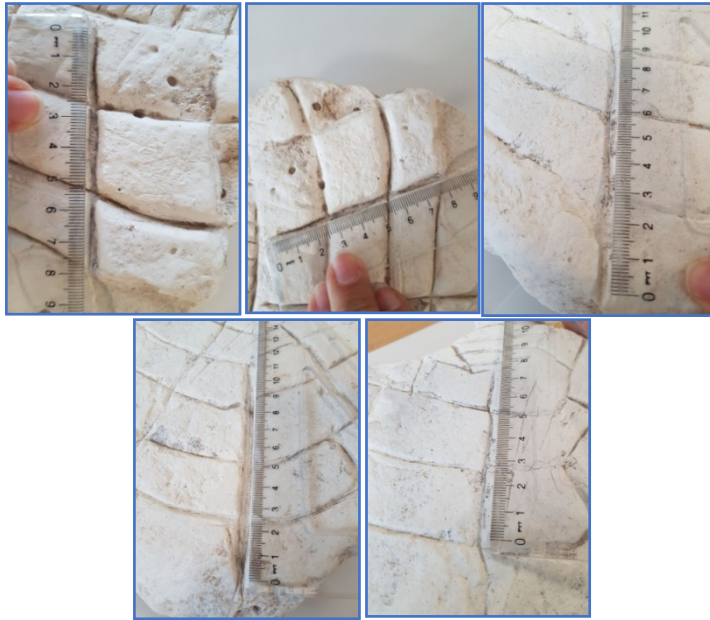


Figure 18. Straight lines created by the use of a ruler-like tool
(Photographed by the author, 2017)

A linear processing similar to today's techniques has been used during the production of the plaques. The plaques were worked from left to right (in the direction of rotation of the contour lines). The ruler was held in the left hand, and the drawing and engraving was done with a 1 mm thick scraping tool (possibly obsidian because of the black marks) by the right hand. In the lower part of the lines, the thickness increases depending on the applied force for carving. The model cardboard cutting technique that is applied today in model making is the same. It can be understood from the pulped texture and dusting on the surface of the stones that the stones were processed after they were softened most probably with water. This technique must have allowed

the artisan easy and precise carving and prevented the plot edges from breaking.



Figure 19. Similarity of Flint Knives and Tools and Modern Drawing Tools. **a., b.** (top) Stone tools (Childe (1971:27), Picture 5), **c.** Oblique Miter, **d.** 10 cm ruler (Photographed by the author, 2017)

Smooth rounded grooves (holes, carved holes) and clear short straight lines (scratches, dashes) in the contour line turning points were detected on the plaques. It is thought that dashes and holes are the

symbols of the main support systems for the formation of stable ecological and social conditions that the agricultural society needs for some crop sets. Short straight lines are different from the lines forming the cadastral pattern and are non-continuous. These lines are at the top of the model close to the settlement area and can be evaluated as the mark of the upper part in topography as shown in Figure 20.



Figure 20. Samples of short straight lines
(Photographed by the author, 2017)

In the detailed analysis of the holes; it has been determined that the round carved points samples of which are presented in Figure 21 are the reference points of a particular system. In order to relate the holes to each other, lines were drawn from their midpoints to each other. Triangles have emerged in as shown in Figure 22. This systematic represents an area and slope calculation systematic. The method used during the production of the plaques is a simple and systematic way of adapting the triangulation measurement method used in current

computer programs of survey engineering. Angular slope, area and positioning calculations can be made with this method.



Resim 21. a.,b.,c.,d. Holes on the Plaques
(Photographed by the author, 2017)

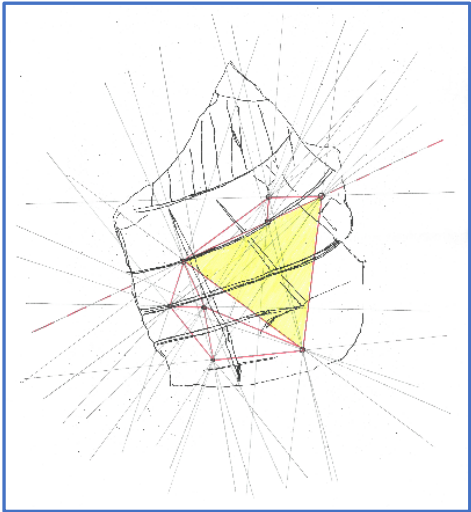


Figure 22. Plaque B Well System and Triangulation Systematic
(Drawn by the Author, 2018)

English (1968) studied underground-tunnel wells (qanats, karez) in the southern part of Kerman, Iran & Lightfoot (2009) for Iraq. Qanat is a river-well systematic. The wells are an application made in a dry mountain basin and have circular relationships (English, 1968). Circular relationship on Plaque A (Birecik) can be seen at Figure 23 and the river – tunnel connection is apparent in Figure 24. Wells are generally used for drinking water and irrigation purposes. In particular, it is known that Assyrian settlements on the banks of the Tigris River were dependent on wells (English, 1968:175). The round groove defined on a plaque can be considered as a reference to a water well, which is the vital need of the agricultural society, settlements and agricultural areas in this geography. In other words, holes on plaques are qanat shafts.

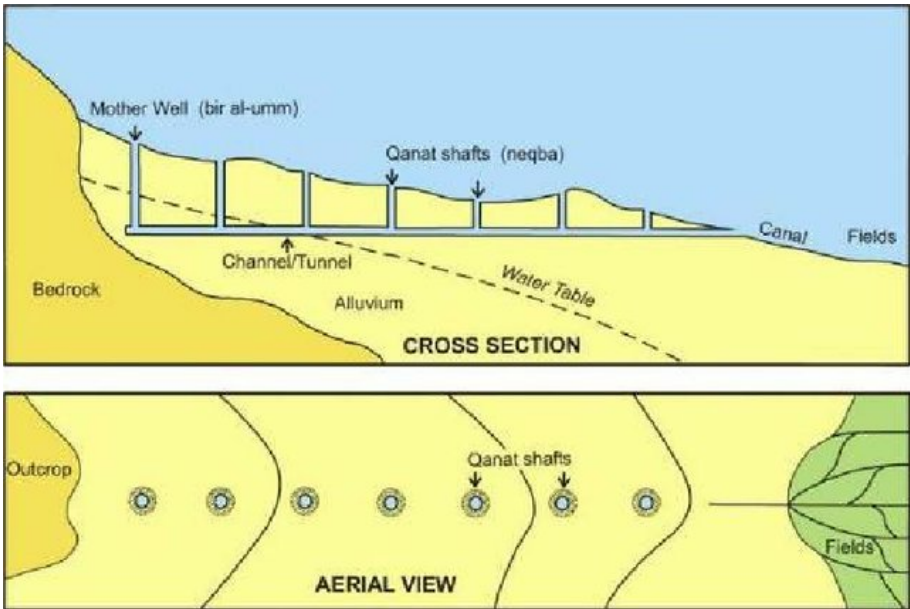


Figure 23. Qanat in Cross Section and Aerial View (Lightfoot, 2009)



Figure 24. The River - Tunnel Connection Point,
(Photographed by the author, 2017)

The relationship between the plaque holes and wells (qanats), primitive irrigation system (the counterpoised sweep (shaduf), Persian

Wheel (dulab) or Ferris Wheel (na'urak) well systems and the irrigation system that English (1968) mentions should be evaluated. A separate field research must be carried out to determine the relationship between plaque holes and settlements. Although some of the traces that are the basis for determining the locations of these holes have been completely erased in the field today, it was determined from the preliminary field research that these holes are the references of the locations of the existing fountains or wells for Birecik.

In the steeper Yeşilözen settlement with many carved holes, most of the wells were 4 m deep, but were closed down or turned into sewerage pits due to rehabilitation work carried by the State Hydraulic Works for the nearby stream. The water is no longer comes to the tunnels, therefore; the locals have demolished these or turned them into sewerage pits.

Grid (grillage/carollage) control was carried out due to the artisans' effort to create a plot division close to standard, depending on a widespread parallelism, proportion or equality in the plan on the plaques. Plot borders in the plaque plans were extended from their straight lines where they were drawn with a ruler. A grid system emerged as can be seen in Figure 25. The plaque carollage is 3.2 cm x 4.2 cm and gives an area of 13.44 cm^2 . In other words, a carollage unit area is 13.44 cm^2 . Grid systematic defined for one plaque is applicable to other plaques.

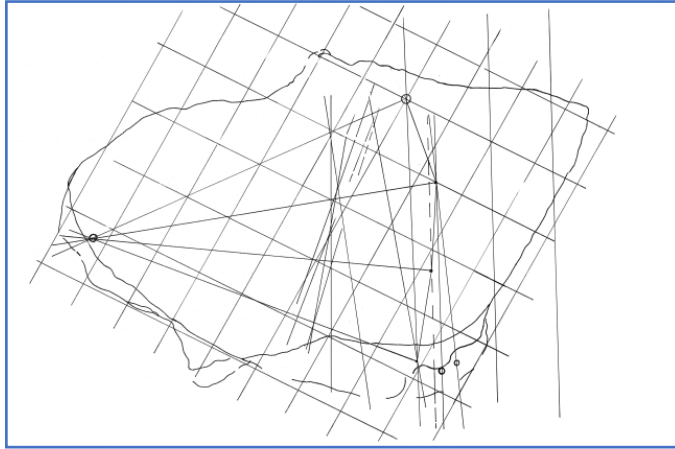


Figure 25. Triangulation Systematic
(Drawn by the author based on the Plaque B)

However, the equivalent of measures and units in today's land measurements (meter, ar, decare or hectare) is unknown.

When short straight lines on the plaques are extended at both ends and parallels are drawn to the lines that emerged, a systematic that rotates the grid tiles in a different direction has been determined as shown in Figure 26. This systematic rotating the tiles provides accurately measuring and dividing the terrain at a given height in varying directions, but at the same contour line. Horizontal lines on the plaques represent contour lines. In other words, dashes define a systematic that helps to rotate the grid, enable contour lines rotation calculations and allow creation of plots suitable for the land and at the same height.

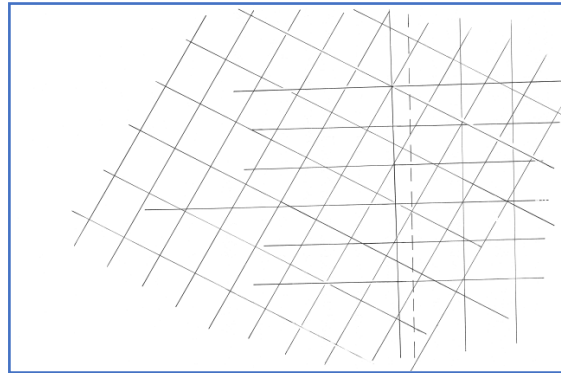


Figure 26. Carollage and Carollage Rotating Systematic of the Plaques (Drawn by the author based on the Plaque A)

The carollage of the plaques is inclined, and it is considered that this inclination may be due to the determination of the angle of incidence of the sun's rays to the earth, since the communities that created the plaques are concerned with increasing the efficiency in agricultural production and calculating arable land. Kuijt (2000:79) states that there has been a radical change in the estimation and scheduling of plant formation possibilities during this period. He adds the growth in the size of food storage and settlements in the same period.

In the Southeastern Anatolian region where the plaques are found and in Mesopotamia; the relationship between yield estimation, scheduling for agricultural production and the Spring Equinox is known and is still implemented. This relationship is also reflected in the architectural structures. For example; the peaks of the ziggurats in Mesopotamia; such as the Chogha Zanbil Iranian Elamite Complex reflects sunlight at the solstice of the Spring Equinox (March Equinox) (Vernal Equinox (March 21)). It has been adjusted with the

logic of agricultural clock. Plaques could be made in a 3D model in order to calculate this relationship.

Hirst (2017), on the other hand, determined that 4 different breeding types were determined from the Fertile Crescent to the Tibetan Plateau. And, the reason for this was the presence of gene pairs (alleles) that depend on the length of the day. No analysis has been made on the amount of plot yield or on the use of a certain area per capita for these plaques as needs further expertise.

According to the Book of Stars by Raphael (1828:117), sun's right ascension in time is 13°44'10 corresponds to 21 October (the date agricultural production is harvested). Vernal (Spring) Equinox is on 21st of March with 0°3'6 sun right ascension. The Autumnal Equinox is on September 21, which has 11°54'10 of ascension. There is an inclination of the carollage lines. When superimposing the North direction of the grid to the Spring Equinox; it has been determined that the carollage lines intersect with the line in between the Age of Leo and the Age of Cancer (M.Ö. 8640-6480) as shown in Figure 27.

There are different dates in the field of astrology. According to Fitzgerald (2009:55) the Lion Age is between 10800-8640 BC, McKenna & McKenna (1994) this Age is in between 10904-8752 BC, Narmer Plate in Ancient Egypt points it in between 10948-8788 BC and Mayan Calendar shows it in a period of 10800-8671 BC. Widespread interpretation of the Age of the Lion is in the date range of 10500-8000 BC. During the 2002 excavations, Akarçay Tepe V Phase is dated to the first half of the 8th millennium BC (8750+-40

The validity of Paranina & Grigoryev's (2017:40) statement on the inclusion of archaeological objects in the cultural landscape to prehistoric times and as the main primary function allocate

astronomical orientation in space-time can be mentioned for these plaques.

6. General Remarks

The Akarçay Tepe Lined and Marked Stone Plaques are an archaeological artefact excavated at the Akarçay Tepe Mound, where conscious agricultural sowing activities began in the Neolithic Age. The plaques are now on exhibition in the Şanlıurfa Archaeology Museum, Turkey. Three Plaques, for which research permission was given in 2017, were measured and examined in situ in the Museum. These plaques are parts of a whole and were produced using the same technical language. Their spatial aspect can be understood from their technical features and are questioned by the knowledge of the discipline of urban planning.

The aim here is to make an alternative method contribution for analyzing certain archeological findings in the context of the city, urban life and urban theory. This study supported with field analysis and literature survey uses a mixed analyzing method. The technical features of the plaques, the purpose of the displays and their spatial dimension descriptive qualities are included in the research. The search presents the results of the examination of the Plaques and evaluation of their conscious technical qualities and means of representation with a multidisciplinary perspective and an interdisciplinary methodology.

The study is also based on the assumption that due to the history of the area from ancient times up to the present and its geographical and

socio-cultural structure, there has been no major change in the basic spatial data. Here, the statement is that they provide indications of settlement and agricultural cadastral patterns, topography, boundaries of control and agricultural support systems. The pattern of a settlement bears traces of the land use layout of the past, even if the settlement is covered and has not undergone a major change.

The plaques are the records of entanglement, topographical information and geographical thresholds for those areas used with habitation and agricultural production purposes. Plaque features provide systematic findings and make it possible to assess the location of settlements and the land use layout at the time they were produced. There is a bound between concrete and objective data and characteristics of the plaques with land use layout, spatial planning and design principles as given in Table 2. They are therefore products with temporal and spatial dimensions and an outcome of a planned decision, conscious choice and a social consensus.

Akarçay Tepe Plaques exhibited in the museum technically contain the same type of data, motifs and language of representation. As the three plaques has resemblance to geographical references, they are thought to have been created in accordance with a need for a spatial narration. All plaques use similar motif for the same land use. From this it can be concluded that the division of land into similar plots by type of land use, and the resulting land use layout and land regime, were based on the same logic in all of the settlements.

A spatial form was conceived, a decision was taken, and a spatial identity was created. The community that produced the plaques acted in the knowledge that the partition and sharing of land constitutes the foundation of property and production and of the social order and hierarchy. In the analysis of the plaques, it was determined that the current cadastral pattern, which is the basis of the land use layout, corresponds largely to the plot lines and geometry of the plaque plans. The plaques present land use layout of their time drawn to scale and displayed in the form of a 3D landscape model. The plaques can be located to Yeşilözen (Plaque A), Birecik (Plaque B) and Nizip Old City (the Plaque C). All these settlements are near the Euphrates River.

Since it has been determined that the impressions are the inputs that define the technical systematic of the plaques, the modelling and drawing technique of the plaques has been determined and the need to draw the grid system (tile/carollage) has emerged. Their technical features; in connection with astronomy, present that the plaques and their plans, the settlement and agricultural areas, define the history of the creation of the land use layout, describe the irrigation systems, and allow us to calculate their slopes and compare them to today's land structure. In short, besides the drawing and modelling technique of the plaques, and the location of plaques, and their time-space dimension can be defined.

There must be an authority and order in this region at that time. Their designs and products constitute a register of the spatial knowledge

concerning human settlements generated over an extensive area. For Borrell & Molist (2014) and Arimura & Suleiman (2015), the regions of Syria and the Levant constitute a single regional entity in the Neolithic Age.

The Akarçay Tepe plaques, representing various systems, are also the symbols of a community having control over separate geographical locations. The plaques, the symbol of a social order, were gathered at Akarçay Tepe, in accordance with the logic of a land registry office and a planning unit. It is therefore considered necessary, from this stage onwards, to answer the questions of which settlements the other plaques pertain to, why the spatial plans for settlements extending over an extensive area were gathered together at Akarçay Tepe and hence what the geopolitical status of this settlement was.

The designs on the plaques present the patterns and borders (valley floors where slopes terminate, or geographical thresholds) of human settlements and agricultural areas, and indicate their relation to the topography. Even though the purpose of making the plaques cannot be established before, it is clear that they were created in accordance with a need to distinguish between settlement areas and agricultural land, and to define property so as to establish new rights or protect existing rights with respect to agricultural support systems and the areas under one's control. This must have emerged from a social change and need. The plaques must have met the need to define, practice and perpetuate the level of development achieved by the community and a systematic order. It is thought that the grid is made for the purpose of dividing

agricultural and settlement areas and determining property boundaries in an order. The plaque plan suggests that class distinctions had not yet been formed. The almost homogeneous division of the land also provides us with an indication that early agricultural or human habitation in this part of the world was founded on a sense of justice. In this respect, it may be remarked that the spatial and structural planning and shaping of human settlements became clear with the creation of agricultural areas. The spatial organization of the systematics of belief occurred during this period in areas away from the settlements.

These plaques constitute the basis of city plans and spatial planning with their land use layouts. It can be stated that spatial planning has emerged since the early forms of human settlements and is not introduced to humanity by Hippodamus of Miletus and Aegean Sea and Mediterranean Sea civilizations around 800-500 BC or later by the Industrial Era in order to solve urbanization problems.

There is a need for certain archeological findings to be taken up by different disciplines such as urban planning. For the discipline of urban planning, these plaques may be classed as an important archaeological artefact, since they display the typo-morphology of the first urbanization of the Pre-Pottery Neolithic Age. The plaques have resulted from a planned and conscious act of spatial intervention during the process of the formation of pre-urban villages, and define the relationship between agricultural and settlement areas, considering that there was previously no clear cadastral pattern on the land.

The approach taken in this research involves the assessment of archaeological findings from a different perspective – one that will ensure that the disciplines contribute mutually to one another.

Table 2. Concrete and Objective Data Correlated to Land Use Layout, Spatial Planning and Design and Land Use Concepts

Concrete and Objective data	Land regime, landuse layout, spatial planning and design characteristics
Plaque	<ul style="list-style-type: none">- Scaled 3D land model- Land registry, ownership/use (?) and topographic characteristics- Level of development and craftsmanship- Level of technic
Three Plaques (Birecik, Yeşilözen and Nizip)	<ul style="list-style-type: none">- Relationships between human settlements- Boundaries of control (Regional)- A single regional authority and unity- A gathering of communities (Civilization)- Social consensus- Same logic of spatial control, form and identity
Akarçay Tepe	<ul style="list-style-type: none">- Has a geopolitical status- A center of authority, planning and title deed office
Situation of the three Plaques	<ul style="list-style-type: none">- Historical sections of today’s settlements- Settlements with 380-660 m. altitude- Strategic locations close to clean water resources
Plaques found in one location in different layers of a Pre-pottery Neolithic	<ul style="list-style-type: none">- Exhibition technique and successive use
Grid (Use of mathematics and Geometry)	<ul style="list-style-type: none">- Calculation of area- Calculation of the Equinox- Calculation of the slope
Strip Grid (Vertical)	<ul style="list-style-type: none">- Early sedentary human settlement pattern

	- Social order (Non-class distinction)
Strip Grid (Horizontal)	- Agricultural land pattern
Plaque pattern	- Spatial plan - Spatial relationships and systems (principles of land allocation and planning) - Definition of property ownership - Land shares (to prevent conflicts over space and boundaries) - Production relations - Differentiation of agricultural and settlement areas - Agricultural production and relations (Sense of justice) - Agricultural support systems
Plaque motifs, lines and holes	- Settlement Macroform - Definition of different landuses (Settlement area, agricultural area, road, water well)
Plaque Borders	- Boundaries of control - Settlement - Spatial plan boundaries
Unique Design	- Systematic order for agricultural production and human settlements - No spatial differentiation between settlements - Rotation of the grid at the same altitude
Inclined plaque sides or curved plaque	- Slope or elevated basin - Topographic information
Broken or damaged surfaces	- Presentation of streams and brooks (?)
Distances and Location of Settlements	- Perception and use of a longitude (?)

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This chapter complies with national and international research and publication ethics.

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Installation Art as a Landscape Element in Public Open Spaces

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1. Introduction

With the Industrial Revolution started in England in 1760 and continued until 1840, developments occurred in the social and economic structure of societies, a new impulse was given to art movements, and the way to the development of contemporary art design was paved by means of the mass communication era. The moods brought by capitalism at the beginning of the 20th century effected on artists and led to the emergence of modern art movements. Futurism in Italy, cubism in France, constructivism in Russia, the dada movement in Europe and the surrealism that developed afterward, influenced art design and established the formation of installation (Kınam, 2010 from Bektaş, 1999).

Installation is a concept that includes many different disciplines and applications, which is derived from the verb "install", which means to set up, arrange, and place in English. The Turkish equivalent of "Installation" is "Enstalasyon". The best-known definition of the concept of the installation is made in the Eczacıbaşı Art Encyclopedia as "exhibition of objects related to each other and the space they are in together at the level of meaning and perception." (Bırol, 2021 from Özyayten, 1997).

New movements such as photography, land art, and installation were added to the branches of art such as painting and sculpture which were accepted to be the mainstream until the beginning of the 20th century, thus, it laid the ground for artists to express their art by means of a

richer language (Emmungil, 2007). The concept of installation, rooted in Kurt Schwitters, shaped in the 1970s (Okumuş, 2016). The art of installation has an interdisciplinary relationship with other fields such as sculpture, performance, video and architecture and offered unlimited application areas (Özaltun, 2020 from Yücel, 2012). In this way, it provides the opportunity to work indoors and outdoors without spatial limitations (Emmungil, 2007). In the 1970s, in the U.S. some artists went out of their interior spaces and turned to nature, and they created a wide variety of application areas by using stone, soil, and many natural materials (Okumuş, 2016). Thus, by using real-world materials in installations, art has become something that one can go in and out, walk through, and sit, and it is open to perceptual experiences, integrated with its environment, realizing itself in the "real space" rather than just being "viewed" (Süzen, 2010). At this point, what makes the art of installation complex is why and in what ways the objects are placed in the space, that is, the conceptual dimension of the relationship between the space and the placed object (Ayözcan Atalar, 2006).

The focal point in the perception of space and its experience by people in the installation art is public spaces, allowing everyone to benefit from these spaces. Public spaces can be indoor or outdoor. The fact that artists moved from indoors to outdoors has also increased the demand to open spaces as public spaces, in this way, open spaces have

gained not only recreational value but also aesthetic value in the living area.

In social life, it is possible to define public spaces as social spaces where thoughts, forms of expression, and experiences are formed, shared, and discussed (Parlakkalay, 2020). When it comes to public spaces, starting from the Greek agora, it is seen that these areas have turned into more functional areas and are defined by uses such as strolling, resting, recreation, consumption, and art. Between the years 1950-60, many theorists focused on the visual perception of public space. Cullen (1961) defines public space elements as an artistic, architectural composition composed of open space and buildings (Gökgür, 2017). Jacobs (1961) and Madanipour (1999) define public open spaces as open spaces that people can access for free. In this respect, parks and open spaces not only provide a pleasant and natural environment, but also improve the quality of life in the urban area and take on the necessary environmental functions. The fact that public open spaces bring individuals together and that this space is open to the whole community requires it to provide certain physical conditions for the interaction and activities that will take place there. The spatial quality of these public open spaces also plays an important role in the survival of the city as a “living organism” (Uzgören & Erdönmez, 2017).

Installation art in public spaces is used as landscape elements such as a border element, seating element, ground element, playground (Kalin,

2018), and focal point. All over the world, there are installation art examples in public open spaces, which are put into practice using all kinds of living and non-living materials.

In this study, the focal point applications by installation art in public spaces are discussed and their contributions to the landscape are mentioned.

2. Urban Open Space Installation Practices in the World

2.1. Pool Balls

The work called “Pool Balls”, which was carried out by Oldenburg and Van Bruggen in 1976 for the installation art defined in the urban landscape, has been an important project affecting the value of the urban space. The idea to place these cannons came from a cannonball that Coosje saw embedded in the Munster city walls. Spheres of different colors were thought to move in random patterns and routes. These balls would change place every day and this change could only be viewed from a bird's-eye view or from an apartment across the park. In this way, it is planned to create a super slow-motion billiard game. These balls have been experienced by park users and used as public notice boards and have become a part of the public space and the city (Figure 1) (Ayözcan Atalar, 2006 from Oldenburg & Van Bruggen, 1994).



Figure 1. Oldenburg, Van Bruggen-Pool Balls (Ayözcan Atalar, 2006 from Oldenburg and Van Bruggen, 1994).

2.2. Cloud Gate

The giant sculpture called "Cloud Gate" located in the urban space in Chicago has an important place among the examples of installation (Figure 2). The sculpture by Indian-born artist Anish Kapoor that connects people with clouds has become a major symbol of Millennium Park in Chicago. The sculpture is exhibited in the event area, in the center of the city and in a way that everyone can see. For

this reason, it contributes to the experience of the place by drawing the audience in it (Parklakkalay, 2020).



Figure 2. The “Cloud Gate” Installation by Anish Kapoor
(Anonymous, 2021)

The Cloud Gate not only reflects the space within, but also gives the audience the illusion of a space. By creating a cave effect with its form, it draws the attention of the viewer. The abstract image formed on the surface reflects the world as a living painting, expressing endless other spaces that are not noticed in daily life and are in a constant rush (Ateş et al., 2020).

2.3. Mirror Labyrinth NY,

It is a public outdoor installation by Jeppe Hein made of polished stainless steel and evenly spaced vertical lamellae (Anonymous, 2016). The uneven heights of the lamellae refer to the skyline of Manhattan across the park (Figure 3). The mirrored surfaces reflect the viewers and their surroundings, as well as adjacent mirrors. This

multifaceted reflection gives the viewer the feeling of being part of a surrounding space with an unfamiliar and disorienting environment like a labyrinth. Mirror Labyrinth New York is also a visual bridge between Manhattan and Brooklyn Bridge Park, reflecting the city view (Anonymous, 2015).



Figure 3. Mirror Labyrinth NY (Anonymous, 2015)

2.4. Urban Bloom

Urban Bloom is an experiment created in urban space. It was originally built in a parking lot, but it aimed to add innovation and vitality to the understanding of urbanism. The parking lot has been transformed into an ideal urban garden, and has become a city project that was built with completely artificial methods and brought people to the forefront. A platform consisting of modules was set up, and a

courtyard was created by placing various flowers and vegetation between the modules. Balloon-like elements are placed on the courtyard to look like colorful tree leaves and provide shade to the space (Figure 4). In this way, an inviting garden was created (Anonymous, 2018a).



Figure 4. Urban Bloom Installation Art (Anonymous, 2018a)

2.5. Sprouts

Sprouts is India's largest and first site-specific art installation designed by Vibhor Sogani. Sprouts standing 40 feet tall and spreads over 6 acres of greens surrounding in Delhi (Figure 5). The project was initiated with the idea 'when the seeds begin to sprout'. The objective was to create a landmark through a series of installations signifying growth, development and progress. 'Sprouts' is symbolic of

the feeling that India is rising after 60 years of independence (Anonymous, 2018b).



Figure 5. Sprouts in India (Anonymous, 2018b)

3. Conclusion

The developments that started in societies with the Industrial Revolution led to the beginning of many variations in the field of art, which affected the way art was applied. In addition to the usual art movements, living spaces have begun to take shape with new understandings.

The installation art, which is the subject of this study, has a field of application in many disciplines. The art of installation, which can be experienced indoors and outdoors, lays the groundwork for the space to not only be watched but also lived. Installation experiences in open spaces, which are public living spaces, contribute to the urban landscape and significantly affect the urban life and the perspective of the inhabitants. Kevin Lynch explained the images of a city with 5 elements. These are landmarks, borders, paths, districts, and intersections/nodes (Lynch, 1960). Installation applications carried out in public spaces are almost the landmarks of the city. This contributes

positively to the image of the city. The application areas of installation art in the world are quite extensive. The installation applications discussed in this study are the landmarks of the cities in which they are located. They have become an important landscape element with their recreational and touristic values, influencing the socio-cultural use of the spaces.

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Privatization of Public Parcels and Lands: The Turkish Case

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Urban space and its control, construction and regulation mechanisms have changed (Yırtıcı, 2006, Keskinok, 1995) with globalization (Fainstein, 1999; Friedmann & Wolf, 1982; Sassen, 1992; Sorensen, 2005; Cihangir Çamur, 2009; Thornley & Newman, 2011). In this new process of capital accumulation, capital mobility and competing cities accelerated, space is commodified, public interest is neglected (Keskinok & Ersoy, 2022; Eren, 2021), planned growth of the cities is destructed, and possibilities for redistribution are restricted.

Through this process of global restructuring, the ruling classes have strengthened their position by the transfer of immovable property ownership. To achieve public properties privatization is declared and supported. The nature and the role of the state in the transfer of public immovable (parcels and lands (public lands)) were irreversibly altered through privatization. This logic has created a different form of urbanization, urban spatial patterns and various urban planning approaches. In other words, the lack of control of urban planning (re) produced urban space (Keskinok, 1995).

In this urbanization process, ‘market-led’ privatization (*de facto-privatization* [özelleşme] and *de jure-privatization* [özelleştirme]) policy (Eren, 2007) and ‘market-critical’ urban planning (Swyngedouw, et al., 2002; Bishop & Philips, 1993; Altaban, 1990) became contradictory activities (Ersoy, 1995:68-72 & 1997:20-26). The state while creating a tension between planning and privatization (Eren, 2007), led to the crisis of both the ‘market institution’ and the

‘planning institution’. The persistence of these institutions to changing conditions and their ability to absorb change and disturbance differed. Market-led planning approaches replaced market-critical approaches and produced ‘spaces of consumption’. The actors in the privatization process directly or indirectly backed the process of producing spaces of production with rent expectations. Market-led urban planning approaches aim to legitimize the spaces of consumption and increase public parcel and land (public lands/immovable properties) transfers. Increase in the number of exercises structured by the market-led approaches and their impacts create a problem area for the planning institution. The problem emerges as the immovable property or property right transfers lessens the applicability of urban plans or any possibility of implementing new planning approaches (Eren, 2022) for achieving sustainability (Dede, 2016).

There appeared a reconsideration of and criticisms about the meaning and essence of privatization within the process. The transfer of public immovable properties through privatization has led to discussions and criticisms in the city planning discipline. The aim of privatization, the public responsibility of urban planners and the changing role of public authorities in the (re) production of urban space for public interest are neglected and/or questioned.

Despite its remarkable outcomes and criticisms, privatization has been avoided in the debates on the Theory of Space (Keyman, 1997; Aydoğanlı, 1995:132; Baytan, 1999:10–11; Karluk, 1994; Keskinok 1999; Arıoğlu, 1994). Academic studies on the privatization and its

impacts on cities or the related processes are limited and were only apparent in between 1996-2010. Impacts on the emergence of different forms of rent and property, rights to property and public interest are also denied. In the same period, urban planning theories (Tekeli, 1987) have focused on several dimensions of *de facto-privatization* (mainly illegal exercises such as occupation, squatters, etc.). Today, it can be stated that the lack of awareness on and interest to privatization issues and the problems created continues.

The lack of interest may have resulted from several reasons: Concentration is generally on the outputs of the Privatization Act and the Public Economic Enterprise (PEE) transfers. The design and gains achieved through privatization in monetary terms are studied. Economic results on the company level and social and political image have been discussed through the process. In other words, inadequate economic approaches dealt with the impacts of privatization only in terms of the revenue generated, enterprise-level results, or economic consequences and are based on the overall social or political indicators.

The aims, objectives, reasons, objects or even the process have not been dealt with by the related actors.

The Privatization Theory is accepted to be inadequate to untangle the reasons of *de jure-privatization* in terms of the (re) production of urban space, especially in the local level. On the other hand, *de facto-privatization* is uncovered by the Theory of Privatization. However,

societal outcomes and the economic results of both privatization forms require a special concentration of thought.

Decision-making actors are unaware of the difference between *de facto-privatization* and *de jure-privatization* implementations. Conceptual chaos and restricted data in a fast tirbulating process led this issue to be more complicated (Eren, 2022). Another chaos has emerged as the urban planners of the city authorities were unprepared and unable to consider urban impacts when this neoliberal policy was introduced. This is why, they resisted and institutions of comprehensive planning and actors supporting or defending rational planning were excluded from the process (Eren, 2022).

Within this framework, there appear two different lines of thought: The planning institution creates approaches in order to struggle every (un) expected form or planning institution is a tool to satisfy the demands of the market institution (Ersoy, 2007). As public responsibility of the public administrator and the urban planner is in between the market and the society, and have varying thoughts, their professional and societal roles are questioned. Therefore; privatization must be studied from the city planning perspective.

Ascending criticisms, lack of discussions and conflicting objectives and the impacts observed provided the critical basis for this study.

At the initial stage, material and method of the study will be explained. In the conceptual framework section; property, property rights, and urban rent issues will be examined. *De facto-privatization* and *de jure-privatization* conceptual differentiation will also be

explained. Based on the Turkish case, this section will cover privatization methods. In the fourth section, the dilemmas of the privatization process will be presented with reference to state actions or the characteristic of the action, privatization methodology, and subject content. The relation of privatization with the (re) production of urban space, urbanization and urban planning will be analysed in the following section. Conclusively, a discussion on this relation in terms of legitimacy, rationality of privatization and planning, and relationship between the market institution and the planning institution will be made.

2. Material and Method

This study is based on privatization (*de facto-privatization* and *de jure-privatization*) conceptual framework and the privatization practice in Turkey. The problem area of privatization of public lands and its impact on cities and relation with urban planning has been the study subject. The study is a qualitative research and is based on a search of literature, legislation, authorities, and internet sources. Within the scope of the study, the necessary data were collected from the sources related to the subject. The method of evaluating and interpreting them together was preferred.

Case study is used for the analysis and explanatory review was implemented for the case study as the research choice. The analysis has been made with reference to the (re) production of urban space, public interest and the impact of privatization to urban planning.

Urban planning actions and functions and the logic of the market mechanism in the privatization process have also been analysed. Apart from the conceptual analysis, the contradictions that occurred through the process and the relationship between the market and the planning institution were examined. And, this relationship has been critically evaluated.

The analysis covers quantities and methods of transfers of the Public Economic Enterprise lands and other forms of public land. The transfers in the *de jure-privatization* process (1986-2001) are defined in order to show the type and amount of the PEE land transfers. Methods of *de facto-privatization* of public lands observable since 2005 are defined and classified. Latest data on the property transfers made public are presented. The methods of transfers and reasons for development plan preparations or plan modifications are also given.

Within this context, the next section is on the relationship of the property, property rights and urban rent issues from the perspective of the urban planning discipline.

3. Property, Property Rights and Urban Rent

The tension, emerging as commodification of urban space and increasing in the *de facto-privatization* and *de jure-privatization* problem area, is created by property transfers. Historically, immovable property and space have been used interchangeably. This results from the transfer of ownership of property in the property market or domination which planning is related to. Processes and

amounts related to property transfer methods are the major components of the real estate markets.

3.1. Property and Property Rights

Property is defined by law and acquired from the state as Bentham claimed (Harvey, 1998:32; Frydman & Rapaczynski, 1994:170). For Challaye (1969), property is an economic and political reality. Property as a right structures social relations within a society. Its relations are defined as a (live) ‘thing’ (Günay, 1995(a):65). Property relations are defined as the domination of property subjects (owners and possessors) on the property objects (things and goods) through a set of rights under the control of the state (Eren & Günay, 2015:142).

The property system is composed by state property, private property, common property, and nonproperty (Bromley, 1989:872) regimes. In this system, public property [Kamu mülkü] can be classified as state property [devlet mülkü], public property [kamusal mülk] and social / common property [toplumsal/müşterek (sosyal) mülkiyet]. In this study, public property refers to public immovable properties (Public parcels and lands).

Günay (1995 (a) & 1995, (b):63-71) has conceptually differentiated property [mülk] and property right [mülkiyet]. Both terms encounter in practice, legislation, and academic circles. Günay (1995(a)) claims that property rights differ as ownership [sahiplik], use [kullanım], and management [işletim] or possession [zilliyetlik] rights. Such a differentiation is unapparent in the Turkish legislation and practice.

According to Günay (1995 (a): 65), ‘property (subject to that right)’ is a ‘good’, and, ‘the right to property [mülkteki hak]’ is a ‘right’. Property discussions focus on the right to protect and/or possess a thing or have benefit from the revenue of that thing (Günay, 1995 (a):65). For Kılıç (1993:40), ‘property rights’ is an absolute concept. ‘Right’ concept refers to use typology and will be termed in this study as property right.

In general terms, the right to free use and the right to own wealth enlighten the logic behind the will to have a property (Eren, 2007). Ownership refers to have the right to create and to achieve rent. That is why, capitalists have the will to have land ownership.

The two-sided transfer systematic of public and private properties, which is historically specific (Eren & Günay, 2015: 143), is shown in Figure 1. The transfer of property rights can be from public to private natural and juridical persons (squatter owners, firms, farmers, cooperatives, wakfs, societies, parties, etc.), and *vice a versa*. There is the transfer of property rights from public to public or private to private.

Transfer of property [mülk dönüşümü] and transfer of property rights [Mülkiyet Dönüşümü (MD)] are different domains (Günay, 1995 (a)). It can be stated that (re) production (commodification) of urban space and urban development is realized through property transfers. Transfer of a property is related to the change of the physical presence of a property. On the other hand, transfer of property rights is the change

of legal status in between any two of property right holders. All of these are generally termed as property transfers.

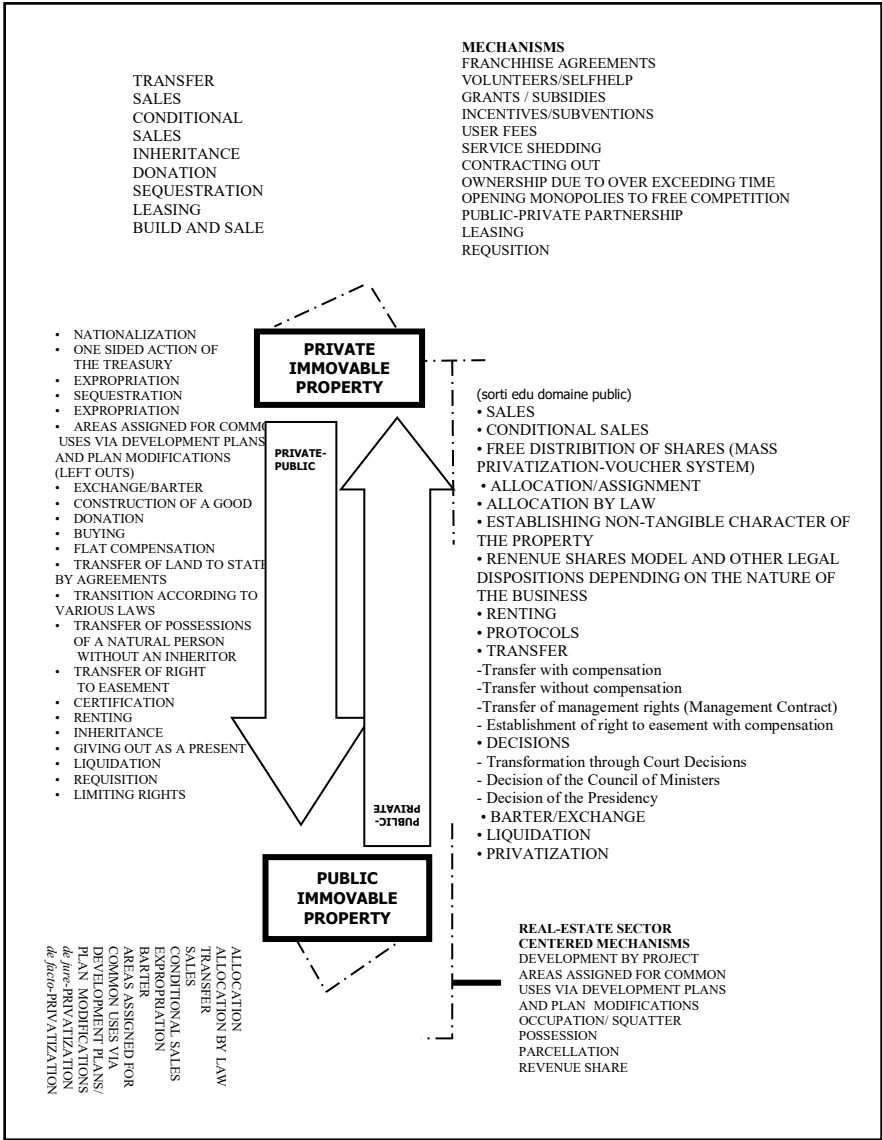


Figure 1. Property Transfers
(Revised from Eren, 2007 and Eren & Günay, 2011).

Conceptual confusion of (urban-rural) immovable property and property rights has differentiated the meaning, number, and typology of transfers relative to time, geography and public administration. However; in all types of public administration land registry is demanded to legitimize the property and the property rights.

Transfer of property typologies can be listed as follows:

- Bring into existence (creation) (constructing, infilling coasts, etc.),
- Destruction (Destruction of the asset as a result of excavations such as mine site or archaeological site excavations),
- Creating or changing land use decision with a development plan or its amendment,
- Increasing or decreasing the development rights with a development plan or its amendment,
- Obtaining privileged development rights with a development plan or its amendment,
- Obtaining privileged zoning right through development amnesties after the occupation or through a development plan or its amendment,
- Changing development rights and land use at the same time with development plans,
- Change of physical boundaries - Allocation/amalgamation.

According to Sandberg (2007:613), the property rights matter is the dominant paradigm. For defining individual rights or structuring societal balance, limitation on property rights is set for social benefit and public interest. In reality, limitations on the property rights for

social benefit and public interest emerge from the problem of rent (Keleş, 1993; Keleş et al., 1999: 32). There is a dialectical relation between public property and private property.

The same relation is apparent between the capitalist surplus production and rent. In urban areas, absorption of the surplus in the form of rent is created by the real estate activity (Keskinok, 2022; Erdoğan Aras et al., 2005). This supports the achievement of the right to own a land. (Keskinok, 1995:205) states that rent in the capitalist production style is subject to certain limitations through urban planning. Urban planning restricts private interests and the value and controls the rent generated by property transfers. The limitations set by the planning institution is unwanted by the property market and viewed as an obstacle.

Returning rent to public is possible only with public administration's regulations: For (Keskinok, 1997: ix), the state involves and attempts to regulate (re) production of urban space. (Keskinok, 1995:211) further claims that, local authorities' and central administrations' regulatory actions are an input for the formation of urban rents. Urban planning which is one of these regulatory actions aims to balance and control this. However, the state consciously creates rent in the *de jure-privatization* process. (Keskinok, 1995:212) states the capitalist economy's limitations as the other source producing rent.

The ingredients that define this transfer as a treat in terms of (re) production of urban space are; the value of that property or property right, density and quantity of transfer, typology of property or

property right, land owning administration, and land use on the property. The related planning and implementation processes depart from the control of the urban planner. It is argued that planning is to define, to regulate, and to legitimize the property regime, the development rights constructed upon, and their transfers, and the relations in between. In other words, urban planning and the role to play within the capitalist market economy is a matter of property, property rights and their transfers.

Privatization is a method to redistribute property rights and to create rent to individuals or a section of a society. And, the outcome is the ownership fragmentation. During this process, property owners can conflict over urban space (Keskinok, 1997:63) to have the ownership right and rent.

As the aim in the Turkish privatization exercise is to achieve these, exchange value of a land is replaced by the use value of that land. That is why, everything, including national cultural possessions can be privatized or even destroyed. (Tomaskovic-Devey & Miller, 1984:64) noted that investments of the capitalist will be based on short-term private exchange value, not on national use value.

Public loss is inevitable when public possessions are sold lower than market prices or gain is unreturned to the public or public use and affairs. Actual sale prices are declared by the responsible authorities lower than true market prices before privatization. By this action, true tax declaration is avoided. Same principle is stated by (Szelenyi, 1984:5) adding that market investments under inflationary

circumstances are oriented toward maximization of private profits – to the property markets. As a result; the maximization of rent became the aim instead of traditional profit maximization.

According to Keskinok (1995), planning approaches studied possible alternatives to lessen the damages of the rent problem to the planning order. A basic principle of the modern planning discipline is that public authorities should have maximum amount of land to implement urban plans. This is demanded mainly in order to control rent. The situation changed as the public authorities have less control of the privatization process and high amounts of public land is transferred to the property markets.

As public authorities participated in more rent generating activities, and measures or precautions are neglected; ‘differential rent’ and ‘monopoly rent’ emerged in urban areas. These rents are transferred to the public property investors. In addition to this, in the privatization process absolute rent becomes monopoly rent. Monopolistic rent is related to the location or land use typology of the property privatized. Monopoly rent increases decision-making dominance of the capitalist in the urbanization process. Eren (2007) presents that both privatization domains are best visible in the Turkish practice where privatization is the major mechanism to achieve differential and monopoly rent.

At this stage, it is necessary to clarify *de facto-privatization* and *de jure-privatization* conceptual differentiation in order to understand the relation of the market mechanism and urban planning.

3.2. De facto-privatization and de jure-privatization

Transfer of property rights on public lands has emerged as *de facto-privatization* and *de jure-privatization*. Public lands can be occupied or seized, in time and place with legal or illegal methods and various reasons. These activities are termed as *de facto-privatization*, which is a historical phenomenon and used in every nation. This method of transfer is generally exercised in the form of state's land policies with a legislative framework or illegal ways of land appropriation and construction resulting from any illegal social and economic concern (originating from low-paid services and marginal sector demands). Here, the type of public land defines the method of and the responsible institution from a transfer. *De facto-privatization* methods are defined according to direct and indirect central or local authority action (urban and rural), involvement or non-engagement.

A special privatization legislative framework is applied by the rise of neo-liberal policies (Eren, 2007; Cihangir Çamur, 2009) after 1980s. The content of this domain has only differed and the relationship between urban planning and *de jure-privatization* has changed as the object of transfer differed relative to localities.

Eren (2007) proved that the meaning, aims and objectives of governments for privatization, the legislative content and the method of transfer of property rights, and the subject and objectives of *de jure-privatization* are different than the world practice. Transfer of the right to use, possess, manage and own a public good or service

constitutes the content of the Turkish *de jure-privatization* experience.

The major aim in this process is parcel and land transfers.

Besides gaining enterprises through increasing their productivity, their production functions are ended. This is hidden liquidation. In other words, this exercise is the liquidation of the public share in the economy. In parallel, with the decreasing power of the central administration, the power of local authorities/administrations to provide development has weakened. In this context, regional development agencies have been activated instead of provincial governorates and municipalities.

‘Privatization’, ‘liquidation’ and ‘socialization’ approaches are exercised at the same time and all are termed as *de jure-privatization*. Socialization is exercised in Turkey with the transfers to local authorities and universities without compensation up until 2005.

Another issue that differs within the process is the legislative content and objectives of transfer. In the Turkish exercise, transfer of property and property rights are subject to the provisions of the transfer of establishments. In foreign privatization exercises, the transfer of enterprises and the property and property rights are performed in different processes and legislation. Due to the condition of production, public enterprises, their possessions, and production functions are preserved by legislation. Moreover, if there is an immovable property transfer; then this is subject to a separate Act. Land use functions are unchanged in general and rent opportunities are rarely created, and if generated taxed.

In this process, the discourse of privatization is to generate income for the state in economic terms. For the author, the focus has changed from the slogans of economic upgrading, economic sustainability, and increasing social welfare or activating provision of goods and services for public interest to spreading wealth to the society. Economic gains through capital investment are achieved by the transfer of development rights, development potentials, and ownership. This refers to the intervention for recapitalization -the creation of rent for certain groups, intervention against public interest, increasing unemployment, and social inequality leading to the crisis of capitalism and cities (Schubert, 2019).

In *de jure-privatization* process, central authority through the Privatization Administration (PA) transfers public lands to the capitalist to overcome own narrow-sightedness. However, in contrast to what Fainstein & Fainstein (1985) has stated, as the market shapes and directs administrative actions during the related land transfers and planning processes, the authority cannot overcome narrow-sightedness of the capitalist. *De jure-privatization* exercise proves that as the capital overcomes narrow-sightedness of public authorities inevitably deepens its own crisis.

Public administration seeks to overcome the narrow-sightedness of the state and the market (Fainstein & Fainstein, 1985) with the sale of public lands and state planning. However, these actions legitimize the demands of the capitalist and the administration. In other words, the

public administration applies market-led planning approaches to solve development problems and to meet the demands of the market.

As success of the capitalist in achieving rent is gained, the transfer of public land ownership policy of *de jure-privatization* has been increasingly accepted and implemented in the *de facto-privatization* process (after the year 2000).

This transfer emerges from the demand of the capitalist and in many times, without the will of the public authority and against its policy objectives or legislation. Private sector's increasing attempts to achieve public lands are structured not only by public institutions or local authorities with varying purposes, but also through NGO interventions, and are directed by the press. The capitalist produces the tools/methods that increase own benefit and requests/supports public actions as required.

In the privatization process, for both public and private sectors, every public land is transferable. However, different from *de jure-privatization*, rent and revenue generated from the transfer will not be transferred to the inhabitants (the owners of land) in *de facto-privatization*. This is mainly exercised especially in urban transformation projects.

There are several methods for transfer where the objects of transfer differ. The successive section covers methods of privatization.

3.3. Privatization Methods

In Turkey, privatization methods differ according to the object of transfer. Various public immovable properties are subject to transfer.

The object of *de facto-privatization* is the state owned lands that are state property composed of treasury lands and areas under the dominance and possession of the state. The objects of *de jure-privatization* are registered or unregistered ‘state’s private properties’. Treasury lands, lands of administrations with supplementary budgets, PEE lands, and areas under the dominance and possession of the state used by the PEEs are in the privatization portfolio.

The Privatization Administration applies possession sales, renting, and transfer of management rights; establishing non-tangible rights to property; sales of half-finished establishments; transfer with substitute (4046/2i); transfer without substitute (4046/2i), and tender between certain demanders (5398) procurement methods of privatization. Planned privatization in real-estate, maritime, energy, food, mining, chemical, textile, transportation, banking, construction, and telecom sectors and ports cover direct and indirect immovable sales.

Partial privatization (immovable, movable properties) is in the form of direct land transfers or block sales covering immovable properties. By the year 2015, facility and possession sales of the PA are 49 % and block sales are 33 % (ÖİB, 2015). Privatized lands are generally in urban areas or coasts. In Turkey, in between 1986-15.10.2001, 711 activities of the Privatization Administration out of 920 contains land transfers (Eren, 2007). Total amount of immovable property privatized is unknown.

In the portfolio of the PA there are thermal power plants, housing units, university areas, recreation areas, sport facilities, industrial

areas, agricultural areas, picnic areas, administrative centers, commercial centers, hydro electrical stations, natural gas stations, gas tribunes and power plants, ports, marinas and highways. The analysis of the PA's activities in between 2012-2016 have proved us that, the PA has become an administration that only sells public immovables.

To ease transfer, the plant area is divided into possessions. Selling movable/or immovable properties generates capital resources much easier. Possible privatization costs, time demanded for privatization, and low demand level from the private sector led the PA divide the establishment into components. It is made easier to change land uses of the enterprises. Production necessity, urban location, and function or special demand are the determining factors of this division. This method is applied in order to make the enterprise valueless or transfer of the possession to those in request in a shorter period of time.

De facto-privatization methods are various and can be grouped as direct and indirect central and/or local authority privatization or citizen actions for transfer: Selling national real estates in urban areas, transfers after urgent expropriations, sale by an Act or a Legal Amendment, allocating or renting by a ministerial approval, occupation, allocation, and sale of lands with no registry, allocation by the Presidential Decree, allocation of coastal areas by protocols, sale of forest areas that lost its forest characteristic (2b) by an Act, selling forest areas that lost their forest characteristic with untrue documents, renting, renting national real estate to its invaders by a by-law are some of the methods of *de facto-privatization*. Local authorities are

generally transferring public immovable in possession with revenue expectations and to cover up their service costs.

The amount of public or public enterprise lands transferred in *de facto-privatization* is unknown. How much of the burnt down forest areas, mining sites, wakf properties, properties sold to foreign countries (Bozacada, Adana, the northeast part entrance of the Bosphorus) are privatized are hidden. There is no specific study determining the methods and amounts of immovable property privatized. However, it is certain that in addition to common methods, the acts of selling to foreign countries, institutions, international monopolies and transfers to portfolios of banks due to unpaid credits accelerate the speed and frequency of public land transfers.

4. The Dilemmas of the Privatization Process

The dilemmas of the privatization process emerge from the Turkish privatization practice and constitute a dual structure: The first one is formed by the dilemmas (4.1-4.5) emerging with reference to other state actions or the characteristic of the action. The second structure (4.6-4.8) is composed of privatization methodology and subject content. These dilemmas are given below:

4.1. The Market Dominance

The properties/treasury immovable properties owned by public institutions and organizations are sold to the market in order to overcome own financial crisis. On the contrary, public institutions or establishments expropriates, hire or buy expensive private parcels and

lands directly from the property market for constructing buildings and campuses or areas to provide services.

4.2. Loss and Gains of the State

Public administrative structures, facilities or lands, which belong to enterprises still functioning and productive, are closed down and their parcels and lands are transferred within the scope of privatization to the private sector or public structures functioning with the logic of the market. This means a gain loss and loss in production functions and provision of services.

4.3. The Results in Terms of Financial Terms

The financial crisis of the state could not be solved with privatization (Eren, 2007). Since the production activities of the state are ended, the contribution of privatization to the development of the country is uncertain. Ending public share in the economy means weakening of the state control over the market forces (Eren, 2021) and liquidation.

4.4. Ownership of Rent

In *de facto-privatization process*, transfer methods and planning processes and practices of *de jure-privatization* are applied. In *de facto-privatization*, unlike *de jure-privatization*, the rent and income to be generated are not returned to the land owners. Urban impact analysis, financial cost analysis, and need assessment are missing.

4.5. The Source of Transfer

When the ownership transfers and land values of public immovable properties in various countries within the *de jure-privatization* process are studied, it is found out that public immovable property transfer in

urban areas or the urban periphery and successive plan modifications are not made except British, Mexican, and Chinese Shanghai (Ling-Hin, 1996) cases. In foreign practice, *de jure-privatization* is the transfer of management functions of PEEs and SOEs or urban infrastructure or service provision of public (local) authorities through large-scale projects.

PEE parcels and lands were the initial stock of land in *de jure-privatization*. Today, empty public parcels and lands and functioning public enterprise's lands, facility and service areas or squatter areas are the new stock of urbanization and their transfer is exercised in *de facto-privatization*. *De facto-privatization* actions lead to similar implementations as exercised in Ankara Dikmen, Mamak, Hüseyingazi, İstanbul Sulukule, İzmir Kadifekale-Uzundere squatter areas and disaster housing areas like Bornova, Bayraklı in İzmir, mainly after 2000.

4.6. Transfer Methods

Various transfer methods have emerged in the *de facto-privatization* process mainly in the last decade:

Within the scope of Act No. 2886, public residences, immovable properties belonging to the treasury or to the public are sold. Sports stadiums, sports facilities, tourism facilities are in the sale portfolio. There emerged a different terminology as 'sales uncovered by the Act 2886'. The meaning of this concept is unclear and the General Directory of National Real Estate is selling properties in an accelerating manner with this method. In May 2022, the General

Directorate of Social Security has sold 61 immovable properties (264,2 million TL) in 14 provinces with the condition of sales other than 2886 (Cumhuriyet, 2022).

Land is allocated for state supported hydroelectric power plants, solar plants, energy plants, and wind power plants. Urgent expropriations, urban transformation, selling to the renter after hiring for a certain period of time, selling, continuous selling (continuous selling of a property bought at a low price and not making development plans or amendments in order to sell with a low price), selling through bargaining, displacements, and occupation are exercised.

Sale by the decision of the Presidency is another recent method. Decision dated July 10, 2021 and numbered 4264 is an example of such sales: 18 training camps and social facilities in Marmaris, Kuşadası, Seferihisar, Manavgat, Didim, Gökçeada, Beşiktaş (the Bosphorus Istanbul) owned by various Universities, State Railways, Ministries, the Ministry of Forestry, the Ministry of Interior Affairs General Directorate of Security were transferred to the Privatization Administration.

The Wealth Fund of Turkey has been established in 26 August 2016 and has been linked to the Presidency by 10 July 2018. This Fund covers lands, possessions, and assets of the major public institutions and enterprises and lands of the State Treasury. The sales and transfers of the Fund are out of the control of the Supreme Court of the Public Accounts.

The Mass Housing Administration (MHA) bound to the Ministry of Environment, Urbanism and Climate Change (MoEUCC) produces mass housing for middle and low income citizens, refugees and disaster victims. The Administration also produces public buildings, which were previously produced by the General Directorate of the Construction Affairs of the MoEUCC. Free public lands around settlements are allocated to the Administration free of charge.

The General Directorate of National Real Estate (GDNRE) is bound to the same Ministry and is responsible for all Treasury lands. This General Directorate has been selling treasury lands in an accelerating manner and announces a sales list and selling methods via internet. The General Directorate has recently introduced the method of 'Purchasing by making a request to another real estate'. This refers to the availability of any sale of a property undetermined by the public sector for sale or unlisted to the sale list of the General Directorate. There are several conditions for buying a land from the state through the General Directorate. Any person willing to buy a land must be a citizen of the Republic of Turkey and has a residency requirement. However; there is no condition set for controlling or preventing the transfer of the property after the sale to other citizens or foreigners.

In the year 2022, several local authorities, the Ministry of Environment, Urbanism and Climate Change (Mass Housing Administration and the GDNRE) and the PA have accelerated their sales. Efforts to lessen public parcels and lands have been going on.

This can be observed from the number of sales from their webpages, projects and announcements.

4.7. Conflicting Statistics

The number of public lands within the privatization process is unclear. In 2006, the General Directorate of National Real Estate had a total number of 2.234.789 immovable properties with a 126.302.345.484,11 m² area. In 2008, an amendment of the Act No. 4706 (2001) by the Act No. 5793 about the sale of Treasury lands was made. In a press news (Mynet, 2008) it has been stated that;

‘152 thousand 576 square kilometers of Turkey's surface area of 780 thousand 576 kilometers, are public properties... The state holds approximately one fifth of the country's surface area with the Treasury's immovable properties, reaches 2 million 821 thousand properties in total.’

The total number of public lands declared by the state differs in 2006, 2008 and 2019. That is why, it can be stated that the total number of treasury lands or public lands is unclear and recent data is incompatible with the numbers declared in the previous years. The last data of the public land stock publicized via internet is given in Table 1.

Table 1. Distribution of Treasury Properties by Type (01.08.2019)
(MoEUCC, 2019)

Property Type	Number	Share in the Total Number (%)	Area (m ²)	Share in the total Area (%)
Registered in the name of the Treasury	4.002.140	94,36	259.275.594.409	91,95
Areas under state’s governance and possession (Processed)	136.757	3,22	16.305.230.602	5,78
Related to the Treasury	102.276	2,41	6.399.809.395	2,27
	4.241.173	100	281.980.634.406	100

4.8. Public Interest and Privatization

State actions are for public interest (Akillioğlu, 1991:3-8). Public interest is used to correct state action. For (Campbell & Marshall, 2002), the legitimization of urban planning depends on the understanding that the state’s intervention in land and property development through planning is necessary to achieve public interest against private interests. Based on this understanding; ‘planning was conceived as the means by which the best use of land could be secured irrespective of market conditions and this required unreserved acceptance of the need to subordinate private interests to the public interest’ (Chambell & Marshall, 2002:168).

Public authority is responsible to prepare development plans for public interest, to prevent speculative actions, and to determine urbanization. To sustain this the authority has to implement the related legislation for public interest. Today, privatization and market-led

urban planning approaches result from private interests and administrator's self-benefit (representative's interest), bureaucrats' interest (self-benefit or technical interest), and group interest (of public and private institutions for PPP). Another state action; privatization focuses to free market economy structured by private interests where private interests have priority (Eren, 2021).

Since 1985, the meaning and the context of both the public and the public interest concepts have changed (Eren, 2021). The public is no longer the citizens of a nation state, which have a common language, ethic or geographic origin and a past. A nation state must have a national sovereignty, a common past and present and future generations. The nation state is composed of migrants, refugees (Cihangir Çamur, 2017), foreign visitors and citizens. This is a new heterogenic structure of the state and refers to the breaking up of the nation state. For whom the nation state will be acting for is the question that rises. Interest of the citizens loses priority in the State's actions as the meaning of the public changes (See: Eren, 2021).

The relation between urban planning and privatization should be analysed to understand the paradigm shift of urban planning and the changing meaning of state's actions. The next section covers the relationship of privatization in terms of (re) production of urban space with urban planning.

5. Privatization and (Re) Production of Urban Space, Urbanization and Urban Planning

The relationship between *de jure-privatization* and urban planning is based on the relationship between Public Economic Enterprises and urbanization. The relation between *de facto-privatization* and urban planning is between the capitalist, the public authority and/or the citizen and urbanization. This relationship starts after the decision to transfer.

Untill the exercise of market-led planning approaches, the urban planner having a comprehensive planning approach has defined public lands in all planning hierarchies as sacred and untouchable with no development potential.

The transfer to neither the urban property market nor no revenue gain is expected at the time the land was owned publicly. ‘Continuity of the enterprise’ so the ‘continuity of the state’ and ‘investment potential of the public sector’ are the determinants of this decision. That is why, when the transfer is demanded, the development of the land is relative to the market demand instead of urban needs. As a result, in the privatization process, urbanization becomes a result of intervention through urban development plans and planning processes.

The process brought up various planning problems for central and local authorities. Most of these parcels and lands have developed against the related legislation or development plans or no development plan. As a result, planned or unplanned public investment and its

potential development area or any type of public land has been transferred to the property market with or without a development plan. When enterprises or public institution parcels and lands were taken into the privatization program, there emerged development and planning problems. Privatization decisions harmed enterprises within the privatization program or other public investments (Eren, 2007). These decisions can be against local administrative decisions and urban plans.

Speculative concerns are realized through partial plans or plan amendments that are the prerequisites of parcel based architectural projects.

Urbanization is another factor to mention in this process: Before 1960s, public enterprises were established in the urban periphery or cities developed around campuses of the PEEs. Some cities were dependent upon these enterprises. As the cities grew, public establishments were ringed by other urban land uses and were then located in the transition zones. Public property in urban centers, transitional zones, and in fringe areas has been the object of transfer due to their potential development area characteristic. PEE and public institution parcels and lands are available to offer land value increases and high return opportunities to its investors due to their locations (Baytan, 1999:273).

Another factor is the relationship of the objective of planning competence and land value. Both privatization domains gave the capitalist the chance to invest in public lands in the valuable zones of

the cities. Eren (2007) proved that the privatization process and urban space is structured by free market conditions and within this process, the actual value, market inefficiency, and existing plan and development conditions are neglected.

The sale value is generally lower than the actual market value. The public administration is responsible by law to privatize the land at its real value. Real value is the value of the capitalist or the public administration. Planning competence is used as a method to create the actual market value. However, urban planning allows value increases, generates rents, and eases the transfer in the privatization process. Any real value and/or actual market value achieved by the capitalist after the transfer are a loss of the central administration.

Various examples of customization/privatization proved that;

- There is no land valuation or planning study defining the privileged development rights and potential development opportunities of the land,
- The land has not been transferred even at its market value,
- The property and the speculative value increase are transferred to their investors,
- The amount and scale of public lands needed for the implementation of development plans at the local scale has decreased,
- Transfer of urban areas and property transformation without the initiative and will of the local authority have emerged.

In the privatization process, development potential is transferred by the transfer of ownership rights legalized through urban development

plans and their amendments. If plan amendments are made and development rights are changed after the act of privatization, then it means that privatized property was not transferred from the actual market value. The capitalist achieves the speculative value increase and the ability to use public resources until the end.

Increasing number of public land transfers due to low land values result as a decrease of the quality and quantity of public lands demanded for realizing urban plans. As public land share decreases through privatization, implementing urban plans becomes harder. The scarcity of public lands dangers the possibility to achieve plan objectives or to realize public investments.

The central administration intervenes into the local authority authorization area in the privatization process. Privatization becomes an action against urban planning and urbanization. The insufficient knowledge of the decision-making bureaucrats on property and property issues and the fact that the main debate focuses on the economic consequences of the privatization policy hides this fact.

The public immovable property ownership rights are transferred to the private sector in order to minimize their investment risks and costs as well as short-term ventures as Tomaskovic-Devey & Miller (1984) stated. This is guaranteed by development in stages method of the capitalist and project-based urban plans. Low urban land values decrease investment costs of the capitalist.

On the other hand, public costs and risks (i.e. Dubai towers project proposal on a public land in Istanbul) of local authorities' increases

when investments are made on public lands. The capitalist has the right to transform and to shape this public good. Once the property is transferred to the capitalist, taking the property back or control of its transformation in terms of public interest is impossible.

For any public authority, satisfying macro planning decisions or behaving for public interest has lost ground. The same authority, except simple researches or reports, has no economic and spatial analysis. The authority is unable to make a proper planning study and land valuation taking into consideration development potentials and development rights.

Data collection, synthesis, analysis, interpretation, and approval stages of the comprehensive (and participatory) planning approaches are long and many actors are involved. These stages delay or prevent the capitalist to take action. In general terms, this may mean a loss of capital. Therefore; this process has been changed by the corporatist and has ended comprehensive planning. Communicative/Spatial strategic planning and private management planning have been implemented before and after privatization through development plan and plan amendments.

That is why, the investor makes an urban analysis: Urban impacts of the investment are neglected and possible land uses that may bring the maximum revenue are studied. In other words, the analysis is on financial returns and the capitalist directs urban growth. The investor, after privatization, may ask for further plan amendments.

In this process micro plans define macro plans. Change of development rights or land uses in a privatized area means independent nodal interventions change the macro plan decisions and calculations. Investment decision for privatized areas are given in a partial way as what (Keskinok & Ersoy, 2000:346) has stated; without setting necessary relations between urban relations defined by planning studies and the general problem of formation and distribution of specialized areas. Furthermore, transfer of public lands is not devoted to the realization of macro plans.

The common rational planning approach has been the development of the city as a whole and the evaluation of urban parts appropriate to planning hierarchies. Producing unhealthy urban parts will lead to a 'distortion of the hierarchical structure of the overall (local scale) planning activity' by the central government (or the local authority), a loss in the dynamism in urban plans, and so the legitimacy of urban planning (Eren, 2007).

In the urban plans of the capitalist, public interest and public spaces are neglected by the local authority and central administration. The legitimacy of the planning institution in directing the market mechanism for public interest lacks. Limitations on property are due to the problem of rent and the purpose is to provide social benefits. However, real estate activities are focused on obtaining property ownership (creation of rent).

There is an increase in property transformation due to unfair gain. Urban planning becomes a tool to create and to control rent (Eren,

2007). The action of the public administration creates monopoly rent and absolute rent that the market will have. The decision-making dominance of capitalists (of all sizes) in the city is increasing. Urban plans which must be for public interest becomes a mean to achieve bureaucrats' and capitalists' interests and act against public interest objectives. Urban plans could not be implemented in a coherent unity. Inefficiency of public authorities in providing healthy and liveable urbanization, unawareness of *de facto-privatization*, *de jure-privatization* as well as, property and property rights conceptual differentiation, and as the major debate concentrates on the economic outcomes; this reality is hidden.

Market critical planning (Comprehensive planning) approaches and related actors (the annulled Ministry of Public Works and Settlement, the General Directorate of National Real Estate (1994), Municipalities (1994, 1997, 2005), the Chamber of Architects (1997) are excluded.

The establishment of the Wealth Fund of Turkey and land sales, the conversion of abandoned lands and Treasury lands into consumption places while the public institutions and organizations leave their places, and the transfer of public lands and lands during the permanent closure and re-establishment of the institutions, direct sales, allocations, appropriation and subsequent transfer to the shareholders have become the main transformation mechanisms.

Parasite, viruse (including illegal/illegal) and alternative architectural formations are occurring at an increasing rate in rural areas and in the

peripheries of the cities. This accelerates the pressure on public lands. Fragmented and fragile planning and plan amendments are supported.

Properties of the privatization process are as follows:

- Revocation of existing development rights (Eğirdir)
- Seizures, displacements, occupations as a result of private and public investments
- Occupation of the coasts (re-detection of coastal edge lines (CELs) with the Regulation of 16 April 2022), transformation
- Trimming or terminating local development.

The subject of urban planning has changed in the privatization process.

In addition, the number of housing units and population in the privatized areas are discussed from the current urban planning perspective. There is a need to develop another urban planning approach.

Due to the nature of this process of capital accumulation, it is impossible to consider privatization in a coherent urban unity with urban planning. (Keskinok & Ersoy, 2000:343) claims that decisions to be taken on master plan scale leaves its place to those solutions produced in reports independently by various public units and to partial decisions and implementations. Implementing development plans and their norms are hard to achieve (Eren, 2007). In addition, this partial intervention dismisses the dialectical relation between parts and wholes. In other words, urban development according to comprehensive planning approaches is unwanted.

Areas having the power to compete are created for the private sector by the state. However, similar private investments in the local scale are damaged. In the same process, other private investments tend to grow over themselves in order to compete. This is exercised as urban planning isn't applied to overcome narrow-sightedness of the capital (Fainstein & Fainstein, 1985).

In this line of privatization thought, urban planning is made in order to meet the requirements of the development legislation. The capitalist needs the planning institution. Privatization and urban planning become an act of legitimization of private demands. As planning authorities are neglecting the public and public interest, the urban planning institution is losing its market-critical character. The capitalist in reality took the advantage of the limited movement and reaction ability of the central administration and local authorities.

6. General Remarks

Covid-19 has proved that education (Khogali, 2020), transportation and public services (Erdoğan Aras et al., 2020) are vital for the public order and safety (OECD, 2020) and must not be privatized. Studies on the formation, definition and use of urban space gained importance. The same is valid for public parcels and lands. These public goods are scarce and vital for the continuity of the state and public share in the economy of the state owned enterprises. The success exercised by the market in *de jure-privatization* supports *de facto-privatization* and this resolves social equity and fair income distribution. In this process,

urban planning is a to achieve rent and revenue. Therefore; a special academic interest must be given to this subject.

For the author, there is a critical relationship between urban planning and privatization as both activities are related to the market mechanisms. The legitimacy of the market is a matter of space and (re) production of space relations.

Privatization has emerged from the crisis of capitalism. It supports private interests and is an act of controlling the means of power. Privatization has ended the production functions of the state. In this process, public lands are invaded or transferred and produced 'spaces of consumption'. Competitiveness of other spaces decreased. Related process is created by an implicit public immovable property occupation.

This led to an empowerment of certain social classes. As the capitalist gained power and dominance, privatization is supported to achieve the ownership of other public lands. Thus, it bears the ruling class characteristic.

Accelerating number of transfers of property and property rights is not because the capitalist gains strength after each action, but because immovable property is a scarce source. When this source ends the grounds for capitalism for implementing privatization will disappear. In addition to the bottle neck in the production and trade of goods and services, the crisis of capitalism will be structural.

This leads to the crisis of the planning institution in terms of public interest. In the *de facto-privatization* and *de jure-privatization*

processes, urbanization is not under the control of market-critical approaches or the urban planner. The capitalist (re) produces urban space, by excluding the related actors of comprehensive and rational thinking and changing planning processes that are static and prohibitive.

Diminishing public land stock means public loss. And, public loss means liquidation. In the privatization process, dependence of the public to the private sector increases as the financial crisis deepens. This refers to the accelerating dependence of the state to the property market and a decline of the production economy.

Public authority, in order to solve emerging problems during (re) production of urban space and to meet demands of the market aiming to have uncontrolled monopoly, differential rent and revenue, maximizes interest, minimizes risks and costs through market-led planning approaches.

Urban planning in the privatization process becomes an action to determine the real land value, to generate rent, and to transfer development potential and privileged development rights. The market institution demands the plan only when to achieve its objectives, but not from a governing responsibility of a public authority or for spreading wealth to the society. Market and planning institutions structure the outcomes together. Although undesired, the forces of the process are structural.

Privatization, although implemented by the public authorities, is against the welfare state. Global economy plays a determinant role in

urban areas and through privatization, marginalization, and criminalization of certain population groups, a continuous transformation and (re) production of urban space is executed. The changing conception of space will lead to wilder attacks to urban space.

One of the main purposes of privatization is to increase the efficiency of state-owned enterprises and increase their share in the economy. The Izmir Economy Congress dated 1923 was organized to support the development of the private sector. Instead of increasing the efficiency of enterprises, enterprises were eliminated through the sale of assets. When the enterprises were closed down, the parcels and lands of the enterprise were transferred to the private sector or the enterprises were closed for their parcels and lands. The privatization of parcels and lands means the direct transfer of public possessions to the private sector or a section of a society.

The goal is not to reduce the state or increase its effectiveness, the goal is the dissolution of the welfare state/nation state. Closing down public investments means reducing the state's share in the economy causing the State structure to weaken. As the share of the state in the production activities is ended, the contribution of privatization in the development of the State is low. Since the public cannot get a share of the rent generated, the loss of the public is inevitable.

De jure-privatization and *de facto-privatization* processes change the nature and role of the State.

Urban interventions within the scope of privatizations are unhealthy, irreversible, fragile and fragmented. Urban development caused by *de jure-privatization* and *de facto-privatization* practices disrupts the gradual structure of planning, reduces the applicability of (especially macro) plans, hinders the holistic development of cities, affects the city macroform and recent planning approaches are inapplicable.

Urban rent is demanded because of the income obtained from intermediation services and production, its privileged position in the real estate markets, and reducing the investment cost and risk. The urban rent achieved from public land is the reason of their privatization. Urban public (production) space (urban land) has become a 'commodity' that can be bought and sold in the market and on which commercial and residential areas (rent-producing private consumption space) can be created.

The free activities of the land market (re) produce urban space contrary to existing rational urban plans and public interest. Therefore, the obtained 'Monopoly urban rent' is used for the conversion of other lands and increases the dominance of the capitalist in this development. In addition, while public administrations transfer the urban development potential of the land, the benefit of the administrator rather than the public interest is taken into consideration. The meaning and legitimacy of physical plans in creating spaces for public benefit are lost. Development legislation and privatization legislation are insufficient to guide the relevant processes and transformation. In fact, while urban competitive areas are created with

state support for the private sector through privatization, similar urban uses of the private sector are damaged at the local scale. Urban risks are created for other sectoral investments.

In practice, the confusion in the concepts of property and property interferes with the meaning of space. In project-based cases, areas (public properties) that must be left to the public use and dominance becomes a private property. Public space becomes a private space or purely public space such as GİMAT (Ankara), Kanyon Shopping Center (İstanbul) used by the community owned by the private owner. The common 'public domain' character of the spaces left to the public is lost.

The confusion in the concepts of privatization-privatization and privatization-liquidation continues.

There is a need for state control and intervention over the market and urban planning processes for lessening the impacts of privatization. State's role can be minimized, but must intervene in this process for the sake of (pure) public interest. If the state is left behind this role; the market and planning institutions lose their legitimacy.

Even if a new planning approach is established and property and property rights definitions are made in the related legislation, crisis of the planning institution and so the capitalism may continue. Privatization and urban planning issues must be studied together by urban planners. Defining the roles of the actors and the concepts must be given priority.

Market cannot be legitimate and trustable without the emergence of urban planning. Unequal developments in urban space resulting from privatization could be prevented through urban planning. Urban planning is believed to be the tool that can control and balance property relations and of intervention to urban space, not to be against for, but restructuring its institutional position.

The problem is in the urban space (re) production process where transfer of development rights and ownership generates rent opportunities. This is unrelated to the planning institution, but its reactions to market-led approaches and denial of market-critical approaches. Restructuring the planning process can only be possible by the definition of new parameters. If privatization is inevitable, the planning approach must be inbetween the market-led and the market-critical approaches: A flexible, strategic, communicative, participatory, and comprehensive planning understanding.

It must be noted that, the capitalist needs comprehensive planning. It is in fact the process of consensus and 'on Habermas' view of 'communicative action and rationality' (Innes, 1998:52). There must be a communication with the planning institution. Any activity must contribute urbanization in terms of macro planning decisions; otherwise this may harm its own presence in the long-run.

Setting any dialog between the market and the planning institutions and availability of the intervention of the planning institution to the process could only be possible through understanding the logic of privatization. Without knowing the current situation and developing

strategies and tools for its solution, and in the absence of the merit of a public administrator, controlling problem areas and dualisms or implementing any regulation is impossible.

If problem areas are unsolved and regulatory measures cannot be taken; the urban planner will be unable to intervene into this process and to overcome solely the obstacles of the market. If the situation doesn't change, the urban planner will keep on satisfying the demands of the market. Clarifying the mentioned urban planning approach and the role of the planner go beyond the content of this research.

Consequently, the privatization ideology cannot be accepted as a chance for (re) producing urban space for public interest. The market has to be regulated by urban planning. Privatization could be treated as a chance for the city from two varying perspectives: Initially, the planning institution cannot leave the method of public land transfers, principles of development potentials, and the urban risks and costs to the market conditions. Secondly, urban planning policies and tools can be implemented market-critically on urban public lands in the cities for (re) producing urban spaces with higher urban qualities, for social benefit and for reproducing habitable, livable, and sustainable urban spaces.

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Forerunner Architects in Earthen Architecture

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1. Introduction

Planned and built shelters began at the same time around the world. In shelters created by indigenous people on every continent, local resources; a regional adaptation has been achieved by blending culture, climate, sun, geological conditions of the region, and local factors. Thus, mixed, practical knowledge has been obtained throughout the history of humanity, and building styles and construction methods have been created with traditional methods and techniques with advanced knowledge (Öztürk, 2020).

Construction; has created a diversity with different beliefs and daily habits, the climatic characteristics of the regions they belong to, and the way traditional building materials are used. Buildings, people who live in the habits of daily life, the culture, the aesthetics of manufacturers, and users of the structure, beliefs, and priorities have put their lives in integrity with the community environment and created its original identity. This building culture, which continues in the footsteps of the past by connecting with the past, has formed the basic element of the settlement fabric of the region (Arpacioğlu & Kuruç, 2010).

It can be said that earthen building material has been the most used material for indigenous cultures that have obtained their construction materials from nature throughout history and has been used as a

building material since the beginning of human history (Jaramillo, 2019).

Earthen building material becomes an important element in architecture when it is evaluated in terms of its spiritual feature in its structure and its effect on collective memory and allows many perceptual experiences. In this context, traditional architectural textures have an important place in terms of architectural identity, but they can also be considered privileged areas in urban memory (Fettahoğlu & Yalçınkaya, 2021).

The fact that earthen material, which has been used in different forms throughout history, continues to be used and preferred despite its many weak features, shows its importance in spatial memory, among other positive features, and proves that it is a timeless material.

1.1. The Historical Process of Using Earthen Material

Since the regions of Southeastern Anatolia and Mesopotamia were the first places that people preferred to live before Christ, examples of civil architecture in which earthen building materials were first used are found in these regions. In Anatolia, Mesopotamia, Iran, and the Mediterranean basin, where the oldest earthen structure remains are found in integrity, uncooked earthen blocks have been used to build the walls and roofs of buildings since Neolithic times (Kafescioğlu, 2017).

Evidence of adobe buildings built ten thousand years ago has been found in the Middle East and North Africa, where impressive buildings up to ten stories high have been recorded, according to an unbroken architectural tradition that continues today (Niroumand, Zain & Jamil, 2013).

There are differences in the dimensions of the adobe blocks, which have been used in different construction techniques in the past, according to the standards set by the manufacturer, tradition, and construction masters. Especially in areas outside of rural settlements, adobe, which is an easily produced and portable building material, has been replaced by brick made of terracotta with the advancement of construction methods (Jaramillo, 2019).

When earthen-based structures that have been applied throughout history are examined, it is seen that they are used in low-rise simple applications as well as in applications such as large and ostentatious castles, palaces, tombs, and temples, which have visual appeal and historical importance. In addition, adobe, used as a building material in almost all ancient cultures, was used in residences and public buildings (Çelebi, 1979).

Earthen-based materials are still widely around the Nile, Mesopotamia, North Africa, Morocco, Iran, Iraq, Mali, Afghanistan, Yemen, China, India, Spain, Sweden, UK, Denmark, Germany, France, Portugal, Mexico, and South America in countries such as is

used (Houben & Guillard, 1994). Some qualified structures located in these areas are included in the UNESCO World Heritage List (Figure 1).

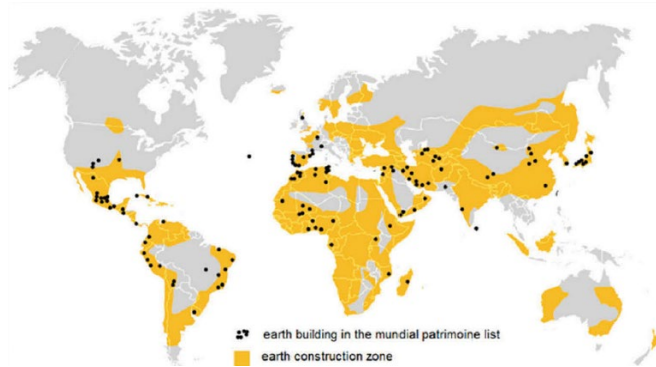


Figure 1. Earthen Structures Included in the UNESCO World Heritage List (Costa, Cerqueira, Rocha & Velosa, 2019)

1.2. Reuse of Earthen Material with the Change of Environmental Policies

Although the earthen material, which was used in many geographies of the world at various times, lost its importance with the increase of interest in new materials that emerged with the development of the industry, two important developments that took place in the 20th century increased the interest in earthen building materials together with all traditional materials.

The first of these developments is the use of earthen material in the 1st and 2nd World Wars, due to the inability to supply the technological

materials that emerged with the Industrial Revolution the lack of access to the technological construction materials imported during the wars and economic reasons caused the production to gain importance again with the earthen material, which is economical and easily accessible, allowing fast production (Gürbüz, 2005).

The second development is the energy crisis that emerged in 1970. Although the energy crisis has brought important developments in technology, it has emerged as a result of problems such as the consumption of natural resources with various effects, change in climate, and an increase in environmental pollution. Those reasons have led to the emergence of new concepts in architecture. These concepts, which are called names such as "Ecological Architecture" and "Energy Architecture", it is aimed to produce with the least energy consumption and the importance of sustainable materials comes to the fore. Thus, it has been preferred to use building materials that provide the least consumption both economically and ecologically and can be produced under the desired comfort conditions. In this context, studies have been carried out on the possibilities of using earthen construction materials in many regions, and studies have begun to be carried out to improve the possibilities of using the material and to improve the weaknesses of the material by using today's technology (Kafescioğlu, 2017; Perker, 2019).

Within the framework of these studies, which focus on protecting the environment and minimizing earth, air, and water pollution, the potential of the earthen building material known since history has come to the fore and the use of the material with technology in today's architecture has gained importance again.

1.3. The Current Use of Earthen Material

30% of the world's population still lives in buildings where earthen materials are applied. In rural settlements, most of the population, almost half of the developing regions, and 20% of the urban settlers use earthen structures (Kafescioğlu, 2017).

Earthen material is an ecological building material that is low in cost, easy to manufacture, does not require a facility in its production, has high sound and heat insulation value, offers suitable living conditions for the user in all seasons, does not require heat and sound insulation layer in the building, and can easily return to nature. In addition, storing solar energy on winter days; in summer, it prevents solar energy from entering the building, reducing the energy requirement of the building and providing the user with an economy as well as healthy housing (Acun Özgünler & Gürdal, 2012).

Since the impact of the energy crisis that emerged in 1970 continues to increase today, the importance of traditional building materials such as earthen building materials has increased with this process. Various studies and applications related to earthen building materials have

been carried out in many countries and opportunities to benefit from the material continue to be developed.

Earthen-based structures, which are a building element, are often used in some regions of the USA, which are a dry and hot climate zone. In this context, there are 200,000 houses made of earthen buildings in the region where there are construction standards and regulations prepared for the use of earthen building materials, and in some regions, it is not allowed to apply structures other than earth. In the state of New Mexico, more than 4 million blocks are produced together by 48 manufacturers and the structures applied using earthen building materials constitute the original architecture of the region (Kafescioglu, 2017; Tulaganov, 2005).

Today, in addition to the USA, Britain (The Devon Earth Building Association/ The Plymouth Faculty of Architecture / Earth Building UK), France (CRAterre- Grenoble Faculty of Architecture- Grenoble), Spain (Ciencias de la Construcción Eduardo Torroja), Italy (Citta Della Terra Cruda- Abruzzo), Portugal (Centro da Terra), New Zealand (Earth Building Association in New Zealand), South America (Proterra), Canada, Germany (Dachverband Lehm-Kassel, Potsdam and Weimar University) and India (Auroville Earth Institute- While experimental studies are carried out on the usage areas of earthen building material in Madras), various conferences and workshops are

held on the increase in the use of the material. (Houben & Guillard, 1994; Kafescioğlu, 2017).

2. Method

In this study, earthen structure application methods of architects who left traces in earthen structure architecture were examined and an assessment was made on the use of earthen building material. The architectural approaches of architects who have practiced in different cultures and regions have brought new perspectives to earthen architecture, have solved the requirements created with time and experience in terms of environmental problems, and have integrated the traditional architectural understanding with modern structures explained (Figure 2).



Figure 2. Regions of Case Study.

In this way, an assessment was made of the current transformation of earthen architecture, and the material was examined at which points it

was developed and at which points it was integrated into today's production.

3. Material

The production processes of Hasan Fathy, Nader Khalili, Gernot Minke, Martin Rauch, and Anna Herringer have been examined and how they use techniques to improve the earthen building material has been discussed.

- Hassan Fathy frequently adapted the such as domes and vaults of traditional Egyptian architecture to modern structures in most of his buildings. His most famous known projects are the new Gurna village project and the Gragos ceramic factory produced in Egypt.
- Nader Khalili is the creator of “Superadobe” which is fast, easy, and cheap production. The most important designs of Khalili are the Eco Dome Project and the housing project in which the vaulted technique is used. Projects produced as prototypes in California using earth construction materials have been produced and continue to be produced in many countries of the world in the same concept and different sizes.
- Gernot Minke has produced structures that will set an example for ecological architecture by combining earthen construction materials with different materials and techniques by conducting experimental studies. Minke's most important

buildings are residential buildings produced using earthen blocks, baked bricks, and wooden structural elements in Germany. The buildings are designed by ecological standards, simply arranged and in harmony with nature so as not to feel physical.

- Considering the weaknesses of the earthen building material, Rauch approached the material holistically. In this context, he produced by combining traditional construction techniques with modern techniques. The Rauch and M house projects implemented in Austria are his best-known buildings.
- Anna Heringer used earthen construction material, which is generally a local building material, in her buildings and argued that instead of being dependent on external systems, it is necessary to make the most of the existing resources. Heringer's best-known buildings are the METI handicraft school (Modern Education and Practice Institute) and Desi Education Center projects in Bangladesh.

The approaches of these architects who have practiced in different cultures and regions in the 21st century, created new perspectives on earthen architecture, producing solutions to the needs of time and experience in terms of environmental problems, and integrating traditional architecture with modern construction techniques have brought a new view to earthen architecture.

3.1. Hasan Fathy

Hasan Fathy is one of the first names that comes to mind when it comes to earthen structure architecture. Egyptian architects have practiced in various countries, used earthen materials in most of their buildings, and, over time, created their unique architectural language throughout their life. His works are a criticism of modern architecture from a traditionalist point of view.

Fathy stands out with its humanistic, local, and participatory architectural approach and has given great importance to material, form, climatic sensitivity, production method, and cultural characteristics in building design. It has produced its structures from a point of view that does not break away from tradition and also takes into account the needs of the building owners. He also stated that the building owner and practitioners are at the forefront and affect continuity in the construction/use process. Fathy has argued that his designs' location and dimensions symbolize the structure's owner, so no structure built is the same, which increases the diversity (Fathy, 1973).

Thinking that modern architecture ignores traditional values and human needs, Fathy has made various designs that attach great importance to climate data in his projects, are sensitive to the environment, dominate local forms and provide cultural diversity, and try to include users in the application (Figure 3) Fathy believes that

modern architecture ignores traditional values and human requirements. He has made various designs that attach great importance to climate data in his projects, are sensitive to the environment, where local forms prevail and cultural diversity is ensured, and he has tried to involve users in the application (Fathy, 1973; El-shorbagy, 2001).



Figure 3. Ceramic Factory and New Gurna Village (Url-1, 2021)

Fathy was influenced by Nubian and Coptic architecture in Egypt and worked with Nubian craftsmen and building users on his projects (Figure 4). He incorporated traditional Egyptian design elements such as courtyard, majaz, kaa, dorkaa, malkaf, selsebil, meşrabiye, and klasra as well as the dome and vault in most of his buildings (Uyar, 2019).



Figure 4. Dome and Vault Application by Nubian Masters (Egypt - 1980) (Uyar, 2019)

3.2. Nader Khalili

Iranian-born American architect Nader Khalili studied the possibilities of making the most effective use of natural resources and conducted studies on building without the need for high-tech use. In this regard, he developed a system called Earthbag, which is also called “Superadobe”.

This system, which allows fast and economical production, has a good seismic performance, as well as an environmentally friendly and energy-efficient feature, which has enabled it to be supported by many institutions and widespread production. This system, which has been studied as a model in many research institutions, has been used in the production of projects for NASA (National Aeronautics and Space Agency) on the moon and for the USA for the production of housing for the homeless, but in general, it has been developed as a solution to

the problem of temporary housing (Nader Khalili,; Zhao, Lu, & Jiang, 2015).

Khalili has developed the Superadobe system, which is formed by stacking bags on a circular plan and using belts in many parts of the world (Figure 5). In addition, he established the organization called Cal-Earth, where the applications and training in which this system is used are carried out. With this system he created, the architect received the Aga Khan Architecture Award in 2004 (Url-2, 2021; Url-3, 2021).



Figure 5. Eco Dome House and the Construction Phase of the Project (Url-2, 2021; Url-3, 2021).

3.3. Gernot Minke

Since 1974, Gernot Minke has produced many structures in various regions of the world, especially in Germany, using various construction techniques with earthen building materials. Considered to be the father of ecological architecture, Minke produced with compressed earth, straw bale, bamboo, brick, and plastic bag filling

methods, and frequently used green roofs in his buildings, arguing that buildings are a part of nature. Organic forms, illuminated domes, and arches are generally seen in their structures. Aiming to produce low-cost structures in his designs, Minke has conducted many research projects and workshops in addition to his experimental studies on the subject (Laurie E. Dickson, 2004; Minke, 2006).

In Minke's applications, he generally used earthen blocks with baked bricks, and wooden building elements (Figure 6) (Minke, 2021).



Figure 6. Kassel House (Minke, 2006)

3.4. Martin Rauch

A ceramic artist and sculptor, Martin Rauch has come to the forefront with his works on construction technologies produced with natural materials. Researching new design possibilities with earthen material, Rauch created a conceptual framework for large-scale implementation, believing that some of the elements he applied on a small scale (Ceramic tiles, stove) would create a livable floor (Figure 7) (Lehm Ton Erde, 2021; Marco Sauer, 2020)



Figure 7. Rauch House (Url-5, 2021)

Rauch has been interested in the rammed earth technique, which does not require coating and embellishment at the very beginning during the application process. According to him, the layering of the wall with this technique naturally gives it an ornate appearance and allows the material to express itself in other dimensions. Rauch advocates the use of earthen construction material in a way that reduces energy consumption during the production phase, thus designing with an understanding that will allow the material to be enriched formally. Since Rauch is aware of the sensitivities of the earth-building material due to its connection with ceramics, he conducted technical experimental studies by examining the material mixtures holistically. In this context, in light of his experimental studies, he combined traditional construction techniques with new techniques and developed new tools for production. (Dabaieh, 2014; Marco Sauer, 2020).

Rauch projects include the light-shadow factor created on the facade surface by the linear surface movement created with earth blocks on the facade surface of the buildings and applied to slow down the water movement giving the building an identity and adding an aesthetic value to the space (Figure 8).

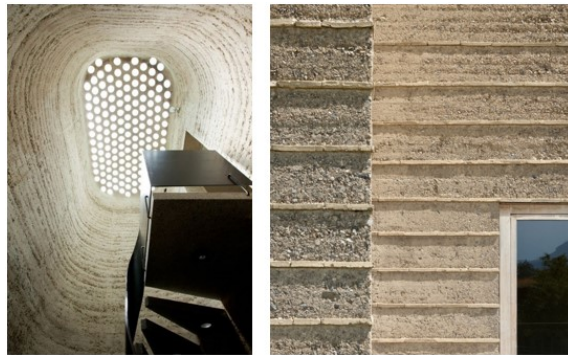


Figure 8. Rauch House Stair Covering and Exterior Wall Detail
(Marco Sauer, 2020)

3.5. Anna Herringer

Anna Herringer develops her designs within this framework, arguing that architecture improves human life and exploring architecture increases cultural and individual confidence, supports the local economy, and strengthens the ecological balance. Thinking that sustainability is directly related to beauty, Herringer produces in her projects with a design approach that is compatible with location, environment, user, and socio-cultural context, as well as the use of

design structure, technique, and materials. Arguing that instead of being dependent on external systems, the architect, who claimed that it is necessary to make the most of the existing resources, used the earth building material, which is generally the local building material, in her buildings (Figure 9) (Url-6, 2021; Wan & Ng, 2020).



Figure 9. METI School (Url-6, 2021)

Herringer has carried out various projects for local labor and material used in Asia, Africa, Europe, and the USA, and has received many awards for these projects using earthen construction materials. In 2007, she was awarded the Aga Khan Architecture Award for her handicraft school (METI) project implemented in Bangladesh (Figure 10) (Aga Khan Award For Architect, 2020).



Figure 10. The Playground (Url-2, 2021) and Sunshade Detail of the METI School (Url-2, 2021)

4. Conclusion and Suggestions

Since the beginning of human history, earthen building material has been used both in civil architecture and in the production of structures of historical importance which are of great aesthetic value and ostentatious. Earth-based materials are still widely used in countries around the world. In addition to being an environmentally, economical, and healthy material, earthen building material comes to the fore due to the increasing energy need and the use of the importance of the material gains. In this study, the approaches of architects who have specialized in earthen architecture, Hasan Fathy, Nader Khalili, Gernot Minke, Martin Rauch, and Anna Herringer, who use earthen building materials in their buildings and develop the material and integrate it into today's production, are discussed.

Hasan Fathy has shown that the traditional has no boundaries in terms of time and history, and the earthen building material can be used with the appropriate technology in the production of modern buildings.

Nader Kahlili, in addition to meeting the need for housing with fast, easy, and cheap production, has developed a production technique called "Superadobe" with the 21st. the century has brought a new view to earthen architecture.

Gernot Minke, which produces structures that are part of the environment in their designs, has made production in a way that is completely compatible with the environment in these structures where earthen construction materials are used.

Martin Rauch buildings produced within the scope of contemporary forms are the first experimental study in modern earthen architecture. In addition, producing details that solve the weak points of the earthen structure gave identity and added aesthetic value to Rauch's buildings.

Anna Herringer has implemented her projects with a philosophy that gives importance to regional culture by using local resources to improve existing construction techniques and ensure sustainability, thus bringing a new form to local architecture.

As a result, factors such as architectural requirements developed application techniques, and user requirements have caused changes in earthen architecture as well as in all areas of architecture. These

changes, the characteristics of the material, such as creating a healthy structure, being economical and energy efficient, which form the traditional earthen building culture and which are like the material, provide a link between the past and the future in architecture.

After the industrial revolution, with the development of construction and material technologies, the usage of earthen building materials, like other traditional building materials, has decreased. Despite the known environmental and economic advantages of the material, due to disadvantages such as low water resistance and seismic performance, the usage area is inevitably less nowadays.

Standardizing the production techniques of earthen building material, making studies within the scope of eliminating its weaknesses, and integrating it into modern construction techniques can increase its usage in modern architecture.

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