INTERNATIONAL STUDIES AND EVALUATIONS IN THE FIELD OF

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Chapter 1

AN EVALUATION OF SPATIAL ATTRACTION ELEMENTS AND DETERMINATION OF POTENTIAL IN CONGRESS TOURISM

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1. INTRODUCTION

Advances in the scientific field, economic and socio-cultural changes, and the necessity of information sharing have increased congress organizations and meetings today (Erdoğan, 2006). Due to the growing demand and interest in congresses on both national and international scales, congress tourism has become one of the important types of tourism in recent years, contributing significantly to the economy and the tourism sector.

As a type of tourism targeting a specific audience, congress tourism provides more significant economic benefits to the host city and country compared to other forms of tourism because it can be conducted throughout all four seasons, not just during a specific season, and because the spending profile of congress participants tends to be higher than that of other tourists (Heper, 2015).

Congress Tourism's contribution to the tourism sector is not only measured by tourists' spending. Congress organizations also create and support new employment opportunities through their capacity to generate jobs (Karasu, 1990).

Research has shown that congress tourism has a direct economic impact on various sectors. Tourists attending congresses are linked to numerous industries such as accommodation, transportation, food and beverage, entertainment, sports, artistic activities, communication, interpretation and information services, education, and career development programs, employing in many fields (Arber, 2008; Öztaş & Polat, 2021).

Additionally, congress tourism is significant for economically supporting the host region or city's local population and promoting the host area to the public (Karasu, 1990).

This study focuses on congress tourism, which has gained importance with the growing need for information exchange in science and technology. Within the scope of the study, congress tourism, its characteristics, and its economic, social, and cultural impacts were investigated. Furthermore, location selection criteria for congress tourism, the design features of congress venues, and studies and methods used to determine the potential of congress tourism were evaluated. This study is significant due to the growing importance of congress tourism and the limited research on its potential.

2. CONGRESS TOURISM

The word "congress" originates from the Latin term "Congressus," which means gathering or meeting (Aymankuy, 2013). Today, conferences

and events organized on national and international scales in various fields such as science, technology, and education have led to the emergence of the concept of "Congress Tourism" by creating tourist activity in the regions where they are held (Dölalan, 2008).

The literature provides various definitions of congress tourism. According to Karasu (1990), congress tourism refers to all travel, accommodation, and related activities and relationships when individuals leave their permanent residences or workplaces to exchange knowledge in specialized sciences, fields, or professions.

Küçükaltan and Havuç (1996) define congress tourism as organized travels undertaken by individuals to discuss common topics outside their permanent places of residence collectively. It encompasses temporary stays and the demand for goods and services produced by tourism enterprises at their destination (Bozkurt, 2020).

According to Erdoğan (2006), congress tourism is the entirety of travel, accommodation, and relationships arising when individuals leave their permanent residence or work to gather and exchange knowledge in specialized scientific fields or professions (Erdoğan, 2006).

Baytok et al. (2010) describe congress tourism as a tourism activity that involves participating in scientific, political, or business meetings outside of individuals' permanent residences and engaging in activities such as accommodation in the areas where the meetings are held.

Çakıcı (2013) defines congress tourism as travel and accommodation activities occurring within a specific program and limited time, where individuals from the same or different professions leave their permanent places of residence to exchange professional, scientific, or topic-specific knowledge (Alaşhan, 2018).

To better define and understand the importance of congress tourism, it is necessary to examine its characteristics. These characteristics are as follows:

- Congress tourism can occur throughout the year (Karasu, 1990).
- While leisure tourism activities generally occur in the summer, business-oriented tourism activities can occur year-round (Yakut, 2019).
- Individuals participating in congress tourism tend to spend more than regular tourists (Karasu, 1990).
- Congress tourism involves specialized tasks, such as organizing the event, arranging venues, managing participant transportation and reservations, and preparing activities or tours during and after the congress. These tasks require expertise and create employment opportunities for

professionals within the scope of congress tourism (Öner, 1997).

- Congress tourism generates new employment opportunities and increases job capacity in the host city or region (Karasu, 1990).

- Satisfied congress participants share their positive experiences with others, encouraging them to visit the destination, thus acting as indirect promoters (Alaşhan, 2018).

- As it takes place outside peak seasons and integrates numerous tourism services, congress tourism stands out as one of the most profitable types of tourism (Bozkurt, 2020).

- Congress tourism contributes to the construction of quality accommodation and meeting venues and the establishment of adequate communication, security, and transportation infrastructure. Additionally, it ensures the careful and timely restoration and maintenance of historical and cultural landmarks (Aymankuy, 2003; Öztaş & Polat, 2021).

- Congress tourism is a promotional tool for the host city or country. International congresses, in particular, play a key role in raising awareness and improving the city's image (Karasu, 1990).

- Congresses, which can be organized year-round, contribute to tourism even outside the peak summer season. Large-scale congresses with numerous participants directly or indirectly impact 37 sectors (Yakut, 2019).

Congress tourism has a positive impact on all aspects of the tourism sector. Among its notable features are the higher spending rates of congress participants compared to regular tourists, the ability to conduct congress tourism year-round, and its substantial contributions to the economic and social development of the host region (Bozkurt, 2020).

Globally, 30% of tourism revenues are derived from congress tourism, and the income generated by a congress participant visiting a country is three times higher than that of a regular tourist. This makes congress tourism one of the most profitable tourism activities worldwide (Aydın, 1997; Erdoğan, 2006).

Koşan (1996) divides Congress expenditures into organizer and participant expenditures. Organizer expenditures include promotional materials, venue rental fees, interpreter services, participant hospitality, and expert accommodations and transportation. Participant expenditures depend on factors such as the destination's price level, participants' interest in the congress topic, the intensity and duration of the congress, and whether it is national or international.

The spending by congress participants leads to an increase in the number of businesses, contributing to the economic growth of the host city. One significant dimension of this growth is increased employment opportunities for the local population, leading to higher income levels and purchasing power (Aydın, 1997).

Congress expenditures serve as a vital source of income for local economic activities, including cinemas, theaters, sports facilities, shopping centers, dining services, and entertainment venues. These expenditures are crucial for sustaining and ensuring the continuity of congress tourism (İçöz et al., 2002; Heper, 2015).

Congresses are typically held in highly developed cities. Cities with lower levels of development must enhance their infrastructure and facilities to be suitable for hosting congresses (Bozkurt, 2020).

Hosting congresses significantly enhances the host region's internationally recognized image, contributing to its development as a tourism hub (Heper, 2015).

The development of congress tourism involves determining a city's congress tourism potential, analyzing supply, gathering opinions on congress tourism, identifying problems, and developing solutions. Ensuring the seamless execution of congress tourism activities and obtaining relevant data for further research requires collaboration with stakeholders. Table 2.1 illustrates stakeholders involved at the national level in congress tourism.

Table 2.1 National-Level Stakeholders in Congress Tourism

National-Level Stakeholders
Republic of Türkiye Ministry of Culture and Tourism
Provincial Directorate of Culture and Tourism of the research area
Governorship of the province where the research area is located
Municipality of the province where the research area is located
Universities in the province where the research area is located
Hotel businesses in the province where the research area is located
Travel agencies in the province where the research area is located
Tourism associations in the province where the research area is located
Travel agency associations in the province where the research area is located

3. SITE SELECTION CRITERIA FOR CONGRESS TOURISM

For congress tourism, the host city and the venues where congresses are held must meet the requirements of congress tourism and address the needs and expectations of participants.

According to Ersun and Arslan (2009), the factors influencing the development of congress tourism are grouped into three categories:

- **Significant Factors:** Natural environment, cultural values, ecological values, entertainment, and shopping opportunities.
- **Conceptual Factors:** Security, attitudes toward tourists, tourism activities, and tourist experiences.
- **Organizational Factors:** Geographical distance, transportation facilities, organization, tourism services, urbanization, intra-city transportation systems, and accommodation capacity.

At the city scale, when examining the site selection criteria for congress tourism, the city's location, the relationship between the congress venue and the city, the venue's position within the city, ease of transportation to and within the city, the presence of natural and cultural features, and the city's recreation opportunities are significant.

The most critical aspect is the city selection, determining where congress tourism will occur. The size, topic, and purpose of the congress, as well as the needs of congress participants, should be considered when choosing the city. Var et al. (1985) showed that certain factors influence participants' choice of congress destination. These factors are the hotel selection where the congress is held, geographic suitability, distance, transportation costs, climate, recreation opportunities, and the city's image (Öztaş, 2019).

In the city selected for congress tourism, geographical location, natural and cultural features, accommodation facilities, travel businesses, and infrastructure are highly important. However, more than the presence of these features is required. For congress tourism to occur, basic infrastructure such as congress hotels, congress centers, and conference halls must be provided at a minimum level (Aymankuy, 2013; Bozkurt, 2020).

When selecting the location of congress venues within the city, factors such as land structure and slope, landscape features, and scenic views are considered. The venue where the congress should be positioned should match the land slope, be in harmony with the natural landscape, and have scenic views. This is because participants prefer venues that are in harmony with the natural landscape and offer scenic views (Öztaş, 2019).

When selecting the host city for congress tourism, considering international and national participants, the transportation options to congress hotels or centers must be evaluated. Air, road, sea, and rail transportation options should be assessed.

4. DESIGN FEATURES OF VENUES USED IN CONGRESS TOURISM

The venues where congresses are held include congress hotels, congress centers, and conference halls. Specific criteria need to be considered when designing congress venues. According to Hoyle et al. (1989) and Heper (2015), these criteria are:

- The total number of meeting rooms and their capacity within the congress venue,
- Well-adjusted lighting and acoustics of the congress venue,
- The presence of spaces and seating arrangements adaptable to various seating layouts,
- Availability of necessary infrastructure to meet users' technical needs (e.g., electricity),
- Installation of heat, light, and sound control systems and necessary infrastructure,
- Clear and easily accessible entry and exit points,
- Easy transitions between spaces,
- Availability of visual tools,
- Presence of signage that directs and informs users within the congress venue.

Congress centers are facilities or buildings with the necessary infrastructure (both upper and lower) for congress tourism development, such as congress facilities and meeting rooms. The primary purpose of constructing congress centers is not directly to gain financial profit but to create social and economic vibrancy in the city where the congress center is located and to increase the number of congress events held there (Heper, 2015).

According to Aydın (1997), the key features that congress centers must have are summarized as follows:

- The attractiveness of the location
- Geographical location and climate
- Modern and comfortable accommodation facilities
- Organized transportation options
- Communication infrastructure
- Security

- Sufficient congress and meeting halls

In a study by Alaşhan (2018), based on research conducted in the USA in 1990, factors influencing the choice of a location as a congress center include ease of transportation, security, accommodation and congress hall facilities, environmental relationships, infrastructure, staff, and prices.

Congress hotels, which play the most critical role in congress tourism, are defined as facilities specifically designed for conferences, meetings, panels, and educational events while serving accommodation functions (Penner, 1991; Öztaş & Polat, 2021).

Hotel users and congress participants must be considered separately when planning congress hotels. Spatial organization should address the needs of tourists staying at the congress hotels.

Separate entrances and exits should be planned for congress participants and other hotel guests not attending the congress. The essential spaces in congress hotels include the lobby, food and beverage areas, and areas for rest and entertainment (Öztaş & Polat, 2021).

In the research conducted by Peters and Erben (1979) and Öztaş (2019), the five main parts required in congress hotels are the main entrance, lobby, hotel section, congress venue, and congress entrance. The congress venue consists of the following spaces: foyer, reception desk, cloakroom, waiting lounge, exhibition area/hall, congress hall, seminar hall, meeting room, workshop area, rest area, workspaces, restaurant, bar, WC, technical room, press room, staff room, and storage areas. The hotel itself consists of accommodation areas, rooms, and social facilities.

In their study, Öztaş and Polat (2021) identified spatial standards for core areas in congress hotels, including spaces serving general purposes, accommodation, congress activities, and technical needs. These standards were established using the research conducted by Doğu (1982), Balıkçıoğlu (2004), Gökdağ Aydıncı (2009), and Opak (2009). The spatial standards determined for congress hotels are presented in Table 4.1.

Table 4.1 *Congress Hotel Spatial Standards (Öztaş & Polat, 2021)*

SPATIAL STANDARDS			
Main Spaces	**Sub-Spaces**	**Reference**	**Description**
General Spaces	Lobby	Min. 25% of the hotel guest number	Must meet demand based on reference value
	Stairs	Three types of stairs	Customer, service, and fire escape stairs
	Elevators	Two types of elevators	Service and customer elevators: max distance after the elevator is 60 m, the optimal distance is 45 m
	Elevator Lobby	Min. 3 times the size of corridors	It must be sufficiently large as it is used as a waiting area
	Doors	Min. width of 2.2 m	Doors in common areas
	Corridors	Min. width of 2.7 m	If there is no service area, the minimum is 2.2 m
	Cloakroom	0.1 m^2 per person	Based on the number of Congress participants
	Restaurants, Bars	3/4 of the room count	Must be proportional to the number of rooms
Accommodation Spaces	Guest Floors	85 m^2 per room	Includes accommodation, dining, resting, and recreation areas
Congress Spaces	Congress Spaces	6.6 m^2 per person	Includes congress halls, meeting rooms, exhibition areas, and workspaces
	Congress Halls	Min. size 36x76 m for 1000 rooms	Approximately 3000 m^2
	Congress Halls	Min. ceiling height of 4.9 m; if the hall area > 1400 m^2, ceiling height is 6.1 m	The ratio between the hall area and ceiling height must be maintained.
	Main Congress Hall Foyer	0.3 to 0.4 m^2 per person	Minimum value should be used
	Foyer	0.3 to 0.5 m^2 per person	Each congress hall must have a foyer
	Meeting Room	0.9 m^2 per seat; 1.1 m^2 in banquet layout	Minimum ceiling height is 3.3 m
	Kitchen	50-60% of the restaurant area	Must be proportional to the restaurant area
	Parking	25% of the total room count	Must include on-site parking

Technical Spaces	Parking	32.5 m² per vehicle	Includes corridors and ramps
	Valet Parking	18.5 m² per vehicle	Minimum value should be used

Studies on the spatial layout and standards of congress venues show that congress venues must be shaped according to users' needs and demands, the size and capacity of the venue must be sufficient for the smooth progress of the congress organization, and the required infrastructure and technical equipment must be provided. Specifically, in congress hotels, planning for congress participants and guests not attending the congress must be separate, and the spatial layout should be designed accordingly.

5. METHODS USED TO DETERMINE CONGRESS TOURISM POTENTIAL

As explained similarly by different researchers in the literature, the site selection criteria for congress tourism and the design features of congress venues establish a standard. They are used to evaluate the congress tourism potential of a specific area. Based on these criteria, many researchers have conducted studies to analyze the tourism potential of various cities in Congress. Some of these studies are as follows:

- **Çizel (1999):** In the master's thesis titled *"Congress Tourism, Congress Organization, and a Study on Antalya's Congress Tourism Potential, Problems, and Future Expectations,"* Antalya was chosen as a focal point for Congress tourism to build knowledge in this area. Data were collected through surveys and face-to-face interviews with 30 different types and classes of accommodation facilities and 20 Group A travel agencies in Antalya. Extensive facilities were selected explicitly because congresses in the region tend to be held in five-star hotels due to their abundance. As a result of the survey, Antalya's current situation in congress tourism was analyzed, and recommendations were provided to address existing problems and enhance its potential.

- **Enes (2012):** In the master's thesis titled *"Ankara's Congress Tourism Potential,"* the study aimed to evaluate the current and potential state of congress tourism in Ankara and assess how well public institutions had achieved their goals. Data were collected through surveys administered to hotel employees, tourism agency representatives, academics participating in conferences, organizers from non-governmental organizations, and professionals attending meetings in the private sector. The study revealed Ankara's strengths and weaknesses in congress tourism, and suggestions were made to increase its potential.

- **Armutçu (2017):** The master's thesis, "*A Study on the Current Situation and Development Strategies of Congress Tourism in Gaziantep*," focused on identifying the perspectives of tourism enterprises and public

institution employees in Gaziantep regarding congress tourism. Surveys were conducted with 126 hotel employees, 34 hotel managers, 25 travel agency employees, 20 travel agency managers, and 44 public institution staff and administrators. The study emphasized the importance of congress tourism for Gaziantep and presented the existing challenges and recommendations for improvement.

- **Alaşhan (2018):** In the master's thesis titled *"An Evaluation of the Congress Tourism Potential of the Nevşehir Region from the Perspective of Tourism Enterprise Managers,"* the study aimed to assess the existing tourism potential of Nevşehir in terms of Congress tourism. Surveys were conducted with upper and mid-level managers of accommodation facilities and travel agencies in Nevşehir. The participants' demographic features and perspectives on the essential factors for developing congress tourism and the adequacy of these factors in Nevşehir were evaluated. The study identified the region's strengths and shortcomings and offered recommendations for improvement.

- **İlbey (2018):** In the master's thesis titled *"An Analysis of Ankara's Congress Tourism Potential,"* the study aimed to evaluate the current state and potential of congress tourism in Ankara. The research method included a literature review and statistical data from organizations such as the Association of Turkish Travel Agencies (TÜRSAB), the Turkish Hoteliers Federation (TÜROFED), the UN World Tourism Organization (UNWTO), and the International Congress and Convention Association (ICCA). The study concluded that Ankara has significant potential for congress tourism and provided suggestions for resolving existing challenges.

- **Öztaş (2019):** In the master's thesis titled *"A Study on the Standards and Design Criteria of Congress Hotels: Congress Tourism Opportunities in Bursa,"* the study analyzed congress hotel standards and design criteria based on the most preferred congress hotels in different countries. It aimed to create a guide for designing new congress hotels and to evaluate Bursa's potential as a congress city. 12 hotels from various countries and cities were examined using building photos, architectural plans, sections, and satellite images. The location, architectural design, layout, and standards were analyzed. Interviews were conducted with hotel managers regarding the usage and adequacy of congress spaces, and Bursa Burkon Tourism and Congress General Manager was also consulted. The study proposed spatial layouts for congress hotels and assessed Bursa's current situation and potential in congress tourism, offering recommendations.

- **Bozkurt (2020):** In the master's thesis titled *"An Evaluation of Konya Province in Terms of Congress Tourism: A Study on Sector Managers,"* the study aimed to determine the perspectives of sector managers in

Konya regarding congress tourism activities and identify problems and solutions. Surveys were conducted with managers of tourism-certified and municipally certified accommodation facilities and managers of Group A and B travel agencies and their branches in Konya. The study evaluated participants' opinions on congress tourism and analyzed Konya's current state and potential in this field.

6. CONCLUSION AND RECOMMENDATIONS

In today's world, congress tourism is gaining increasing importance due to its ability to be organized year-round and its economic, social, and cultural contributions to the host city. Furthermore, the rise in academic events such as conferences, meetings, and workshops has made congress tourism even more valuable.

There needs to be more than organizing congress events for congress tourism. For congress tourism to be recognized as a form of tourism, congress participants must also be regarded as tourists, and their needs must be met. While ensuring the participants' seamless attendance at the congress, the host city and venue must also be accessible for participants to experience.

It is known that congress tourism participants are generally individuals with high social status who tend to spend more than regular tourists. This characteristic contributes to promoting the host city, region, or country on a national and international scale and supports the creation of a positive image.

This study has addressed the features of congress tourism and its economic, social, and cultural impacts. The research results indicate that congress tourism is distinct from other types of tourism due to its ability to occur throughout the year. It also has significant potential for employment generation by encompassing various services and is one of the most critical revenue-generating forms of tourism. Additionally, the smooth functioning of congress tourism requires the host city and congress venues to possess certain physical qualities.

When examining site selection criteria for congress tourism, the factors influencing its development include the city's geographical location, climate, accessibility, natural and cultural assets, adequacy of tourism infrastructure, recreational opportunities, shopping and entertainment facilities, and the number and capacity of congress venues.

Studies on the design features of congress venues reveal that these venues must meet specific standards. These include clearly defined entry and exit points, manageable and comprehensible circulation between spaces, technical infrastructure, sound, light, heat systems, and rest, work,

and seating areas. Additionally, modern and comfortable accommodation opportunities must be provided. In congress hotel planning, separate arrangements should be made for congress participants and other hotel guests. Congress hotels generally consist of a main entrance, lobby, hotel section, congress entrance, and congress venues, and having spatial standards for these areas enables the evaluation of their adequacy for congress events.

Within the scope of this study, surveys are the most commonly used method for data collection in studies determining congress tourism potential. These surveys are typically administered to Congress tourism stakeholders, and the questions are based on Congress site selection criteria and the design features of venues. Survey data have been used to identify the potential of congress tourism in a city or venue, highlight deficiencies, and propose improvement solutions.

In conclusion, considering the economic, social, and cultural benefits of congress tourism, this type is significant on both national and international levels. Therefore, it is crucial to identify cities with congress tourism potential and organize congress venues within these cities.

Studies to determine congress tourism potential should thoroughly examine the host city's geographical location, climate, land structure, natural and cultural assets, transportation facilities, social activities, and recreational opportunities. The data obtained suggests suitable areas for congress venues should be identified. These venues should then be designed and constructed using spatial standards that meet the infrastructural requirements of congress events.

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Chapter 2

NATURE IN URBAN LANDSCAPE: HUMAN-NATURE CONNECTION

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1. INTRODUCTION

The concept of nature is a subject researched by various disciplines including philosophy, science and cultural studies. Nature can be defined in a way that includes the entire physical world from the smallest microorganisms to large ecosystems (Hartig et al., 2014). Therefore, it has many definitions. Nature is a set of elements consisting of living and non-living features, far from human influence, existing without human intervention, constantly changing, transforming, renewing itself and thus ensuring its sustainability (Çilingir, 2018). In other words, nature is places that have not been changed by humans, contain their original characteristics and are protected from the corruption of urbanization. Nature can be defined generally as the physical world and its components.

DesRoches (2018) considers nature in two parts: the first is the biophysical environment that existed before human intervention, and the second is the environment that includes the changes and cultural structures that humans impose on the natural world. This diversity in the definition of nature shows that human perception of nature is not static; it changes significantly over time, shaped by cultural, religious and scientific paradigms. This change reflects a complex interaction between humans and their environment and reveals how human understanding of nature, values and beliefs are shaped by the information they acquire. Historically, many cultures have evaluated nature from an anthropocentric perspective, accepting that humans are the most important figures in nature. This perspective is particularly evident in religious contexts, where nature is generally seen as a resource for human use. When we look at the understanding of nature in religions, nature is created by God. It is stated that God is the one who gives purposes to everything that makes up nature and that all created things are obliged to follow His commands. In religious understanding, humans are honored as the highest of creatures. This situation gives humans the power of dominance over the other components that make up nature. However, this special position of man, his responsibilities towards other living beings are controlled by divine power. Thus, the balance of nature is kept under control. Therefore, according to religious views, nature is sacred. The Creator, who created nature and put it at the service of man, describes the spiritual feelings and interconnectedness of all the components of nature he created (Sayem, 2022). From this perspective, the term nature usually refers to an order and harmony that has a certain existence. With divine religions, nature takes on a divine structure and the orientation appropriate to nature is understood as the orientation appropriate to the divine being (Çilingir, 2018). However, from a scientific perspective, nature is not sacred because it is evaluated as a machine. This idea emphasizes human dominance

over nature. This view argues that man fosters a sense of entitlement to natural resources and encourages an anthropocentric view that worsens ecological crises (Sayem, 2022).

From the past to the present, people's perspective and perception of nature has changed. First, people perceive nature through religious teachings and their inability to discover nature. Later, developments in the world of science, technology and industry have significantly changed people's perception of nature. In the historical process, nature has been seen as an unidentifiable entity different from human existence; nature has been perceived as a collection of materials that must be conquered, its mystery solved or used for the benefit of humans (DesRoches, 2018). The way people perceive nature and the meanings they attribute to nature can be summarized as follows:

Before the 18th century, people believed that nature had hidden powers and felt helpless in the face of natural events, giving nature a sacred value. They described nature as dangerous, wild and inaccessible (Maltaş, 2015; Nicholson-Lord, 1987). People who accepted the power of nature lived a life that was defenseless against its power and dependent on it (Maltaş, 2015).

In the 18th century, with the development of transportation vehicles, the possibilities of passing through nature improved and made nature less dangerous for humans. This situation transformed the feared nature into a nature admired with its clean air and beautiful scenery. With the development of agriculture, nature was domesticated and no longer a threat to humanity. Thus, not only the natural areas under control but also the wild nature began to be seen as beautiful and harmless for humans (Appleton 1975). Humans who began to unravel the mysteries of nature got rid of their fears. This process caused humanity to succeed in overcoming nature with the knowledge they acquired and to specialize in taming it. Therefore, this resulted in humans shaping nature in line with their own desires and needs (Maltaş, 2015). For this reason, science focused on unraveling the secrets of nature in order to benefit from it even more.

In the 19th century, the aim was to understand and interpret nature in order to benefit from it in the best way. However, with the urbanization brought about by industrialization, our increasing knowledge and skills have transformed nature, which we previously perceived as independent of us, into a tool that we completely depend on, manage and direct (Maltaş, 2015). The penetration of rational reason into all areas, which was a result of the Age of Enlightenment, and the domination of man over nature with a completely utilitarian approach, have turned the once victorious world

into a victim (Serres, 1994; Maltaş, 2015). The fundamental argument of this period, in which the nature-human relationship was disrupted, the process was turned in favor of humanity and approaches that centered on humans were openly accepted, is the idea that everything was created for humans and that humans are superior to all beings (Köşker, 2019; Maltaş, 2015). Especially in the process that started with the industrial revolution and urbanization developed rapidly, nature turned into a resource that meets the needs of developing societies and a tool that exists to serve humanity (Köşker, 2019). Of course, developing technology and industry cannot be shown as the only reason for all the negativities. These developments have created people focused on consumption; since humans see nature as an entity for consumption, it has caused the balance of nature to be disrupted. Therefore, the biggest responsibility is the human being who has turned into a creature that intervenes in nature and sees himself as more valuable than anything else. Nature has given humans what they need since the day they came into existence and continues to exist by replacing it and renewing itself. What needs to be emphasized today should be "taking as much as they need from nature". However, the desire of humans to produce and consume more than they need has resulted in the danger of nature being damaged and not being able to renew itself. This situation has led to the emergence of various environmental problems that threaten both the future of human life and other living things. Therefore, it has resulted in people making efforts to protect nature before it is completely destroyed, and the importance of nature extending into the city has begun to be emphasized. In this period, nature was seen as an opportunity to escape from the stress of the city, it was suggested to be preserved as it is, and the degree of naturalness it contained was very important. Because humans are also a part of nature, they are not superior to it, and it is not possible for humans to continue their lives by breaking away from nature.

The relationship between people and nature has also been affected by socio-political factors. According to economists, nature is seen as mechanical and society tries to benefit from this machine to the highest level by investigating its structure. In the environmentalist perspective, if nature is not harmed by industrial society and the balance of nature is not negatively interfered with, nature can heal and repair itself. While the economist view neglects the complexity of the processes in the natural world because it has a materialist perspective, the deep ecology view ignores materialism while dealing with the subtleties of nature. However, a dialectical approach is required to understand nature; a different understanding and measure of nature should be presented by combining

the perspectives of economism and deep ecology on nature (Clark and York, 2005).

Within the framework of this dialectical approach; with a deep ecologist perspective, nature should not be based solely on humans and their needs, and priority should be given to nature in the use of natural values. In this way, species diversity is preserved and opportunities should be created for the functioning and self-renewal of all natural systems. On the other hand, as long as nature maintains its balance, according to the materialist approach, it will meet human needs in the best way and humans will benefit from nature to the maximum extent. The integration of economist and ecological perspectives will enrich our understanding of nature. Thus, modern society should be able to synchronize with nature in order to overcome environmental crises.

In the 21st century, contemporary views of nature increasingly focus on the interdependence of humans and nature. Because today's humans have become a being that dominates nature and positions itself outside of it. With this idea, they distance themselves from nature and the idea that they are a part of it. This understanding, together with a social life focused on consumption, causes the balance of nature to be disrupted, exploited and turned into an object of human life. This paves the way for the emergence of various environmental problems that threaten the future of both human life and other living things (Köşker, 2019). With the emerging environmental problems, it is increasingly important to develop ecological awareness in individuals and to ensure active participation in the solution of the problems.

As a result, seeing the dead nature created by developing technology as a paradise for humanity is seen as one of the most important problems brought by civilization-consumption. The recognition of unhappiness in this artificial world that human beings have created for their own happiness has laid the foundations of ecological consciousness (Işın, 1999). Humans are achieving growth in the world by damaging the natural environment. This situation universalizes environmental problems and shows that their solutions should also be universal (Eisler et al., 2003; Schultz, Zelezny, 1999). Thus, nature, which is an object in the understanding that humans dominate and exploit nature, has become an object that needs to be protected along with the environmental problems that have emerged. Therefore, a transition has been made from an understanding that dominates and exploits nature to a protection understanding in order to ensure sustainability (Köşker and Çalışandemir, 2015; Köşker, 2019). In addition, apart from these ecological requirements, humans need to be a part of the natural world due to their creation. Nature relaxes, gives peace and renews people. People who start living in cities, separate from the natural world, turn to nature to get rid

of the emotional pressures that this lifestyle creates on them. Because the reason why people want to be included in nature and find peace there is because they feel they belong to nature (Schultz et al., 2004). The negative effects of human behavior on the natural environment can only be reduced by ensuring that the sense of attachment to nature that exists in human nature re-emerges.

2. NATURE CONNECTION

The migration of people to cities as a result of industrialized countries causes them to live isolated from the natural environment. Human pressures in modern society, together with technological advances and increasing urbanization, are negatively affecting people's ability to connect with nature in their daily lives. There is an urgent need to better understand how urban dwellers connect with nature, especially given estimates that 66% of the world's population will live in urban areas by 2050 (Cleary et al., 2020). This is because the urban environment creates a disconnect between humans and nature and negatively affects human connection to other living beings and the desire to protect them (Kellert, 1997; Louv, 2008; estall & Conrad, 2015). However, the protection of biodiversity is necessary for sustainable nature. It will not be possible to protect something that humans do not know, are not aware of and do not understand its importance. First of all, it is necessary to increase the level of awareness of people about living things and habitats other than their own (Kanat, 2020). Human-nature connectedness is generally characterized as being connected to nature or having a positive relationship with nature (Restall & Conrad, 2015; Barrable & Booth, 2020) and encompasses all multifaceted relationships between humans and the natural environment. Nature connectedness is primarily concerned with how people identify themselves with the natural environment and how they make sense of their relationships with nature (Tauber, 2012). It is not only a passive appreciation of nature, but also a deep emotional, cognitive and behavioral involvement that influences individual well-being and ecological behavior. Nature connectedness is becoming increasingly important in various fields, including psychology, ecology and urban planning, as it plays an important role in promoting environmentally friendly behaviors and improving mental health. Research shows that a strong human-nature connection is fundamental for ecological behavior. Individual connection with nature is crucial for gaining ecological consciousness, and people's multisensory experiences with the natural environment increase this connection and lead to more sustainable behaviors (Bakar et al., 2021). This idea is supported by research findings that show a direct link between being connected to nature and environmentally friendly behavior; these findings suggest that individuals who feel more connected to nature are more likely to engage in actions that

benefit the environment (Arendt and Matthes, 2016; Obery and Bangert, 2017). As attachment to nature increases, one's empathy for nature and desire to protect it increases (Schultz, 2002; Mayer & Frantz, 2004; Barrable & Booth, 2020), leading to environmentally friendly behaviors (Cudworth & Lumber, 2021; Jacobs & McConnell, 2022); direct contact with nature has been shown to increase attachment and love for nature (Kaplan & Kaplan, 1989). Some researchers have also shown that individuals' disconnection from nature.

A connection with nature is not only beneficial for the environment, but also for individual psychological well-being. This is because exposure to nature strengthens bonding with nature and provides positive experiences in the natural world. Due to the benefits of these experiences, it has been revealed that the relationship with the natural world directly affects people's physical, mental and general well-being (Schultz, 2002; Tauber, 2012; Capaldi et al., 2014; Cudworth & Lumber, 2021; Jacobs & McConnell, 2022).

Connections with nature in the city can be established at any age. However, establishing a connection with nature, especially in childhood, ensures that the future is planned positively in terms of ecological and sustainability. Otherwise, as children's experiences with nature decrease, their interest in nature also decreases. This will also reduce the motivation to protect natural areas and the creatures living there. As parents, it is possible for people to transmit their disconnection from nature to their children. Over time, this can result in society understanding and valuing the natural world less and even investing less in conservation (Chawla, 2020). Childhood, including early childhood in particular, is often an important period in creating an ecological identity and developing a positive relationship with nature. Participation in environmental education programs and outdoor education programs during this period is important for connecting with nature and developing ecological awareness (Barrable & Booth, 2020). Children find the freedom to explore their environment, especially when they take risks, make choices, take on more responsibility and make connections with those around them. This gives them a strong connection with nature (Arbuthnott & Sutter, 2019; Düzenli et al., 2019; Düzenli et al., 2019a). In the city, children should be provided with spaces for spatial experiences that foster a connection to nature; opportunities for outdoor play, hiking, camping... Such affective activities give children the freedom to use all their senses to explore the natural environment (Arbuthnott & Sutter, 2019).

The city should create environments for adults and children to develop an attachment to nature. Creating natural spaces designed for urbanites is important to connect them with nature and to shape their future conservation behavior and encourage them to conserve.

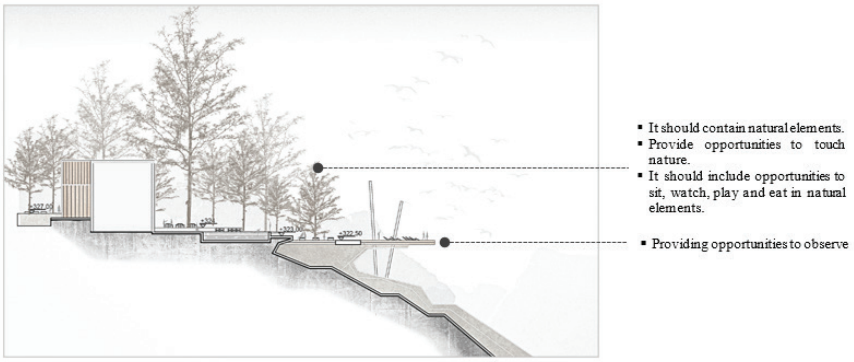
3. NATURE CONNECTION IN THE URBAN LANDSCAPE

In the city, the sense of connectedness to nature is realized in indoor spaces with indoor plants, in wooded streets, in urban parks, in areas with natural features such as botanical gardens and zoos. These provide opportunities to interact with natural phenomena and natural processes and to follow their changes. The depictions of nature that exist within the city do not fully express naturalness, but they remind the urbanite of the presence of nature, bringing the urban and the natural together and sometimes separating them. Above all, the urban landscape provides the individual with an experience of nature in the urban environment, giving the urban dweller contact with nature in daily life (Yılmaz et al, 2017). More contact with nature increases the feeling of connectedness to nature. Increased contact with natural environments also increases an individual's connection to nature, well-being and environmentally friendly behaviors. However, time spent outdoors is not the only way in which contact with nature can be established. Contact with nature can be incidental, intentional and indirect (Jacobs & McConnell; 2022).

- Incidental contact: living in neighborhoods with more natural features, viewing natural elements or landscapes from a building or vehicle,
- Intentional contact: planned visits to natural areas, zoos and institutions such as botanical gardens; and
- Indirect contact: spending recreational time in nature, spending time indoors with plants, watching nature-based TV and radio programs, experiencing nature in photos, movies or virtual realities, talking to others about the importance of environmental protection.

Urbanization, environmental degradation and lifestyle changes reduce the quantitative and qualitative possibilities for human contact with nature, such as poorly designed (inaccessible green space) dense urban environments...(Hartig et al., 2014). Integrating nature into the urban landscape can significantly improve the quality of life of urban dwellers by enabling them to connect with nature. Designing nature-related living spaces in the city has healing benefits for people and increases social well-being (Giusti et al., 2020); touching animals, walking among plants, listening to water and animal sounds, growing your own vegetables and fruits...

What kind of landscapes should be designed for urbanites to connect with nature?



Urban landscapes should contain signs of naturalness;

- Free animals, such as dry leaves and puddles on the ground.
- It should provide the user with opportunities to observe and experience nature and create opportunities for them to gain accurate information about nature.

These landscapes help the urban dweller to develop more positive feelings towards the living beings with which they share the world and to support conservation efforts. Urban landscape users should come into physical contact with animals and plants, and opportunities should be created for them to find answers to their questions and curiosities about nature. Because the experience of nature should be formed by the user exploring his/her environment using all his/her senses. In this way, individuals can have good memories of nature and this can give them a very good outdoor experience to connect with nature. This strengthens people's sense of belonging to nature, especially children and young people.

4. CONCLUSIONS

Nature is being damaged at an unprecedented rate all over the world, with approximately one million plant and animal species threatened with extinction (Carr & Hughes, 2021). It is therefore crucial that people value nature and see it as part of their lives. This will prevent people from being unconcerned about the loss of nature and make them strive for conservation. However, people today spend most of their time indoors in front of screens and computers instead of outdoors. This causes them to lose touch with nature and to look at their surroundings with a materialistic mindset. Thus, human beings no longer strive to live in touch with nature, but to create an order that dominates nature in order to realize their inexhaustible desires. The most dangerous thing is that they do this by continuing to destroy the environment. However, in order to prevent this, individuals should be given an understanding of conservation and taught sustainability in terms of the

continuity of elements and relationships in nature, not consumption. In this way, ecological consciousness can be gained and nature can be protected.

In the urban environment, people are made aware of nature through nature experiences that connect them with natural elements. In this way, urban dwellers are encouraged to empathize with non-human elements of nature, exhibit pro-environmental behaviors and make efforts to protect nature. Providing opportunities for children and adolescents in particular to connect with nature will lead to greater environmental knowledge and a greater willingness to protect nature. It will enable them to engage in more nature-friendly behaviors, such as leaving food for birds and joining a nature club (Chawla, 2020).

When an individual thinks that he/she is a part of the natural environment, it will increase the individual's anxiety towards nature and motivate them to protect nature. Otherwise, an individual who believes that he/she is superior to nature believes that he/she is superior to all living things (Schultz, 2002). The only way for all individuals to gain awareness about nature is to establish a connection with nature.

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Chapter 3

PUBLIC ART AS A WAY OF EXPRESSION

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1. Introduction

Art is generally associated with creating beauty and aesthetics. However, art is not only about the aesthetics of the artwork and sometimes it can be used as a way to express some feelings or address social issues, too. However, as art is a very broad subject, this paper will focus on public art and the main aim is to understand the concept of public art and the types of artworks that can be defined as public artworks. Public art has new definitions and different contents due to the constant state of change both in art and in the city [1]. It can be defined as artistic creations exhibited in public spaces. According to Worth's understanding, design and art present cultural thoughts or make interventions with an aesthetic touch. When it comes to public art, the combination of design and art and its presentation in a public space is accessible to everyone [2]. From this understanding, public art is a type of art that can be seen in public spaces or there may be some structures that are open to public access [3]. "Accessibility" to the art is the most important feature of public art. It is significant in order to consider an artwork as a public artwork [4]. What also makes public art public, according to Phillips, is that art can reach a large number of people [5]. Some artworks in private spaces might be considered public because of their accessibility to some people, however, they are only accessible to a group of people who can enter that private space [6]. Artworks in the public spaces are open to everyone in the community. Therefore, artworks that are in a free and unrestricted place that is accessible to everyone in the community and doesn't belong to any particular person or group can be considered truly public [7]. Public artworks can be seen in streets, squares, semi-open spaces of libraries, museums or public buildings, etc. [5]. Considering the space itself as an element of public art also strengthens the sense of place. Instead of making random settlements in the space, shaping the settlement forms according to a certain order and idea reveals the sense of uniqueness and place in the space [1]. However, considering public art as artworks that are located in open or public spaces in the city may not be enough to fully understand its nature. Phillips argues that public art is not a type of art that takes place only in public spaces and claims that the publicness of this art comes from the fact that artistic activities use the idea of the public as their source and research subject [8].

When looking at the nature of public art apart from the location of artwork, it might be said that some public artworks like monuments can stay permanently in its place for years. Some other works may be produced to celebrate a particular event and it can be out of use after the celebration [2]. It also shows that while some artworks take a long time to be designed, made and approved by certain authorities, some public artworks can be made more quickly because they can be produced suddenly and without

anyone's permission [9]. When it comes to the financial part of the artwork production, it is observed that some artworks are funded by public or private organizations or by the artists' own resources [1].

Some artworks may be site-specific and visitors should have background information about the site where the artwork is located. The level of participation also varies according to the structure of the artwork. In a traditional way, the artist's interaction with visitors is not considered and its percentage is very low [10]. However, sometimes it can be seen that artwork becomes more interactive and visitors become participants as well [11]. Sharp et al. discusses that coming together with the audience is at the core of public art [6]. In addition, involving the visitors in the production of artwork may create an environment where people can talk about the problems they see and try to find solutions for them [1]. Therefore, this perspective shows that artwork is not just an object, but can also be a space for interaction and a meaningful experience. On the contrary, there is no obligation to connect with visitors and address some social issues [10]. Sometimes public artworks may be spontaneous and become an expression of the artist's inner world. This is entirely related to what the artist wants to share with the society [2].

There is another understanding of public art rather than the traditional perspective mentioned above that is named as "new genre public art". Activism is the dominant aspect of the new genre public art, so it is directly related to the concerns about. Suzanne Lacy was the first person who put this idea forward in 1995 [12]. People who defended issues like women's rights, protecting the environment, and freedom of thought were inspired by Lacy's [13] idea of this new type of public art [7]. In the first periods of the emergence of the new type of public art, the issues addressed were health-related problems and environmental pollution. Addressing the issues that are related to society shows that this type of art is an activist art [11]. In the next part of the study, types of public arts were examined with some examples.

2. Types of Public Art

Public art concerns various art movements such as graffiti, street art, murals, happening art, land art, environmental art, site-specific art, urban art, contemporary art, conceptual art, community art, anti-art, and participatory art (Figure 1) [12].

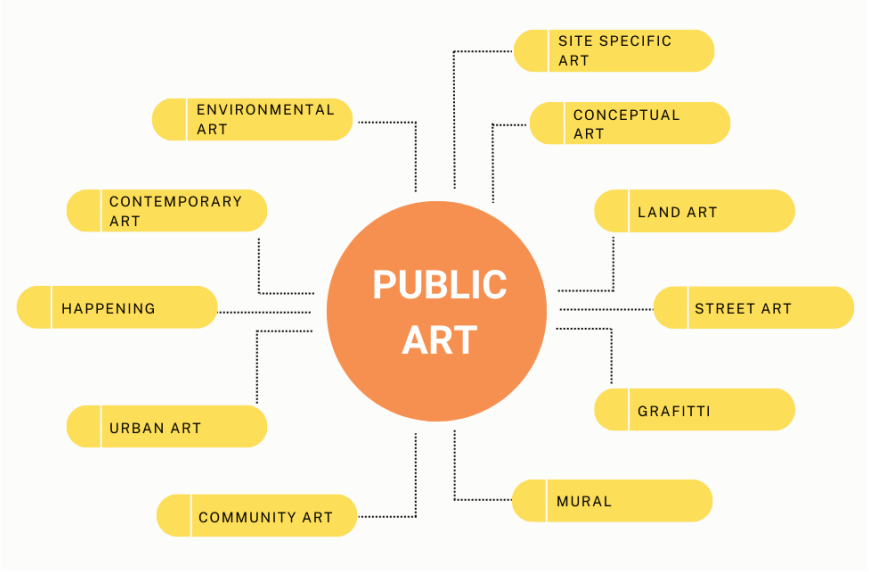

Figure 1. *Types of Art Related to Public Art (adopted from [3] [12])*

The first examples that may come to mind when it comes to public artworks are monuments, sculptures, busts, fountains, and other specially designed water elements. However, public artworks are not limited only to these examples. In addition, architectural artifacts such as buildings, religious buildings or bridges, temporary architectural structures and ornaments and motifs that can be seen especially on the facades of buildings can also be considered public works of art [14]. Urban furniture such as benches, rubbish bins or lighting elements, which are more functional in daily life, and flower pots and floor coverings placed to increase the visual beauty of public spaces can also be shown as examples of public artworks [14].

Considering the classifications of Hamilton et al. and Remesar, public artworks are evaluated as sculptures, works used for ornamental purposes, historically important works and structures such as monuments, urban furniture, works created with land art, open public space arrangements, and temporary structures [15] [16].

Another classification was made by Tornaghi [17]. Public art is considered under five groups and these are: works produced by known artists and located in public spaces that are seen as an important part of cities, provocative and critical works made to revitalize public spaces, artistic works with the participation of people where the process comes to the forefront, artistic installations that are put forward for profit, and elements that support transformation projects [17].

A different classification of what constitutes public artworks was made by the Portland Public Art Committee (Portland Public Art Committee), and in this classification, the artistic content of the works was prioritized (Table 1) [18]. When we look at the classification, it is seen that there are four titles under the names of functional artworks, community artworks, artworks of remembrance, and finally expressive artworks. In another study, in addition to these titles, technology-related artworks are also included [19].

Table 1. *Classification of public artworks created by the Portland Public Art Committee [18]*

PUBLIC ARTWORKS			
Functional Artwork	**Social Artworks**	**Monumental Artworks**	**Expressionist Artworks**
City Furniture	Performance Arts	Monuments	Sculpture
	Graffiti	Mosaics	Surface Painting
	The Game		Installation
	Video, photo and collage		

In the present study, the classification of public artworks created by the Portland Public Art Committee [18] has been adopted to exemplify artworks.

2.1. Functional Artworks

2.1.1. City Furniture

These types of artworks mainly include urban furniture in which artists, architects, and urban planners come together to produce works that aim to increase the quality of life and comfort in public spaces [18]. Functional artworks include benches, bus stops, playgrounds for children, fountains, signboards, kiosks, and shade elements. The common points desired to be seen in these artworks are that they are functional, easy to produce, durable, and have a visual aesthetic at the same time [20]. Typical examples are the Santa Ana fountain located in the vicinity of Plaza Catalunya in Barcelona and the bus station designed by Frank Ghery in Hanover (Figure 2).

Figure 2. *The Santa Ana Fountain in Barcelona (left) [21] and a bus stop in Hannover (right) [22]*

2.2. Social Artworks

Social artworks are works of art created by artists in cooperation with the society. In this way, it is possible to reach different groups in society, to attract the attention of the society and to arouse curiosity, to enable people to creatively express their values, wishes, or traditions. The artworks produced can be both temporary and permanent [20]. Social artworks can be analyzed in four groups: performance arts, graffiti, games and video, photography, and collage.

2.2.1. Performance arts

Performance arts are artistic works that take place, especially in city squares such as Plaza Catalunya (Barcelona), Plaza Mayor (Madrid), or Piazza del Duomo (Milan), which are visited by tourists in order to attract more audiences. In this context, performance arts are artistic works such as dance, theatre, music, poetry and video [23]. Another example of performance arts is the work titled "Bodies in Urban Spaces" prepared by an Austrian choreographer named Willi Dorner and performed by groups of people such as dancers and climbers (Figure 3). This performance work is a moving work that starts at one point in the city and moves towards different points. These points are usually in places that are not paid much attention to in daily life, such as gaps between buildings, stairs, benches, mailboxes, and construction scaffolds. In order to bring a different perspective to these places, the group performs movements such as bending and twisting or clustering at these points [24]. There are also artistic performance applications created by painting the whole bodies of street artists [25] (Figure 3).

Figure 3. *"Bodies in Urban Spaces" (left) [24] and street artists (right) [25]*

2.2.2. Graffiti

Unlike surface painting, graffiti works are mostly illegal. Sidewalks, walls, traffic signs, billboards, motor vehicles, or train carriages are some of the places that have become a base for graffiti art. Banksy's graffiti work titled "Window Seat" on the "Separation Wall" in Palestine (Figure 4) [26] or yellow fist graffities by German artist Kripoe around Karaköy district in İstanbul are some of the works that stand out (Figure 4) [27].

Figure 4. *Graffiti works titled "Window Seat" on the "Separation Wall" in Palestine (left) [26] and yellow fist graffities around Karaköy district (right) [27]*

2.2.3. Games

The works that are considered as games can be thought of as treasure hunt-style games that allow people to look at the places they use or pass through every day from different angles, and sometimes to create a work of art as a result of the designed game [12]. "News.Box.Walk", designed by a designer named Christina Ray, works like a treasure hunt. News boxes painted in different colors give clues to people in the work, which includes

the idea of moving to different points in the city by sliding from the places where the objects in the city are located. A route is created according to the colors of the news boxes and people play a kind of game in the city by following this route [28].

2.2.4. Video, Photography and Collage

As an example of video, photography, and collage, the "Inside Out" work carried out by a photographer named JR in New York can be considered (Figure 5). In this work, which was realized with the participation of a large number of people, people's photographs were taken and exhibited in Times Square. The aim here is to enable each person participating in the work to have their own say. Another social artwork is El Mon Neix En Cada Besada in Barcelona (Figure 5). This work can be considered as a large composition work that emerged by bringing together photographs of the moments when the people living there felt free.

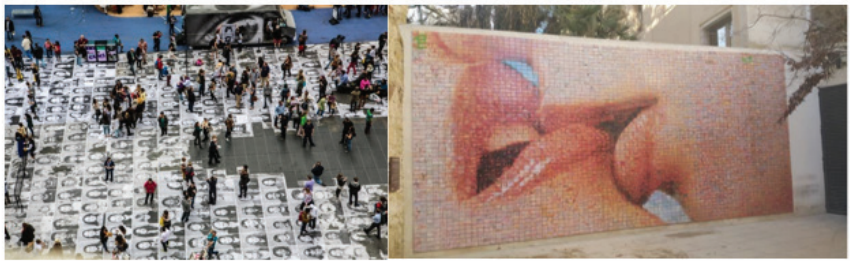

Figure 5. *JR's "Inside Out" (left) [29] and El Mon Neix En Cada Besada in Barcelona (right) (Source: İpek Özer personal archive)*

2.3. Monumental Artworks

These works are created to perpetuate the memory of an important event or a historical figure [18]. Monuments and sculptures allow the events experienced by societies, empires, or political powers in historical periods to be transferred to the next generations and thus remembered. Such monuments and sculptures can be seen especially in city squares [20].

2.3.1. Monuments

When we look at the monuments and monuments in the world, the Holocaust memorial (Denkmal für die ermordeten Juden Europas) (Figure 6) in Berlin, Germany, and the "Washington Monument" (Figure 6) built in memory of George Washington, the first president of the USA, can be given as important monumental works of art. Among the examples in Türkiye, the Taksim Republic Monument in Taksim, which was built in 1928 by the Italian sculptor Pietro Canonica with the contributions of Sabiha (Bengütas) Hanım and Hadi (Bara) Bey, has an important place.

Thanks to this monument, the story of the War of Independence and the enthusiasm brought by the Republic were passed on to the next generations and continued to be remembered [5].

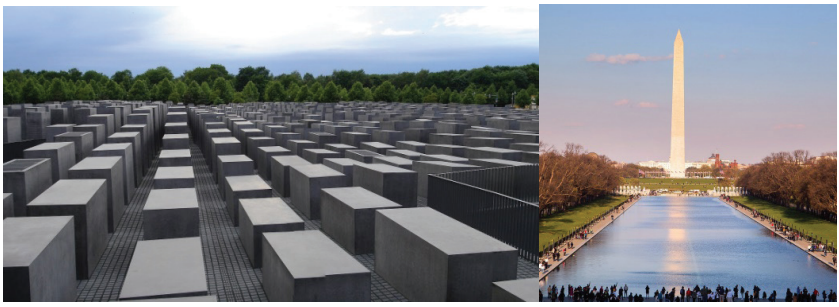

Figure 6. *The memorial to the murdered Jews in Berlin (left) [30] (Photo Chaosdna) and the "Washington Monument" in honour of George Washington (right) [31]*

2.3.2. Mosaics

Mosaics, another monumental work of art, is the creation of a pattern or picture by arranging colored and small stones side by side and gluing them together. It is thought that this type of art was first used by the Sumerians. It is seen that they are used in many different places such as pools, streets, and interiors or exteriors of buildings, and increase the visuality of the space [32]. Examples of mosaics include the Republic Monument in Taksim, Istanbul, and the mosaics with religious content in the Basilica of San Vitale in Ravenna, Italy (Figure 7).

Figure 7. *The Republic Monument in Taksim, Istanbul (left) [33] and the mosaics in the Basilica of San Vitale (right) [34]*

2.4. Expressive Artworks

Expressive artworks are works that are located in public spaces in cities and aim to add a sense of joy, vitality, pleasure, or curiosity to the daily lives of people using these spaces [18].

2.4.1. Sculptures

These artworks can be found in squares, parks, or indoor places that are thematic parks accessible to the public. The Picasso sculpture in Chicago's Daley Plaza, which has become one of the symbols of the city, and the Vigeland Sculpture Park, one of the largest sculpture parks, where Gustav Vigeland's sculptures are exhibited, are some of the works of expressionist art [20].

These works, which can be depicted as expressive artworks, can be adopted by local governments and included in cultural policies and can be positioned in urban spaces in a planned manner. In this context, the "Percent for Art" strategy implemented in the United States can be emphasized (Figure 8). The strategy stipulates that a portion of the costs of public buildings to be constructed in cities should be used for public art practices, and with the implementation of this legal regulation after 1978, public art activities have been seen in nearly 200 cities. Over the years, these activities have gradually increased in momentum. The work created by Gustav Vigeland in Vigeland Park in Oslo (Figure 8) and the public artwork "Cloud Gate" by the famous sculptor Anish Kapoor in Millennium Park in Chicago are among the important outputs of this practice (Figure 9) [35].

Figure 8. *A cross-section of the "Percent for Art" strategy in the United States (left) [35] and the Vigeland Sculpture Park in Oslo (right) [36]*

Figure 9. *"Cloud Gate" by Anish Kapoor [37]*

2.4.2. Surface paintings

Works on walls, floors, and facades of buildings are called surface painting. The Miami-Dade Art in Public Spaces Program took place within the Carnival Center for Performing Arts in Miami, and there are some works made as surface painting. The application seen on the floor in the lobby of an opera house was designed by Jose Bedia (Figure 10). Another example is the mural 'Finding the Light Within' by Mural Arts in collaboration with the Department of Behavioral Health, Intellectual disAbility Services, and the American Foundation for Suicide Prevention in Philadelphia (Figure 10).

Figure 10. *A work created at the Carnival Centre for Performing Arts in Miami (left) [38] and a mural entitled 'Finding the light within' by Mural Arts in Philadelphia (right) [39]*

2.4.3. Installations

The last example of expressionist artwork is installation works. Installation is a type of art which had been affected by conceptual art in 1970s, however, its roots goes back to Dadaism and Surrealism [40]. Since installation art can be defined as placing objects to a specific location, it can be seen that its main concern is the relationship between space and object. In 1923, artworks named "Merzbau" by Kurt Schwitters [41] and "Proun Room" by El Lissitzky [42] are the first examples of the installation art. One of the installations of artist Jenny Kendler that is titled "Birds Watching" (Figure 11) and "Ice Watch" (Figure 11) by artist Olafur Elliason can be some examples of more recent installation works.

Figure 11. *"Birds Watching" by Jenny Kendler (left) [43] and "Ice Watch" by Olafur Elliason (right) [44]*

3. Conclusions

As can be seen in the examples, public art is a very wide area and it has a great variety in it. Public artworks may include different use of materials and presentation techniques, they can discuss some cultural, social or political issues about society or only represent artists' ideas and feelings. Public artworks show that art can be outside of the museums and galleries and its accessibility makes these artworks more reachable for everyone. Because of the ease of accessing artworks, the awareness about art itself, the topics they address and the value that people give to them may increase. The increasing number of public artworks puts art in the daily life of people and everyone in the community can see and experience the artworks. Sharing these experiences creates a feeling of togetherness and it allows people to see their environment in a different way.

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Chapter 4

AN OVERVIEW OF THE USE OF GIS AND RS TECHNIQUES IN ECOTOURISM STUDIES IN TÜRKİYE AND WORLDWIDE

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1. INTRODUCTION

Tourism is vital to nations' economic, social, and cultural development. In recent years, the growing interest of tourists in nature has led to the rise of *ecotourism*, a sustainable approach that emphasizes the protection and preservation of natural environments. This shift highlights the increasing importance of ecotourism as a responsible alternative to traditional tourism practices.

Advancements in technology have further enhanced the study and implementation of ecotourism, mainly through Geographic Information Systems (GIS) and Remote Sensing (RS) techniques. These tools, which facilitate the collection, analysis, and visualization of spatial data, have become indispensable for effectively planning and managing ecotourism activities.

This study aims to investigate the application and evaluate the contributions of GIS and RS techniques in ecotourism studies. It explores the concepts of ecotourism, GIS, and RS, examining their integration into ecotourism planning, their practical implementation, and the advantages and limitations these technologies offer.

This study underscores the significance and impact of GIS and RS in identifying ecotourism potential, supporting sustainable resource management, and promoting conservation-focused tourism development by presenting examples from Türkiye and worldwide.

2. THE CONCEPT OF ECOTOURISM

Due to tourism's negative impacts on natural and cultural resources, alternative forms of tourism have been sought in recent years. The concept of ecotourism, which is based on a sustainability-oriented approach to mitigate tourism activities' adverse environmental effects, has emerged (Akın & Gül, 2020).

The concept of ecotourism was first introduced by Ceballos-Lascurain in 1987. Ceballos-Lascurain defined ecotourism as travel to areas where human impact is minimal to admire landscapes, flora, and fauna, as well as cultural resources from both past and present, for enjoyment, appreciation, or specialized studies (Öztürk, 2005).

At the 2002 World Ecotourism Summit, ecotourism was described as an approach that ensures the sustainability of global natural resources, supports the economic development of local populations, and preserves their social and cultural values (Kurdoğlu, 2001; Çelik, 2020).

Ecotourism emerged from recognizing the potential benefits of people's interest in nature (Kılıç, 2006). The concept of ecotourism is closely

associated with conservation-use balance and sustainability. Ecotourism, based on the principle of protecting the ecological balance, is regarded as a consequence of sustainable development (Gültekin, 2010).

Ecotourism activities aim to contribute to participants' efforts to protect nature. In line with this goal, ecotourism has emerged as a tourism approach that promotes public awareness of nature and local cultures, includes local communities, and fosters environmental awareness while protecting the environment. One of the fundamental principles of ecotourism is that all tourism activities are conducted together with the local population, highlighting the region's unique characteristics to present them to tourists (Çelik, 2020).

Ecotourism, which focuses on natural and cultural heritage while prioritizing the interests of participants and local communities, can be defined as a conservation-oriented, educational, and sustainable tourism activity with specific goals. According to Turoğlu and Özdemir (2011), these goals include:

- Contributing to the preservation of natural and cultural heritage,
- Improving the welfare of local communities,
- Introducing the region's natural and cultural heritage to tourists,
- Providing the best opportunities for groups and independent tourists,
- Minimizing irreversible resource losses,
- Ensuring the active participation of local populations in tourism management and related organizations,
- Minimizing all forms of adverse impacts of tourism activities.

3. GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Geographic Information Systems (GIS) are computer-aided programs that enable the collection, storage, integration, analysis, and control of data specific to a particular area, often using satellite images and geographic data. GIS contributes to solving problems related to planning and analysis and allows for the integration of maps and tables (Doğan, 2019).

Geographic Information Systems (GIS) collect, store, update, and query all spatial data and attribute information defined geographically within the same environment. These systems consist of software, hardware, and personnel performing the operations for specific purposes (Aydın, 2015).

GIS is effectively used for solving planning and management problems through spatial querying and analysis, decision-making analyses, numerical data analyses, model analyses, visualization, and mapping functions (Küçükönder & Karabulut, 2007).

Five main components are required for GIS to fulfill its functions. According to Doğan (2019), these components are:

- Hardware
- Software
- Data
- Methods
- People

GIS stores all data in layers and allows for the analysis of these layers through specific methods. The types of data used in GIS include:

- Satellite/aerial images (image format),
- Roads (line format),
- Parcels (area format),
- Poles (point format),
- Vector and terrain models (grid format) (Yılmaz, 2019).

Due to its scope, GIS can be used by all scientific disciplines and professional groups that deal with a part of the Earth's surface, temporal variables, or human-related subjects. GIS is widely utilized in engineering, cartography, computing, statistics, architecture, landscape architecture, remote sensing, and geography because of its conveniences and solutions (Gezici, 2012; Doğan, 2019).

According to Özyavuz (2002), the purposes of using GIS are:

- More practical use of existing data,
- Ability to work with large amounts of data and criteria in environmental assessment studies,
- Monitoring land changes in land use studies,
- Creating forward-looking artificial simulations for environmental impact and landscape planning studies,
- Achieving optimal and economic land use in many areas through remote sensing (uzun et al., 2012).

With GIS, maps of a dataset can be produced, decisions can be supported and implemented, different situations can be quickly analyzed with graphical support, interdisciplinary studies can be conducted, and comparisons can be easily made (Köktürk, 2003).

GIS emerged as a new technology for obtaining, managing, and analyzing spatial data in the 1980s (Aydın, 2015). Between 1990 and 2010, with the launch of new satellites into space, there was a significant increase in the use of GIS. During this period, desktop computers became widespread, and GIS programs for these computers became much more professional. Particularly with the widespread use of Global Positioning System (GPS) technology after 2010, a new era began; data was shared for free, and GIS usage became more common (Yılmaz, 2019).

4. REMOTE SENSING (RS) TECHNIQUES

Remote Sensing (RS) can be defined as the process of determining and measuring the properties of an object from a distance by evaluating the electromagnetic radiation emitted or reflected by the object in terms of quality and quantity, without any mechanical connection in between (Çabuk et al., 2011; Aydın, 2015).

Remote Sensing (RS) is described as the technique of obtaining and analyzing information about the Earth and objects through measurement instruments placed on platforms at a certain distance in the atmosphere or space or as the science and art of gathering information about objects from any distance without physical contact (Düzgün, 2011).

According to Lillesand et al. (2004), Remote Sensing (RS) is "the science, technique, and art of obtaining information about geographic features on Earth by analyzing images acquired through sensors without any physical contact with the geographic features" (Özdemir, 2021).

Remote Sensing (RS) techniques have two fundamental stages: data acquisition and data processing. In the data acquisition stage, airplanes, uncrewed aerial vehicles (UAVs), and satellites equipped with cameras and sensors are utilized. The energy coming from the Sun or an electromagnetic energy source passes through the atmosphere and reaches the target; depending on the properties of the surface and emission, the energy is reflected from the target. Sensors on remote sensing platforms record the reflected electromagnetic energy, creating images. The images obtained using remote sensing techniques are enhanced through visual, digital, and electronic processing methods, and quantitative results are achieved through analysis (Eymirli, 2017).

The common aspect of all these definitions is that remote sensing provides information about objects without physical contact by analyzing

satellite images. Satellite images are created when sensors record the reflections caused by the interaction of electromagnetic spectra from the Sun with the Earth and objects without physically touching the objects (Özdemir, 2021).

5. THE USE OF GIS AND RS TECHNIQUES IN ECOTOURISM STUDIES

Remote Sensing (RS) techniques provide data to Geographic Information Systems (GIS). GIS is used for analyzing, querying, and visualizing numerical data. With technological advancements, the rapid development of satellite sensors' spectral and spatial capabilities has significantly increased the use of Remote Sensing (RS) techniques. The ability to easily transfer digital data into GIS environments and provide analytical opportunities for users has facilitated the integration of Remote Sensing (RS) techniques with Geographic Information Systems (GIS) (Dengiz & Turan, 2014).

Geographic Information Systems (GIS) enable the more effective use of data, allow for working with large-scale and high-volume data and criteria, and facilitate monitoring of land changes in land use studies. Combined with Remote Sensing (RS) techniques, GIS provides significant advantages in many areas, and its fields of application are continually expanding (Özyavuz, 2002).

In landscape planning studies, Remote Sensing (RS) techniques, Geographic Information Systems (GIS), and related software have made previously limited analyses and interpretations virtually unlimited, depending on the planner's methodological knowledge and planning skills. Data generated using GIS, based on natural and cultural landscape elements, can be analyzed to enable site selection for various activities (Gültekin et al., 2018).

Therefore, Remote Sensing (RS) techniques and Geographic Information Systems (GIS), which facilitate the storage, processing, analysis, evaluation, and visualization of data related to natural and cultural landscape elements, have become widely used today, particularly in the landscape architecture discipline and landscape planning processes.

In recent years, many studies on ecotourism have highlighted the use of Geographic Information Systems (GIS) and Remote Sensing (RS) techniques due to their speed and convenience. This section examines examples of ecotourism studies conducted on a global and national scale, mainly using Geographic Information Systems (GIS) and Remote Sensing (RS) techniques.

5.1 THE USE OF GIS AND RS TECHNIQUES IN ECOTOURISM STUDIES WORLDWIDE

Some significant ecotourism studies on a global scale that utilize Geographic Information Systems (GIS) and Remote Sensing (RS) techniques are presented below:

- Sahani (2018), in the study titled *"Assessment of ecotourism potentiality in GHNPCA, Himachal Pradesh, India, using remote sensing, GIS and MCDA techniques,"* evaluated the ecotourism potential of the Great Himalayan National Park (GHNP) in India using GIS and RS techniques. Data on slope, topography, vegetation, surface water accessibility, groundwater, elevation, visibility, proximity to settlements, hiking routes, climatic suitability, habitat suitability, and water resources were analyzed. Layers were created, and maps were generated. Areas with ecotourism potential were identified and ranked. Within the study area, 77 sites were identified as having high ecotourism potential, and recommendations for ecotourism activities were developed.

- Fung & Wong (2007), in the study titled *"Ecotourism planning using multiple criteria evaluation with GIS,"* applied GIS and RS techniques in Yan Chau Tong, Hong Kong, to develop ecotourism activities and conservation measures. Using multi-criteria evaluation techniques, satellite imagery, field data, and spatial analyses were used to identify suitable areas for recreational activities (camping, heritage visits, hiking, swimming, etc.) and ecologically important areas. The study identified and mapped priority conservation areas primarily for recreation and conflict zones that serve both purposes.

- Masoum et al. (2012), in the study titled *"Ecotourism planning using remote sensing and GIS: A case study for Marvdasht, Iran,"* used GIS and RS techniques for rational planning of ecotourism activities and conservation in Marvdasht, Iran. Satellite images and data on natural and cultural resources were integrated into layers to identify suitable areas for ecotourism development. The study highlighted weaknesses hindering ecotourism and identified challenges such as potential barriers to ecotourism activities. The results indicated that the area's natural heritage has great tourism potential, and recommendations were made to promote ecotourism.

- Oladi & Bozorgnia (2010), in the study titled *"Evaluating the Ecotourism Potentials of Naharkhoran Area in Gorgan Using Remote Sensing and Geographic Information System,"* aimed to determine the ecotourism potential of the Naharkhoran area in Golestan Province, Iran, using GIS and RS techniques. Land studies were conducted, and a digital elevation model (DEM) was used to generate elevation, slope, and aspect

maps. By overlaying these maps, areas with ecotourism potential were identified and classified into subcategories based on their attributes, and corresponding ecotourism activities were determined.

- Wanyonyi et al. (2016), in the study titled *"GIS in Analysis of Potential Sites for Ecotourism – A Case Study of Kwale County,"* investigated Kwale County, Kenya, where ecotourism is viewed as a means to improve the socio-economic status of local communities. Potential ecotourism sites in Kwale County were identified using GIS and RS techniques. Areas with high ecotourism potential were considered natural attraction centers, while challenges such as rugged terrain, remoteness from settlements, and limited visibility were identified in areas with low ecotourism potential.

- Kumari et al. (2010), in the study titled *"Identification of potential ecotourism sites in West District, Sikkim using geospatial tools,"* used GIS and RS techniques to identify the ecotourism potential of the research area in West District, Sikkim, India. Five index indicators—wildlife distribution, ecological value, ecotourism attraction, environmental resilience, and diversity—were determined. The study examined landforms, elevation, land use/forest cover, vegetation diversity, density, endemism, wildlife (birds and butterflies), tourism attractions, and infrastructure. These were mapped, overlaid, and analyzed to identify and rank sub-areas for ecotourism activities.

- Bunruamkaew & Murayama (2011), in the study titled *"Site Suitability Evaluation for Ecotourism Using GIS & AHP: A Case Study of Surat Thani Province, Thailand,"* evaluated potential ecotourism sites in Surat Thani Province, Thailand, using GIS and RS techniques. Data on landscape, naturalness, wildlife, topography, and accessibility were collected. The study analyzed the area using nine criteria: visibility, land use/cover, conservation value, species diversity, elevation, slope, proximity to cultural sites, distance to roads and settlements, and settlement size. An ecotourism suitability map for the study area was created based on these criteria.

5.2 THE USE OF GIS AND RS TECHNIQUES IN ECOTOURISM STUDIES IN TÜRKİYE

Some significant ecotourism studies conducted in Türkiye that utilize Geographic Information Systems (GIS) and Remote Sensing (RS) techniques are presented below:

- Gökyer et al. (2015), in the study "Evaluation of Ecotourism Activities in the Mountainous Areas of Bartın Province Using Geographic Information Systems," first assessed the study area's resource values and characteristics. They then examined the area's suitability for ecotourism,

and areas with significant resource value for ecotourism activities were mapped using GIS and RS techniques.

- Çelik (2020), in the study titled *"Evaluation of Kilis Province in Terms of Ecotourism Potential and Recommendations for Planning,"* analyzed the ecotourism potential of the study area using maps, satellite data, photographs, and field studies. Various maps were created using GIS technology, and interpretations, analyses, and solutions were developed within the scope of ecotourism.

- Yazıcı and Şahin (2013), in the study titled *"Presentation of Ecotourism Attractions in Zamantı River Basin with the Help of GIS,"* utilized GIS for the ecotourism assessment of the Zamantı River Basin. Existing tourism values in the research area were digitized. Maps of natural, historical, and cultural ecotourism resources were created based on field observations, and natural, historical, and cultural ecotourism routes were determined.

- Akın and Gül (2020), in the study titled *"Ecotourism Potential of Isparta-Atabey Region and Determination of Tourism Routes,"* used satellite imagery and Global Digital Elevation Model (GDEM) data to create digital maps of natural and cultural resources. GIS was used to overlay data, create databases, and query stored information. The study area was evaluated regarding sustainable ecotourism potential using GIS and RS techniques.

- Çetinkaya et al. (2018), in the "Evaluation of Ecotourism Sites: A GIS-Based Multi-Criteria Decision Analysis" study, evaluated nine cities in the Black Sea Region to identify geographically suitable locations for ecotourism activities. Researchers analyzed ecotourism potential using topography, land use, climate, and biodiversity data with GIS and RS techniques. Comparative analyses identified the western part of Sinop, the eastern part of Artvin, and southern areas of the Black Sea Region as highly suitable for ecotourism.

- Kaymaz and Özşahin (2013), in the study titled *"Geographic Evaluation of Potential Ecotourism Areas in Hatay Province (Eastern Mediterranean),"* aimed to identify and map areas with ecotourism potential and activities in Hatay Province. Maps were created using GIS based on 1/250,000 scale topographic sheets, and data were validated through fieldwork. Two areas suitable for ecotourism—the Amanos (Nur) Mountains Region and the Kahramanmaraş-Hatay Graben Region—were identified. The study determined that Hatay's natural and cultural heritage supports 25 potential ecotourism activities.

- İlhan et al. (2017), in the study titled *"Evaluation of the Ecotourism Potential of Cehennem Deresi Canyon (Ardanuç, Artvin) and Planning*

Recommendations," analyzed the ecotourism potential of Cehennem Deresi Canyon in Artvin Province using GIS and RS techniques. The study analyzed maps, satellite images, photographs, and field observations. Various maps—including slope maps, digital elevation models, relief maps, and drainage network maps—were created using GIS. A SWOT analysis was also applied to assess the area's potential. The study resulted in a map of areas suitable for ecotourism activities in and around Cehennem Deresi Canyon and recommendations for ecotourism activities.

6. CONCLUSION

The rapid development of computer and space technologies and increased Internet use have made access to information easier. This rapid technological advancement has also influenced Geographic Information Systems (GIS) and Remote Sensing (RS) techniques. In particular, the increased accessibility of GIS and RS techniques has significantly expanded their usage over the past decade.

Geographic Information Systems (GIS) and Remote Sensing (RS) techniques offer important advantages, such as data collection, storage, updating, analysis, and evaluation for specific areas, presenting visual results, and enabling data sharing.

While Geographic Information Systems (GIS) are seen as technological and practical tools for data processing, analysis, and evaluation, Remote Sensing (RS) techniques are recognized as significant and effective methods for data collection.

In studies conducted within the discipline of landscape architecture, GIS and RS techniques provide significant contributions, including:

- Identifying the past, present, and future states of the study area,
- Preparing natural and cultural landscape inventories,
- Utilizing both spatial and non-spatial attribute data,
- Systematically processing land and resource data,
- Evaluating and overlaying data as layers, and
- Mapping the results.

This study demonstrates, through global and national examples of ecotourism studies, that Geographic Information Systems (GIS) and Remote Sensing (RS) techniques can be effectively used to:

- Reveal the natural and cultural values of a defined area,
- Generate resource maps,

- Identify ecotourism potential,
- Create suitability maps for ecotourism activities,
- Select appropriate sites for ecotourism activities, and
- Identify and map potential challenges that may hinder ecotourism activities.

When fieldwork data, analyses, and evaluations are integrated with data obtained through Remote Sensing (RS) techniques and processed using Geographic Information Systems (GIS), the resulting information can be effectively visualized, analyzed, and reported. The synergy between GIS and RS techniques provides valuable insights into ecotourism's current and future potential, enabling informed decision-making for sustainable resource management while balancing conservation and utilization.

Given Türkiye's rich tourism potential and the increasing need to develop its tourism sector further, identifying suitable areas and activities for ecotourism in alignment with sustainability principles and the conservation-use balance is critical. In this regard, GIS and RS techniques are indispensable tools, offering significant advantages in spatial analysis, resource assessment, and strategic planning for ecotourism development.

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Chapter 5

PRO-ENVIRONMENTAL BEHAVIOR AMONG YOUNG USERS

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1.INTRODUCTION

The environment can be defined as the totality of physical and social elements in which all living beings exist in order to sustain their lives. The natural components of these elements are humans, animals, plants, soil, etc., while the artificial components can be expressed as buildings, vehicles, roads (UNEP, 2020). The environment we live in shapes our quality of life, health and social relations. The sustainability of the environment affects all our lives and contributes to our well-being. In the current century, the environment is thought of as a set of resources that will continue forever and is wasted. Therefore, it is very important to protect the environment and ensure its continuity. The biggest cause of environmental problems is human beings. For this reason, the creature that needs to take precautions or that will suffer the most from these problems if no precautions are taken will be human. Environmental problems are not individual but universal. For this reason, their effects affect everyone, rich and poor, old and young. It is the duty of all humanity to combat these problems and protect the environment, not a certain segment (Atik and Doğan, 2019). It is necessary to adopt and adopt a sustainable understanding of the world that can be passed on to future generations. For this reason, it is necessary to raise awareness of users about environmental education. In addition to this environmental education, it is aimed to raise individuals with high environmental awareness and positive attitudes towards the environment (Bradley, Waliczek & Zajicek, 1997). The concept of environmentally friendly behavior is formed at this point. so what is environmentally friendly behavior?

2. ENVIRONMENT FRIENDLY BEHAVIOR

Environmentally friendly behavior is defined differently in many different sources. According to UNEP (United Nations Environment Programme), environmentally friendly behavior is defined as users' sustainable environmental behavior by encouraging the conservation of natural resources.

Clayton and Myers (2015), in their study, define environmentally friendly behavior as users maintaining their lives by ensuring sustainability without disturbing the ecological balance. In this definition of behavior, it is mentioned that all of the behaviors and actions that users exhibit to have a sustainable environment are environmentally friendly behaviors. These behaviors are shaped by interest and commitment to the environment. According to Blake (1999), environmental friendliness is the whole of the environmental cognition levels of users and the attitudes and behaviors they exhibit to protect the environment. To summarize the definition of environmentally friendly behavior in the context of literature definitions; it

is a set of behaviors that are interested in environmental problems, take both individual and social actions to protect the environment, follow policies for environmental sustainability and prevent environmental damage. Environmentally friendly behaviors are indicators of environmental awareness. Some of these behaviors are;

- Participating in activities and non-governmental organizations related to environmental protection,
- Using water resources adequately, not wasting water and using products for efficient use of water (Mekonnen and Hoekstra, 2016)
- Use of renewable energy sources and encouragement of users in the surrounding area (Jacobson and Delucchi, 2009).
- Using renewable and environmentally friendly transportation methods instead of environmentally and environmentally damaging transportation methods, using public transportation (buses, bicycles, etc.) instead of individual vehicles (Banister, 2008).
- Using products suitable for recycling and following policies that encourage these products
- Reducing the use of electronic devices, using electronic devices that are less harmful to the environment
- Planting trees, preventing unnecessary tree felling (Yılmaz et al.,2017)
- Use of environmentally friendly products (Cleveland et al., 2012)
- Promoting biodiversity
- Ensuring the sustainability of food, energy and natural resources and exhibiting encouraging attitudes in this regard can be cited as some examples of environmentally friendly behaviors.

When all of these behaviors are considered, it is understood that the purpose of environmentally friendly behaviors is to ensure environmental sustainability and how important these behaviors are to leave a livable world for future generations. There are various demographic, social and psychological factors that affect users' environmentally friendly behaviors. These factors include a sense of environmental awareness (Steg, & Vlek, 2009), the sociodemographic status of users (age, gender, economic status), the attitudes and behaviors of peers (Cialdini & Goldstein, 2004) and family (Kollmuss & Agyeman, 2002), the influence of social media, the availability of suitable physical environments for behavior (e.g. the availability of bicycle paths, recycling and waste bins, etc.). These situations affect our environmental behavior and provide positive or negative guidance.

Environmentally friendly behavior is important for all types of users and should be encouraged, but it is especially important to encourage these behaviors in young users. Because these users are the building blocks of the future. In the rest of the study, the importance of environmentally friendly behavior in young people will be explained.

3. Environmentally Friendly Behavior ın Young Users

The term "youth" is defined as the totality of the stages between adolescence and adulthood. It covers all physiological, psychological and social development of individuals. It is the first period in which we recognize the environment and the attitudes we exhibit towards the environment are shaped. The attitudes exhibited towards the environment in this phase, where our behavioral foundations are formed, help shape the future in a positive way. Young people develop their interest in the environment especially during these periods and start to use these behaviors effectively in their daily lives. In this way, they adopt it as a must-have behavior, not an obligation. In studies on environmental behavior, it has been determined that users who exhibit environmentally friendly behavior are generally educated, high income and young users (Anderson & Cunningham, 1972; Düzenli et al., 2019).

Young users are open to being influenced by societies and shaping their behaviors accordingly. When they gain environmental awareness, they also play an active role in spreading and promoting it due to their peer influence (Cialdini and Goldstein, 2004). In this context, the impact of young users on the adoption of environmental behaviors and their spread to communities is an undeniable fact.

3.1. Factors Affecting Young People's Environmentally Friendly Behaviors

There are many factors that influence young people's environmentally friendly behavior. Understanding these influences is crucial for developing sustainable solutions to shape these behaviors. Some of these factors are;

Education and awareness factor: The aim of environmental education is to provide young people with information about their environment and to create awareness with the information given. It also enables the generation of solution-oriented ideas with the environmental awareness. It has been proven by research that environmental education given in schools increases environmental awareness. In addition, the presence of such education in the school curriculum is a major factor in making environmental awareness widespread. Studies have found that environmental education positively affects the relationship of users with nature and causes them to think that they have obligations to fulfill towards

the environment (Kollmuss & Agyeman, 2002). In addition, it is a fact that young people who participate in environmental education adopt a more sustainable lifestyle on an individual and social scale and show correct environmental behaviors.

Digital Literacy and Social Media factor: Digital literacy is an important factor in the development of environmentally friendly behavior of young people. In this way, young people can easily access information and use platforms such as social media to raise awareness. With the awareness created, information can spread to large masses and contribute to increasing social awareness with environmentally friendly content. In this context, higher digital literacy increases environmentally friendly behavior, especially in Generation Z, which is influenced by environmental knowledge and subjective norms (Ghouse et al., 2024).

Family and social environment factor: Our family plays an important role in shaping our behaviors starting from childhood. For this reason, the behaviors acquired in childhood last a lifetime and our future life is shaped accordingly. The attitude and behaviors of the family about the environment therefore affect the environmentally friendly attitude of young users.

Peer interaction is as effective a factor for young people as the behavioral norms acquired in the family. The behaviors adopted by peer groups about the environment can guide the behaviors of young individuals. Cialdini and Goldstein (2004) tried to explain peer influence by using the concepts of compliance and obedience. According to the study, individuals first observe behaviors and then shape their own behaviors according to their environment. For example, if there are people in one's social environment who develop environmentally friendly behaviors (recycling, use of environmentally friendly products, etc.), the individual may be predisposed to develop these behaviors. In this context, social environment is adopted as an important source of motivation for the individual to perform environmentally friendly behaviors.

Psychological factors: Psychological factors influence pro-environmental behavior by informing about nature, encouraging responsibilities and emotional commitment. The effects of psychological factors on young people include their attitudes, feelings of competence and emotional intelligence. Individuals with high emotional intelligence are more likely to have environmental concerns and this positively influences pro-environmental behavior. (Lisboa et al., 2024). Environmental attitudes and sense of efficacy are also a determining factor among adolescents as much as emotional intelligence. One study found that emotional intelligence factors, especially emotion management and emotion control, are related

to the eco-friendly behavior of young users. In addition, it argues that some aspects of emotional intelligence may regulate the relationship between environmentally friendly attitude and behavior (Alpak et al.,2018; Lisboa et al., 2024). Young people's feeling of competence towards a behavior enables them to adopt this behavior. In this context, the effects of psychological factors on environmentally friendly behavior are undeniable.

When the factors affecting young people's environmentally friendly behaviors are considered as a whole, understanding these effects and trying to eliminate possible negativities will create more environmentally conscious societies, increase the number of individuals showing environmentally friendly behavior and raise more conscious generations.

4.The Impact of Young Users on the Dissemination of Environmentally Friendly Behavior

Young users are both a key point and a major factor in the spread of environmentally friendly behaviors. Young generations have a significant potential to create sustainable consumption habits with their attitudes and behaviors. Young people's potential for environmental sensitivity and their ability to use digital platforms effectively contribute to the development and sustainability of environmentally friendly behavior. Social media is today's most powerful communication tool. Studies conducted on these platforms contribute to the spread of environmentally friendly practices to large masses (Otto et al., 2019). For example, participating in social media applications that promote cycling supports environmental awareness efforts and reduces the negative effects of climate change by reducing the carbon footprint. Young people's effective use of social media mobilizes communities and supports environmentally friendly behavior (Collado et al., 2019).The Fridays for Future movement also demonstrates the power of young people to draw attention to environmental issues. The Fridays for Future movement started in 2018 when a Swedish teenager named Greta Thunberg sat in front of the Swedish Parliament for 3 days to protest the inadequate measures taken against the climate crisis. Greta continued from September 8th until Sweden found a solution in line with the Paris agreement. Greta started this movement alone, but very soon many activists from all over the world supported her movement (Now, 2018). The participation of young people in these actions also accelerates the environmental measures of politicians (Wray-Lake et al., 2010).

It is obvious that the user segment that manufacturers appeal to the most is young people. This is proven by various statistics. Young users tend to shop as active consumers. Looking at global marketing data, 70% of consumption expenditures are made by these age groups. In this context, when environmentally friendly products are preferred by young people, the

environmentally friendly orientation increases and forces manufacturers to produce such products (Krettenauer, 2017). Their participation in green marketing strategies increases the demand for environmentally friendly products by encouraging sustainable consumer actions (Singh et al., 2023).

Young users are a strong determinant of the spread of environmentally friendly behavior. Young people play an active role in the spread of environmentally friendly lifestyle with the advantages provided by the digital world for a sustainable future. In order to use these roles more effectively, it is possible to achieve a sustainable future under the leadership of young users through education and awareness activities.

5. CONCLUSIONS

The basis of environmental problems is human beings and humans will have the greatest responsibility in solving these problems. Today, the increase in environmental problems has made it a necessity to encourage environmentally friendly behavior.

The active role of young people in environmentally friendly behavior emphasizes the importance of these users in adopting environmentally friendly behavior. In the years of adolescence and beyond, when our behavior is shaped, it is important to adopt this understanding and to form habits in order to exhibit it as a form of behavior. Therefore, it is indispensable for young people to adopt environmentally friendly behaviors for a sustainable future. With the ease of access to technology and information, young people see how bad the consequences of environmentally damaging behaviors and attitudes are. For this reason, it draws attention as an effective segment in taking precautions.

The environmentally friendly behavior of young people not only improves their individual quality of life, but also has far-reaching effects at the societal level. In this context, increasing the environmentally friendly behavior of young people will be a major factor in improving the environmental awareness of society and combating global problems such as climate change. Education is of great importance for young people's environmentally friendly behavior. Thanks to the content related to environmental education added to the school curriculum, young people's relationship with nature can be strengthened through experimental learning methods (Tilbury, 2011). At the same time, social media appears as a communication tool used by young people to increase environmental awareness. With social media studies, it is possible to increase digital awareness and integrate recycling and sustainable lifestyles into our lives (Kaplan & Haenlein, 2010). As the environmental awareness of young people increases, they are an age group with a very strong potential to spread it to their environment.

As a result, it is necessary to support the environmentally friendly behaviors of young people and to transform this situation into a social awareness rather than an individual one. Educational institutions and non-governmental organizations should be active in this process and projects and studies should be carried out to encourage environmentally friendly behavior of young people. It is possible to find solutions to environmental problems with studies that can use the potential of young people correctly.

In order to ensure the sustainability of environmentally friendly behavior and turn it into a lifestyle, it should be aimed to ensure the active participation of young people and to turn this participation into a social value. Only in this way can a collective consciousness be created for all users and a more livable world can be built in the future under the leadership of young people.

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Chapter 6

CLIMATE RESILIENT CITIES

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1. Introduction

The climate system has shown a tendency for change throughout its approximately 4.5 billion-year history, from the formation of the Earth to the present, and it continues to do so. This change was primarily driven by natural factors until the Industrial Revolution, but since then, in addition to changes in natural factors, human activities have contributed to a rapid increase in the rate of change (Türkeş et al., 2000). After the Industrial Revolution, the increased use of fossil fuels, deforestation, changes in land use, agricultural activities, and industrialization have led to a rise in greenhouse gas accumulations in the atmosphere, which in turn has caused global temperatures to increase and driven climate changes (DPT, 2000). Climate change, driven by global warming, plays a determining role in environmental factors such as rainfall, sea levels, forest fires, drought, desertification, and erosion, as well as socio-economic and environmental factors such as agricultural production potential and infectious diseases, negatively impacting the sustainable development efforts of countries.

Climate change, which affects both the environmental and socio-economic factors of countries, plays a decisive role in influencing efforts toward sustainable development. In recent years, it has become one of the greatest global issues, impacting nearly every country. To mitigate the effects of this problem and eventually eliminate it over time, countries must take and implement necessary measures both at the national and international levels.

Extreme weather events caused by climate change, such as heavy rainfall, storms, hurricanes, rising sea levels, and heatwaves, pose a threat to the social and biological systems of today and the future. Therefore, while efforts are being made on international and national platforms to mitigate climate change, adaptation strategies aimed at dealing with this issue with minimal damage have become key policies in combating the problem (IPCC, 2007). Since cities are among the areas most affected by climate change, a significant portion of adaptation policies is directed towards urban areas. Cities, which are settlements with a high concentration of various activities, are directly impacted by climate change. The majority of the world's population lives in cities. By 2050, the global population is expected to exceed 9 billion, with approximately 70% of this population living in urban areas (OECD, 2012). Considering these figures, ensuring cities' adaptation to climate change is becoming an increasingly important goal, and many local governments are including adaptation policies in their climate change urban action plans.

Urban residents may face risks such as death, illness, and property loss due to disasters that could arise from climate change. Various factors,

including income level, health, age, and gender, contribute to the vulnerability of urban populations to these risks. The buildings where the population resides and their location are also factors that influence vulnerability; spatial settlement patterns constitute an important factor in the interaction between urbanization, climate-related risks, and vulnerability (Revi et al., 2014). Therefore, urban planning is an essential tool for the implementation of adaptation policies (Bulkeley, 2006; Wilson, 2006; Brown, 2011; Greiving and Fleischhauer, 2012; Picketts et al., 2014; Macintosh et al., 2015). In cities of middle and low-income countries, which are relatively more vulnerable to climate change, urbanization processes are still ongoing, making climate change-oriented urban planning practices even more necessary (Zanon, 2013). However, urban planning processes often focus more on climate change mitigation policies (Wheller, 2008), and adaptation policies are not sufficiently addressed (Sanchez-Rodriguez, 2009). Bulkeley (2006) points out that the integration of spatial planning with climate protection remains mostly at the level of discourse and principles, and there are difficulties in translating these into practice. However, the success of urban planning in adaptation depends on design and implementation (Macintosh et al., 2015). At this point, the process of transforming discourse-level goals into concrete planning decisions becomes crucial. A fundamental challenge for local actors is understanding the future risks of climate change and identifying the causes of urban vulnerability (Hallagette et al., 2008).

In other words, how will the integration of adaptation and urban planning be achieved, and what planning decisions will aim to enhance urban resilience to climate change? Undoubtedly, the answers to these questions are expected to vary depending on the local climatic characteristics, geographical locations, the ways in which they are affected by climate change, and finally, the spatial development patterns and features of the urban settlements in question. The aim of this article is to identify areas at risk of loss of life and property due to hazards arising from climate change, specifically due to the spatial characteristics of the built environment. The approach and results presented are intended to provide a preliminary study for generating future adaptation-focused urban planning decisions that will create more resilient spaces against floods, inundation, and waterlogging disasters.

2. The Concept of Climate Change

Climate is defined as the average weather conditions observed in a specific region over a period of time, which the World Meteorological Organization (WMO) has set as a minimum of 30 years (IPCC, 2007a: 96; Pittock, 2005; Thorpe, 2005). Climate change, which is seen as deviations from the average of climate events, first emerged as a political (Paterson and Grubb, 1992) and economic issue at the end of 1988 with the establishment

of the Intergovernmental Panel on Climate Change (IPCC). Over the past two decades, the concept of climate change has been defined in various ways in the literature. In the broadest sense, climate change is defined as the long-term changes in climate conditions or climate values, which can generally be detected using static tests. It has been determined that climate change results not only from natural causes over time but also as a consequence of human activities. Following this finding, the concept of climate change began to be defined, within the framework of the United Nations (UN) Climate Change Conference, as a situation arising from the alteration of the composition of the global atmosphere due to human activities, either directly or indirectly, alongside natural climate changes observed over a period of time (IPCC, 2007b).

The concept of climate change first entered the literature in the mid-19th century when the Nobel Prize-winning Swedish chemist Svante A. Arrhenius realized that even small changes in atmospheric carbon dioxide could increase surface temperatures and alter climates. However, the first systematic efforts to study the issue began in 1958 with the observation of carbon dioxide levels in the atmosphere. These studies revealed that changes in climate became clearly noticeable for the first time after the Industrial Revolution, as a result of factors such as the burning of fossil fuels, deforestation, changes in land use, the increased use of machinery in the agricultural sector, and the changing production patterns associated with industrialization. The warming of global surface temperatures, which began in the late 19th century, became more pronounced after the 1980s, influenced by these factors. A clear example of this is 1998, which was the hottest year since 1860, both globally and in terms of average temperatures in the Northern and Southern Hemispheres (Appenzeller and Dimick, 2009). Geological records are the most significant evidence of this change from the past to the present (NOAA National Weather Service, 2007). If the necessary measures are not taken, climate change will become one of the most prominent concepts of the coming century, in terms of the areas it affects.

3. Causes of Climate Change

Since the Industrial Revolution, various reasons have been proposed by different environmental groups to explain the changes in climate. Although not all of these reasons are fully understood, they all have varying degrees of impact on climate change. While the causes of climate change are attributed to different factors, scientists have reached a consensus that, from the Industrial Revolution to the present, climate change has been driven by human activities (Leggett, 2007). After the Industrial Revolution, factors such as increased fossil fuel use, industrialization, deforestation, land use changes (Justus and Fletcher, 2006), the intensification of electricity

generation and transportation (Sommer, 2009), urbanization, agricultural activities, and changes in daily life and work have been identified as the main causes of climate change (Karl and Trenberth, 2003).

The increase in these factors contributing to climate change, particularly after the Industrial Revolution due to human activities, has led to an increase in the greenhouse effect, as well as the emission of greenhouse gases (H_2O, CO_2, CH_4, N_2O, and O_3), especially CO_2. However, water vapor differs from other greenhouse gases in that it is a variable that is fixed according to the intensity of solar radiation and the average temperature of the planet, making it have a passive effect on global warming (Appenzeller and Dimick, 2009). Some greenhouse gases that actively contribute to climate change have shown significant increases from the Industrial Revolution to the present. Specifically, CO_2 has increased by 35% (from 280 ppm[2] to 378 ppm), methane by 152% (from 700 ppb[3] to 1766 ppb), and nitrous oxide by 17% (from 270 ppb to 317 ppb) (Justus and Fletcher, 2006). These changes in the volume of greenhouse gas emissions have led to alterations in the chemical properties of the atmosphere, causing global temperatures to rise, which in turn has contributed to climate change (Türkeş et al., 2000). Among the most significant greenhouse gases, CO_2, which plays a major role in climate change, is predicted to experience a rapid increase in emissions globally during the 2000s (Doğan, 2005).

With the Industrial Revolution, for the first time in developed countries, carbon dioxide emissions increased due to changes in the production structure caused by industrialization. Today, it is observed that these emission volumes have undergone a structural transformation. Along with this change, CO_2 emissions are now increasing most significantly in developing countries. This trend is expected to continue until 2030 (World Bank, 2007). In the OECD countries, little change is expected in CO_2 emissions until 2030, while a slight decrease is anticipated in the emissions of transition economies. These increases in greenhouse gas concentrations weaken the Earth's cooling effect through long-wave radiation, leading to a positive radiative forcing that tends to warm the Earth. This positive contribution to the energy balance of the Earth/atmosphere system is known as the enhanced greenhouse effect. The magnitude of global warming that could result from the increased greenhouse effect depends on the extent of the increase in each greenhouse gas's concentration, the radiative properties of these gases, their atmospheric lifetimes, and the concentrations of other greenhouse gases in the atmosphere (Türkeş et al., 2000). The effects of climate change on rural and urban areas as a result of various factors are shown in Figure 1 (IPCC, 2007; Onur, 2014).

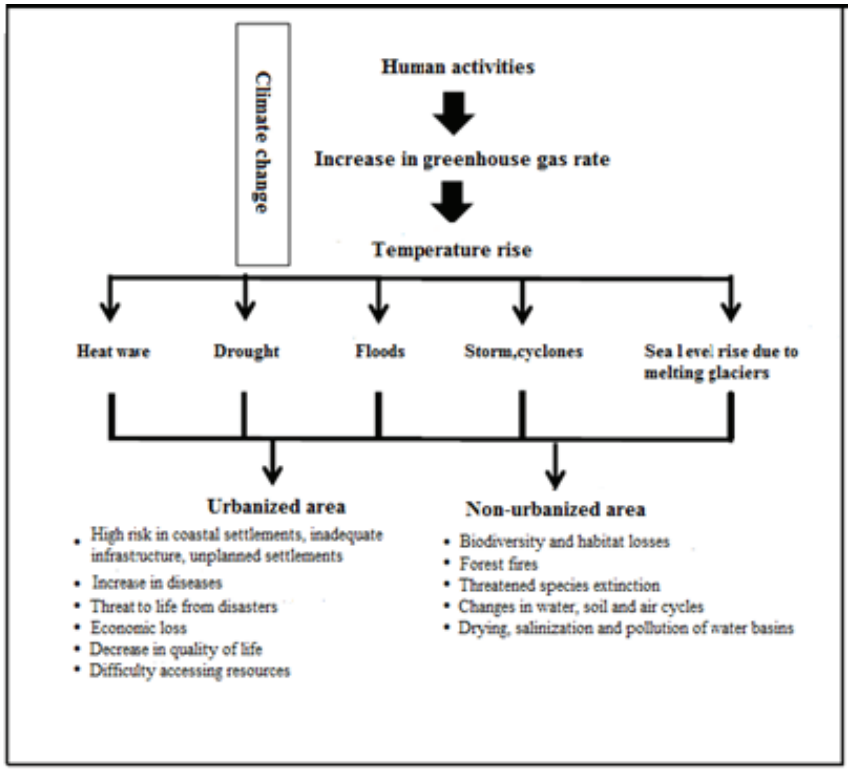

Figure 1: *General impacts of climate change and its effects on urban and non-urban areas, (IPCC, 2007; Onur, 2014).*

4. Definition of the Concept of Resilience

The concept of "resilience" entered the literature through C. S. Holling's (1973) research on "ecological systems." In its early usage, the concept referred to the theoretical approach of "modeling change" in order to maintain the structure and function of an ecological system, enabling it to preserve its order and stability in the face of disturbances. This concept was linked to the theoretical development of "the stability of ecological systems" discussed in the 1960s, suggesting that the resilience and stability of systems would ensure their equilibrium (Folke, 2006).

Understanding the system and identifying relationships and thresholds are based on cumulative knowledge. "Cumulative scientific and experiential knowledge about natural, affected, and managed ecological systems defines the key structural and functional characteristics of complex ecological systems" (Holling et al., 1995). In understanding this complex system and defining cumulative knowledge, Holling, who also defines spatial, temporal, and social dimensions, introduced the concept of "resilience

engineering" in 1996, proposing that the resilience of ecological systems could be mathematically modeled. Resilience engineering, based on the approach of modeling change, represents the first phase in the development of the concept and aims to maintain the system in balance by preserving its current characteristics.

With its developments, the concept, while initially referring to achieving equilibrium, has expanded to include the ability to manage changes, remain prepared and stable in the face of uncertainties, be flexible in response to impacts, and adapt to new systems and conditions (Folke, 2006; Adger, 2000). Along with this development, in ecological sustainability research, the approach of ensuring the stability of ecological systems to achieve maximum benefit and securing social and economic sustainability has been adopted as a key strategy for promoting resilience (Folke and Berkes, 2004).

With Holling's work, discussions on resilience began to expand beyond ecological system research into other fields of social sciences, particularly sociological and anthropological studies (research on human-environment interactions) (Folke, 2006). With these developments, the meanings associated with the concept of resilience have diversified. However, the systemic thinking defined by Holling, with its core approach of maintaining balance and stability in response to impacts, is used across various scientific disciplines, including biology, economics, sociology, and anthropology, even though it is applied to different subjects and systems (Folke, 2006).

The concept of resilience is generally used to describe a system's ability to understand its current values, challenges, and potentials, predict potential future problems, and be prepared for uncertainties or adapt to a new system. The primary research areas where the concept of resilience has spread include: the sustainability of ecological systems and biodiversity, climate change, risk management, and the resilience of social structures.

5. Definition and Scope of Urban Resilience

Cities, with their built and natural environments, can be defined as complex systems that are continuously undergoing change and development, dominated by social, economic, and political dynamics. On one hand, the urbanization process, supported by technological advancements, accelerates urban economic growth and spatial development, while on the other hand, risks, uncertainties, and crises also increase. Therefore, the concept of urban resilience takes on a meaning similar to its use in ecological systems, but it represents a more complex system that refers to urban and regional policy-making (Quay, 2004).

Cities are constantly confronted with various problems arising from the changing spatial and temporal characteristics, intensities, and forms of increasing risks, disasters, and crises (Medd and Marvin, 2005). This variability produces numerous and complex answers to the question of what cities should be resilient to. Examples of these issues include terrorism at various scales, the loss of cultural heritage and biodiversity, the disappearance of agricultural production and lands, lack of access to clean food and water, natural disasters such as floods, earthquakes, and droughts, global economic crises, and similar concerns. Therefore, in order to define the resilience a city will develop in response to these challenges, it is necessary to thoroughly understand and define the bundle of issues at hand (Walker, 2006). Furthermore, within the framework of sustainability, cities must be able to structurally and functionally maintain their social, economic, and ecological values despite the challenges they face and transmit those values to future generations. To achieve this goal, cities need to manage their resources effectively, meaning they must be resilient, flexible, and adaptable in the face of uncertainties, risks, and crises. This condition is encapsulated in the concept of resilience, where the sustainable use of ecological services, the application of local knowledge and experience, the ability to assess risks and uncertainties in socio-ecological systems, and the adaptation of planning disciplines to these conditions collectively define the approach to urban resilience (Picketts et al., 2004).

Since resilience assessment varies depending on the area in question, the structural (social-economic-ecological) elements of the area, the problems these elements face, and the significance of these problems, urban resilience research topics also exhibit diversity (Walker, 2006). In the literature review conducted to define urban resilience, the issues addressed by the concept and how resilient cities are defined in the face of these issues have been examined. Based on the findings, generalizations will be made to define the concept of urban resilience. In this way, complex and comprehensive research will be simplified, and the concept of urban resilience will be expressed concretely.

The resilience of the morphology of built and unbuilt environments in urban and rural areas to climate change depends on the adaptation decisions and practices implemented in these regions. In this context, coastal infrastructure applications aimed at enhancing the resilience and adaptability of coastal settlements are becoming increasingly significant (Cengiz et al. 2022).

The research topics expressing urban resilience are grouped under three main headings.

· The first is achieving urban resilience by ensuring the resilience of ecosystems affected by urban development and sprawl. The sustainability of the urban socio-economic system is dependent on ecological resources, and the stability of these resources ensures that cities can exist in an orderly and stable manner.

· The second is achieving urban resilience by more effectively managing the risks arising from technological and natural hazards in urban areas. Disasters caused by natural hazards and civil disorder, such as terrorism, which overlap with existing social, economic, and ecological vulnerabilities in cities, lead to significant destruction and losses. To avoid such destruction and losses, cities must address their vulnerabilities in physical and social structures and be equipped with an organizational framework that allows them to be prepared for uncertainties.

· The third and final topic is social resilience. Social resilience refers to strengthening the weaknesses of each individual and the social whole, starting from the family, in order to make society resilient to socio-economic uncertainties, risks, and disasters. This approach aims to ensure that individuals can remain strong without being vulnerable or blocked by risks such as poverty, cultural heritage loss, social disintegration, low standards of living, pandemics, wars, terrorism, and natural disasters, by establishing strong social networks and keeping learning pathways open (Mullin and Arce, 2009). Moreover, in determining the scope of the concept, it is important to recognize that urban issues are interconnected, complex, and multi-dimensional. The discussion on urban resilience policies should begin with the identification of these problem clusters. It should also be remembered that these discussions can be divided into two categories: one focusing on resilience as a force that prevents changes, and the other on flexibility that enables adaptation to a new system (Folke, 2006).

6. Resilience of cities to climate impacts

As local governments determined to combat climate change and build resilient cities, it is recommended that concrete steps be taken under the following headings with the help of our citizens and NGOs in the field of sustainable environmental policies: (Turkey's 6th National Communication on Climate Change, 2016).

· **Environmental Policies**:

I.Solid waste management, recycling, and waste reduction should be promoted. Waste bins that are compatible with the city's environment and landscape should be provided, and waste should be collected at designated times. The separation and collection of urban waste and special waste should be encouraged, and projects should be developed to

expand this practice. Both recycling and cleanliness should be ensured by separately collecting waste such as paper, glass, cardboard, plastic bottles, and food waste. Janitors and building staff should be trained, and color-coded trash bags and containers, as defined in the Ministry's 'Zero Waste Management Plan', should be placed in buildings.

II. Clean water is often unnecessarily wasted. Household waste oils are still being poured down drains. Awareness campaigns should be organized on these issues.

III. The quality of air, water, and soil should be monitored and documented to ensure that they meet the parameters defined in legal regulations.

IV. The production of industrial and household compost should be encouraged and expanded, thereby establishing the infrastructure for methane gas utilization.

V. Projects should be developed to promote energy savings through the use of alternative energy sources (renewable energy, green hydrogen, mini-hydropower plants).

· **Infrastructure Policies:**

I. Water leakage in cities should be prevented, and the sewage system should be made sufficient.

II. Wastewater should be treated, and solid waste processing and disposal facilities should be established to prevent environmental damage. Planning and implementation for the separate collection of solid waste should be carried out.

III. Applications should be made for the use of clean and renewable energy sources.

IV. Plans and/or studies on cultural and historical values should be made for the rehabilitation and improvement of historical centers.

V. A new plan should be created for sustainable transportation, with a focus on pedestrian and human-centered approaches. Plans for safe transportation and traffic should also be developed.

VI. Transport planning should prioritize infrastructure for more efficient public transportation, walking, and cycling access. Bicycle paths and bike parks connecting schools and public buildings should be created to encourage use and reduce traffic.

VII. Alternative transportation systems should be developed instead of private vehicles. Plans should be made to integrate private vehicle traffic with public transportation systems and pedestrian areas

(e.g., additional urban parking spaces connected to public transport systems, escalators, moving walkways, cable cars, bike lanes, pedestrian routes providing access to schools, workplaces, and similar areas).

VIII. Public and publicly accessible areas should be made accessible to people with disabilities, architectural barriers should be removed, and infrastructure that enables access to technologies should be promoted.

IX. Programs that support family life and local activities (such as entertainment, sports activities, activities aimed at strengthening the bond between schools and families, support for elderly and chronically ill individuals including home assistance, social facilities, regulation of municipal working hours, public toilets) should be encouraged.

X. The availability of medical aid centers should be assessed and increased where necessary.

XI. The availability of qualified green spaces and service infrastructure (such as connections between green spaces, playgrounds, etc.) should be evaluated and increased. Every tree in the city should be counted, and historical trees should be protected.

XII. A plan should be developed for the distribution of commercial goods and the establishment of "commercial centers for natural products." Leadership should be provided to create an Organic Market in the city.

XIII. Priority should be given to improving projects aimed at reusing deteriorating and dysfunctional urban areas.

XIV. Land use planning should focus on creating more green spaces. Public and private areas should be landscaped with environmentally compatible plants, preferably local plants in line with garden landscaping criteria.

In developed countries, regional and local governments are increasingly playing a significant role in both combating climate change and preparing for the impacts of climate change, such as floods, extreme heat, and droughts, by utilizing all available resources. According to the "carbon reduction scenarios" study conducted by Haringey Council in North London, 50% of CO_2 emissions in the region come from residential buildings, 18% from transportation, and the rest from fossil fuel-based energy used in industry and workplaces. Based on the findings of this study, the council has carried out a wide-ranging program of action, including reducing energy consumption in residential buildings and workplaces under its responsibility, raising public awareness about climate change, and

developing transportation policies as alternatives to motor vehicles. One of the main goals of Haringey Council is to minimize energy consumption through urban planning and to implement renewable energy sources in large-scale housing projects and urban transformation initiatives.

In Turkey, significant steps are also being taken towards creating resilient cities. As outlined in the Ministry of Environment and Urbanization's Climate Change Action Plan (İDEP) document for 2011-2023 (URL-1), various measures have been planned nationwide. Additionally, municipalities that have prepared local climate change action plans have first conducted inventories and then implemented measures based on these inventories to enhance the cities' resilience to climate change. In this context, Gaziantep Metropolitan Municipality became the first municipality in Turkey to prepare a Climate Change Action Plan in 2011. Antalya, with its alternative tourism potential, improved water supply and sewage facilities, and transition to natural gas as the main heating source, is one of the examples cited in OECD reports as a resilient city (URL-2). Bursa has also made significant efforts to become resilient to climate change. In Bursa, the urban greenhouse gas inventory was calculated, and a total of 12.8 million tons of CO2e emissions were determined by calculating emissions under various categories. The "Bursa Climate Change Action Plan" was prepared based on these figures, setting targets and actions for emission reduction by 2030 compared to the year 2014 (URL-3).

Conclusion

Recent extreme weather events, such as floods, erosion, heatwaves, and droughts, which have occurred in many parts of the world, including our country, are bringing climate change—the source of these issues—to the forefront of global agendas. Climate change is one of the most significant problems of today, negatively affecting all areas of life, including the natural environment, urban life, development and the economy, technology, human rights, agriculture and food, clean water, and health. The increase in the use of fossil fuels since the Industrial Revolution, deforestation, changes in land use, industrial processes, rapid population growth, and human activities have led to the accumulation of greenhouse gases in the atmosphere, accelerating global warming and making climate change one of the most critical threats to human life. Beyond being an environmental issue on a global scale, climate change is now scientifically proven to continue affecting the world in the long term. In the coming decades, the planet will face rising temperatures and changes in rainfall patterns.

Cities are the human settlements most affected by the negative impacts of climate change. Therefore, a significant portion of adaptation policies aimed at combating climate change has been directed towards cities. In

line with this, developing adaptation-focused urban planning processes has become one of the key strategies. People living in cities may face risks such as death, illness, and property loss due to disasters that may arise from climate change.

The assessment of urban resilience primarily requires the identification of the issues or urban vulnerabilities that are the focus of resilience. Murat Balamir defines urban vulnerabilities as follows: "Urban vulnerability refers to a situation where populations or assets located in certain areas or risk sectors of a city are exposed to threats from known hazards and experience inadequacies in taking preventive measures. These vulnerabilities can be physical, such as improper neighborhood layouts, excessive densities, poor location choices, and inadequate urban green spaces in the face of urban hazards; social and governance-related, such as insufficient information, prioritization issues, management practices that ignore risks, and the ownership of many soft spots; or economic, such as weaknesses in security due to the inability to take measures like reinforcement or insurance." (Balamir, 2011). Urban green areas play an important role in ensuring and protecting urban biodiversity. Urban green areas also have a significant role in facilitating human-nature interaction, improving the urban climate, and adapting to climate change (Cengiz 2013; Cengiz et al. 2014; Cengiz et al. 2021).

For cities to use their natural resources with maximum benefit and minimal harm, it is essential that they ensure the sustainability of ecosystem services at all scales, from global to local (Ndubisi, 2002). To achieve this, the legal framework used in urban planning and the land use decisions made are intended to prevent any external impact on natural resources. This can be likened to keeping natural resources as sterile as possible. However, in practice, due to management inefficiencies or incorrect decisions made, natural resources are often observed to be increasingly degraded. To sustain ecosystem services, the methods and tools developed by resilience theory provide an approach to urban and regional planning by addressing the identification of natural resources, determining their vulnerabilities and potentials, understanding how issues and changes occur, and ensuring management at every scale.

Additionally, it is believed that the concept of urban resilience, due to its integrative nature, systemic thinking approach, focus on definition and scenario development, and support for governance, closely resembles strategic development planning.

The strategies developed for ensuring urban resilience emphasize spatial, social, and economic structures, as well as other urban development elements such as institutional, sectoral, and legal frameworks. Furthermore,

urban design plays a key role in ensuring that the built physical environment can be constructed in harmony with social and ecological values. Additionally, a resilient and flexible governance approach, which aims to organize and facilitate the processes of knowledge, experience, and learning, can generate sustainable solutions for managing design and planning processes. For these reasons, ensuring urban resilience becomes, in essence, a matter of "urban planning."

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