Landscape Planning and Design Approaches for Ecologically Sustainable Cities

ABSTRACT

Rapidly increasing urbanization trends at the global level increase the interest in sustainable urban life, while also revealing their effects on ecological balance more clearly. In particular, increasing urban areas create negative effects on ecosystems and quality of life through factors such as increasing air temperatures and changing precipitation patterns. This rapid urbanization process negatively affects the natural ecosystems in urban areas, ecosystems are fragmented, deteriorated and even face the danger of complete extinction. For this reason, the development of planning methods to preserve ecological balance has become a great necessity. These planning approaches are seen as the cornerstones of building sustainable cities. Factors such as spatial diversity and temperature variations play a vital role in understanding ecological processes. In this context, although studies on the design and maintenance of sustainable urban landscapes continue, more effective strategies are needed to ensure the sustainability of these landscapes in the long term. Many innovative ideas regarding urban landscape planning and design have been developed in recent years. However, there has been limited success in applicability of these ideas from a sustainability perspective. Sustainable landscape planning and design helps improve environmental quality and multiply social benefits through the integration of various materials and methods in the creation, construction and management of urban areas. Sustainability-focused approaches to landscape planning and design include restoration and enhancement of natural systems, sustainable management of resources, efficient use of water and energy, and protection of external environmental quality. The aim of this study is to discuss new strategies at the urban level. In this way, it is aimed to take ecosystem protection measures in urban areas, create livable environments and achieve sustainability goals more effectively.

Key Words- Urban, Ecological, Sustainable, Landscape Planning, Landscape Design

1. INTRODUCTION

While rapid urbanization increases interest in the sustainability of cities all over the world, the effects of urbanization movements on ecological processes, some of which are concrete, such as increased urban air temperature and changes in the water cycle, continue. From a formal perspective, urbanization creates urban environments that are more heterogeneous in content, more geometrically complex, and more ecologically fragmented, resulting in highly complex vegetation and diverse land uses for entire urban landscapes. In this context, the effects of spatial heterogeneity and spatial temperature changes, which are extremely important for understanding ecological processes, are being understood more and more every day. In this regard, while efforts to create sustainable urban landscapes continue, more effective strategies need to be developed to ensure the continuity of these landscapes.

Urban landscape planning and design studies, which provide multifaceted contributions to urban sustainability, on the one hand, ensure the continuity of local, natural processes, on the other hand, create areas for social communication and interaction between individuals belonging to different social classes and cultural groups, and in this respect, they enable the interaction of natural and social processes to be aesthetically pleasing. expresses as. Although many ideas have been developed in recent years regarding these contributions to urban landscape planning and design, little success has been achieved in implementing them within the scope of sustainability.

Sustainable landscape planning and design combines various materials and methods in the design, construction and management of urban areas, contributing to the improvement of environmental quality and the realization of different social benefits. The areas of interest in landscape planning and design for sustainability include the development and restoration of natural systems, sustainable management of resources, efficient use of water and energy, and protection of external environmental quality. The aim of this research is to discuss new strategies on an urban scale.

2. LITERATURE REVIEW

2.1. Urban Ecology and Sustainability

Numerous studies emphasize that cities are products that result from a mixture of social and engineering efforts (Cadenasso and Pickett, 2008; Shakouri, 2016). However, due to the human-centered planning and design approach, various natural and ecological processes have been set aside from the inception of this invention to its evolution. This trend is not specific to urban areas in developing countries; It is possible to see examples of this in many developed countries. As a result, preserving ecological elements in urban environments was seen as a luxury for a long time. As a result, the concept of ecological values and their conservation has been predominantly associated with protected areas outside urban environments (Schäffler & Swilling, 2013; Shakouri, 2016). Essentially, vital elements such as ecological services, which are vital in maintaining ecological balance, have been ignored during urban planning stages. Cities operate as ecosystems due to the complex interaction between their biological and physical components. Urban areas include a variety of organisms, including humans, as well as physical regulators such as air, soil, water, light, temperature and diurnal variations (Ahern, 2005). The field of "urban ecology" or "urban ecosystem" delves into the study of urban ecosystems. Urban ecology is equally qualified to study the flow of matter and energy in the built environment.

In the contemporary context, urban ecology is gaining renewed importance and can be defined as "the study of the impact of human activities in cities on natural resources and the environment, taking into account the conditions of urban development, including biodiversity and local and public well-being." global communities, including future generations" (Tjallingii, 1994; Fermuarer et al., 2000; Andersson, 2006). In urban environments where ecological dynamics are ignored, climate and soil transformations are experienced due to the gradual decrease of natural areas, which leads to housing, industry and It leads to the formation of an artificial living environment polluted by pollutants originating from vehicle sources. As a result, an artificial "Urban Ecosystem and Climate" is taking shape in cities. Recently, terms such as "sustainability", "energy efficient planning", "ecological design" and "green building design" are used. It has become a common language in disciplines such as landscape architecture and architecture. These concepts, which form the basis of the optimal use of natural resources in spatial planning and design, are based on the search for the maintenance of both economic and ecological advantages (Barış, 2008). From a designer's perspective, sustainability, in short and concise It can be defined as increasing the quality of social life without exceeding the carrying capacity of global ecosystems on both urban and architectural scales (Atıl et al., 2005). It embodies a fundamental principle that aims to increase efficiency by foreseeing the uninterrupted continuity of functions in any social, economic or ecological system, without depleting the resources used. Landscape planning, on the other hand, tries to establish a harmonious balance between human-nature interactions by focusing on both conservation and use. The lack of planning practices that analyze and evaluate these interactions is a significant catalyst for environmental challenges. As a result, understanding the complex relationship between humans and nature is vital to tackling these complexities and charting a sustainable path forward.

The sustainability of cities equals the sustainability of societies. Human communities both influence and are affected by the environment in which they live. Ensuring the sustainability of the city means improving the lives of current and future residents while protecting the environment. In this quest, the sustainability of urban development must proceed in parallel with social progress. Sustainable cities represent places where socio-economic interests harmoniously coincide with environmental and energy considerations, thus enabling a continuous process of transformation. The convergence between sustainable urban development and sustainable social development is clearly visible in their definitions. “Sustainable social development involves making development decisions while maintaining the interconnectedness of the three ‘E’s” (economy, ecology and equity)” (Atıl et al., 2005). This underlines the vital link between holistic social

progress and balanced management of the environment, a fundamental principle for the sustainable development of cities.

2.2. The Case of Sustainable Urbanization

Sustainable urbanization first appeared in scientific literature in the 19th century. Arthur Young drew attention to the sustainability of agricultural production in his book "A General View of the Agriculture of Hertfordshire" in 1804. This is an example of the relationship between agriculture and sustainability. However, the main target of the concept of sustainable development is not cities. Sustainability focuses on reducing environmental problems caused by economic and technological progress and protecting the ecosystem. Sustainable urbanization represents the combination of these two concepts and is a more recently developed concept. The term sustainable urbanization or sustainable human settlements is not fully defined. However, environmental, economic, political, social, demographic, institutional and cultural goals, which are the components of sustainable development, constitute the basic parts of sustainable urbanization. In this context, it is possible to define sustainable urbanization as "ensuring the development of cities that respond to human needs better than today's cities, without preventing future generations from meeting their needs" (Bozloğan, 2004).

The main purpose of sustainable development is to meet human needs, taking into account the environmental dimension. This requires an effective corporate management and planning approach. Sustainable urbanization results from factors such as the contribution of cities to social and economic development, the fact that a large part of the population lives in cities, and the provision of housing, employment and services. However, it is also seen that rapidly growing cities cause environmental degradation. Therefore, the indispensable elements of sustainable urbanization include ecological balance, land use, transportation, natural environment, employment, public services and social welfare. As a result, the concept of sustainable urbanization shapes the future of human settlements by bringing together environmental, economic and social dimensions. This concept connects cities and rural areas, ensuring a harmonious balance between people and nature. Alternative urban models such as ecological cities are also important steps towards sustainable urbanization goals (Tosun, 2017).

2.3. Ecological Planning and Its Effect on the Sustainability of Cities

Ecological planning represents an approach in which socio-economic development goals are aligned with natural systems, ensuring the optimization of long-term economic gains. A comprehensive examination of environmental, natural and cultural values is required to achieve sustainability through responsible sourcing, which is a vital prerequisite. These evaluations integrated into evaluation procedures prevent depletion by facilitating the sustainable use of resources (Atıl et al., 2005). Ecological planning forms the basis for competent management of these resources by bridging the spatial planning process, which focuses mainly on land use, and the assessment of the impact of natural resources (Çelikyay, 2006).

Ecological planning aims to control human pressure on the conservation and sustainability of natural resources (Nuissl et al., 2009). For this reason, reducing the negative effects of rapid urbanization, protecting ecosystem integrity and ensuring the controlled growth of cities are important problems that the ecological planning approach deals with (Makhzoumi and Pungetti, 2003; Cortinovis et al., 2018; Oktay 2021). In order to overcome these problems, strategies are being developed to direct urban development and maintain the functioning of the ecosystem in urban areas within the scope of correct land use planning. From an ecological approach, cities are cultural ecosystems where living organisms and non-living environments living in a certain region and constantly interacting with each other form a whole. For this reason, cities must be in harmony with other ecosystems around them and at least not harm them. However, cultural ecosystems

have quite different aspects from other ecosystems. The carrying capacity, which is fixed in natural ecosystems, can be increased in cultural ecosystems thanks to technology. This variable structure causes various problems by placing additional burdens on the ecosystem and other ecosystems around it. However, the definition of environment should not only be understood as natural structure. The environment includes everything living and nonliving and includes biophysical and sociocultural elements. The first covers the biological and physical aspects of man, and the second covers man's economic, political and intellectual activities. These two elements are interrelated and inseparable (Atıl et al., 2005).

The Brundtland report and the debates that followed expanded the perspective of the environment beyond simply being a repository of resources to be protected. Being aware of its psycho-social effects, the environment significantly affects social welfare and even appears as an economic criterion. This recognition intertwines ecological principles with the ethos of sustainable development. Therefore, "ecological planning" can be perceived as the ecological aspect of sustainable development. The convergence of ecological discourse and sustainable development underlines the concept of environmentally sensitive planning. The intersection of environmental challenges and degradation in communities and their environments creates socio-economic problems that require solutions under the umbrella of sustainability. Consequently, addressing these concerns is consistent with the principles of sustainable development, which encompasses the complex relationship between ecological, social and economic dimensions.

The ecological planning framework envisages mitigating environmental challenges in advance by arranging living spaces in accordance with these goals. This approach requires the identification of local natural resources and their careful allocation, taking into account their different qualities. The focus is not to subject resources to unnecessary stress through planning, but rather to protect them from harm resulting from use by creating strategies that are compatible with the characteristics of each resource. Ecological planning operates as a comprehensive, integrated system in which analysis extends beyond individual local activities to the cumulative effects of clusters of uses at larger scales, resulting in informed land use decisions. In this framework, all natural, artificial and social dimensions of resources are taken into account. While renewable resources are used in accordance with their renewal potential, non-renewable resources adhere to the principle of substitution. The first principle revolves around accurately assessing the inventory of potential resources. This method facilitates a comprehensive description of natural resources and thus enables the determination of their appropriate use. The next stage requires examining the nature or intended use of users. Reasonable land use choices are made through consideration of social, economic, psychological and ecological goals. The result of such meticulously prepared ecological planning is to provide appropriate applications to the target areas, while at the same time protecting the natural environment and providing optimum benefit from these compatible uses. This process transcends the mere link between economy and ecology and catalyzes positive effects on users' psychological tendencies. As activities occur in compatible areas, the natural texture becomes permanent and results in achieving the desired socio-economic criteria (Atıl et al., 2005). Through the harmonization of ecological, social and economic dynamics, a holistic balance is established and a symbiotic relationship is nurtured between human efforts and the environment.

2.4. Planning and Landscaping with an Ecological Approach

The production of a livable environment and the reconsideration of the human-nature relationship in urban areas with the concepts of ecological approach and sustainability have made the Landscape discipline an indispensable element. The words lantscaf, meaning region, area and land in German in the Middle Ages, and paysage, meaning landscape in French, are the origins of the word Landscape that we use today. Landscape is the whole of ecosystems formed by abiotic, biotic and cultural components. Therefore, taking these components into account, Landscape architects undertake 4 tasks: Design, Planning, Restoration and Protection and Management. The European Landscape Convention, which was opened for signature in

Florence in 2000 and accepted by the European Parliament in 2004, aims to take policies and measures by international and national authorities in line with three objectives: landscape protection, landscape management and landscape planning (Council, 2000). ; Çetinkaya and Uzun, 2014).

The fact that cities are "an ecosystem formed by biological and socio-cultural elements that are externally dependent in terms of resources" requires holistic action. The loss of natural areas accelerated with the industrial revolution and aesthetic and welfare-oriented solution approaches ignored natural processes and ecological structure (Onur, 2012). While seeking solutions to the changing needs of cities through ecological approach planning, the idea that "urban green areas to be managed will not only undertake the mission of creating a healthy environment for the sustainable city target, but will also make positive contributions to the economy" has been adopted. "The social and cultural structure of the city" has been adopted (Onur, 2012).

However, point interventions that partially benefited urban green space production in the 19th century and the beginning of the 20th century fell far away from the sustainable city target. In order to protect and sustain the diversity of life, it is necessary to create living corridors. This situation, considered as green infrastructure, is a set of landscape elements that provide many benefits such as ensuring the continuity of natural flow in cities, protecting native species, protecting natural resources, and increasing people's quality of life. Ecological balance in cities is supported by the relationship between natural habitats and open and green spaces. Ensuring this relationship depends on the green infrastructure system, which is called differently in many countries such as green surge, green belt, ecological network. Green infrastructure systems in planning led by landscape disciplines play an important role in sustainable urban goals. Associating natural habitats with open and green areas and creating green corridors are preventive elements in terms of ecological balance. The ecological approach, together with the green infrastructure system, ensures that precautions are taken against environmental and social damage in cities, preventing greater costs and providing an economical approach. It includes many elements such as forests, wetlands, rivers, valleys, agricultural activity areas, parks and gardens within the city. This system, which spreads throughout the city, reduces the impact of carbon emissions that cause climate change in the city and strengthens itself in self-renewal. More importantly, it reestablishes the relationship between humans and nature and makes nature more accessible. It contributes greatly to pedestrian movement in the city and creates meeting places (Başaran, 2018).

3. METHADOLOGY

In this study, the literature review method was used as a method. With this method, the subject is written in a compilation method with information collected from different sources.

4. RESULTS

4.1. Ecological Planning and Design Approach

It is possible to say that the new vision of the current historical process, generally defined as the "Ecological Age", reflected in many fields of action, is a part of the postmodern thought that was emphasized to have started in the 1970s. It represents a new era after modernism. Changing views on space planning and design can also be associated with this new vision (Şahin, 2003).

Modernist urban plans are based on a strict separation of the various uses in the city. Modernist planning's view of the city clearly reflects modernism's view of space. According to this view, space is a by-product of social relations and a phenomenon that must be shaped according to social purposes. Therefore, urban space

only gains meaning within a specific social project. In modern thought, planning means rationality and conceptual purposiveness that brings order to disorder, organizing chance and contingency into a humanly meaningful design. It has been understood that these tools, which aim to bring order, cannot solve the problems that are expected to be solved within the framework of the world view dominated by modernism and bring with them many more problems. Although there are various reasons for this, an ecologically important aspect is the tendency to see nature and the elements within it as "other". While modernism tended to dominate nature, the classical economic views developed in this period treated nature with a utilitarian approach. Today, a radical change needs to be made in the understanding of landscape planning and design (Şahin, 2003).

The essence of this change, in terms of "ecological concerns", is "the perception that nature has an inherent value". This is the basis of ecological discourse. To put it more clearly, it is insufficient to value a tree only for the benefit of its shade or wood. Beyond that, that tree has an existential value that is far from human projection, and this is important. The reflection of this in planning and design creates an action area that takes into account ecological values, components and processes in time and space.

Social dissemination of the results obtained from actions involving ecological planning and design is of great importance in the field of planning and design. Essentially, if spatial components and metaphors are important factors in shaping society, the way in which products derived from ecological design are used and sought will always emerge as the social manifestation of ecological discourse. Similarly, the designer's capacity to encompass society depends on his mastery of integrating the social dimension in his designs with ecological discourse. In parallel, the extent to which a designer infuses his or her ecological philosophy into his or her designs can catalyze social transformation compatible with ecological principles by establishing a symbiotic relationship between design and society.

Another importance of ecological discourse in landscape planning and design is that the product produced by ways of thinking that approach space in a fragmented manner constitutes an important tool in ensuring ecological relations with the entire city and its environment. In other words, when creating an ecological environment in an area or improving the existing environment through landscape planning and design action, the fragmented structure of the plan will be associated with the system as a whole, taking into account the continuity of this area. Larger areas based on ecological foundations. Fragmentation in ecological environments can create very serious problems. The terms "green connection", "greenway" or "ecological network" are planning or design products that arise in this context. It is not possible to create ecologically sustainable systems by isolating an area (or urban ecosystem) from the surrounding systems.

The ecological approach in shaping land use decisions is widely adopted today. This concept, which has its roots in the evolution of thought in the 1960s, initially focused on "environmental concern" until the 1980s, and then evolved to include the concepts of "quality of life" and "sustainability". Increasing resource consumption has necessitated a "return to nature", with human activities reaching the polar regions horizontally and spreading vertically beyond the atmosphere. This return requires adapting to nature's tendencies and needs while protecting and nurturing it. The imperative now lies in promoting symbiotic coexistence rather than domination over nature and its constituent elements. From a socio-cultural perspective, this coexistence turns into a multifaceted effort that includes individual, social, regional, national, international and global layers, each complementing the other. Understanding how nature works and determining the responsibilities of each element is the key to detecting the ecological impact (harmful or advantageous) on the natural environment (Şahin, 2003). This proactive and holistic approach ensures that land use decisions are compatible with the natural dynamics of nature, ensuring a balanced balance between human activities and the environment.

Initially, technology was used to overcome environmental problems, but this has moved the problem from local to global scale. For example, the use of high chimneys to prevent air pollution in industrial areas has caused pollutants to be transported to longer distances. These developments have added a new dimension to planning approaches, and it has been understood that environmental problems in living environments can be minimized through planning that is balanced and compatible with nature, that is, ecologically based planning, and the decisions produced will be sustainable. is effective in the long term.

The search for open and green spaces in urban areas becomes unnecessary because they belong there by nature. The ecological planning paradigm reveals these natural pockets that bridge urban and rural areas. In nature, the urban-rural distinction disappears; systems are seamlessly interconnected. However, when urban areas lose their ties with their environment, ecological functions break down and environmental problems arise. In the urban context, spaces that support the continuity of natural processes form an ecological network that are integral components of open and green infrastructures. Beyond visual and recreational considerations, ecological features are the primary criteria in site selection.

The ecological planning approach requires comprehensive ecosystem analysis. Currently, ecological processes are underrepresented as evaluation criteria in planning. In fact, the factors that direct the emergence and continuity of these processes determine the landscapes that need to be protected, developed and restored. These regions contain rich ecological protection values. In addition, the ecological approach ensures sustainability in the face of demands by revealing the capacity of an area to adapt to different uses (Şahin, 2003).

4.2. The Importance of Landscape Planning and Design in Creating Ecologically Sustainable Cities

Landscape planning and design plays an important role in creating ecologically sustainable cities. These approaches include various strategies for protecting the natural environment, providing ecosystem services and improving the quality of human life. Some landscape planning and design approaches that can be used in this context are:

- Green Infrastructure: Green infrastructure involves integrating natural elements such as green spaces, parks, forests, water resources and natural corridors into a network in urban areas. This approach can increase biodiversity, improve water management, and provide people with rest and recreation areas (Gedikli, 2020).
- Preservation of Natural Processes: Strategies compatible with landscape design can be used to support the functioning of ecosystems and maintain natural processes. For example, areas can be created where water collects naturally and surface water leaks into groundwater resources (Erdoğan Onur and Demiroğlu, 2016).
- Diverse Vegetation: Using different types of vegetation can increase habitat diversity and support ecological balance. Preferring native plant species can reduce water demand and provide food and shelter for local fauna (Korkut, Kiper and Topal, 2017)
- Water Management: Rainwater harvesting systems offer an effective way to collect, store and use water. Sustainable water management can ensure the effective use of water resources (Öztopcu and Salman, 2019).
- Environmentally Friendly Infrastructure: Environmentally friendly design in infrastructure projects is vital for sustainable urbanization. For example, environmentally friendly infrastructures such as energy efficient lighting systems, waste management and green buildings can be used (Öztopcu and Salman, 2019).

- Social Participation: Social participation is of great importance in sustainable urbanization efforts. Designing by taking the public's ideas and needs into consideration can increase the sustainability of urban areas (Karakuzulu, 2010).

Studies and examples support these approaches. For example, green roofs are being used in many cities to optimize land use, increase energy efficiency and support wildlife. Likewise, water management projects aim to manage water resources in urban areas in a sustainable manner. In summary, landscape planning and design for ecologically sustainable cities is an important tool for protecting the natural environment, providing ecosystem services and improving the quality of human life. These approaches can be supported by various projects and applications to achieve sustainable urbanization goals.

4.3. Ecological Approach Recommendations in Urban Landscape Design

In the contemporary context, the skewed ecological balance in urban environments, combined with the proliferation of artificial living conditions due to the steady decline of natural areas, has led to a multitude of critical environmental problems. Urban planning and design strategies that lack ecological foundations contribute to the increasing challenges that are especially noticeable in large cities. Addressing the problems that arise in urban areas requires the implementation of a sustainable approach extending from the macro scale to the micro level. In the Turkish context, the integration of sustainable urban practices and ecological landscape design principles into the fabric of urban planning remains unclear. The fact that these approaches are not included in the implementation policies has created major obstacles to their implementation. In current landscape design efforts carried out by public institutions, local governments and housing initiatives, aesthetics tend to be overshadowed by ecological concerns. This practice results in visually appealing but ecologically unsound designs that conflict with natural landscapes, incur exorbitant costs, require high maintenance effort, and rely on unsustainable building and plant materials. Traditional designs often feature large lawns, short-lived flower beds, and non-native plant species that require special care. These inappropriate choices not only impose significant burdens in labor, time, energy and finances, but also contribute significantly to environmental degradation. To overcome these challenges, urban landscape design must adhere to a set of guiding principles. The comprehensive recommendations explained in the text regarding the importance and necessity of ecological design in urban contexts can be briefly summarized as follows (Atıl et al., 2005; Coşgun, 2013; Birişçi et al., 2012; Kiper et al., 2016); Korkut and Kiper, 2016; Üstün Topal et al., 2016):

- Holistic planning and design of open green areas: Open and green areas are designed as green belt, green wedge, green braid, green heart, etc. to create "spatial continuity". It should be planned as follows. These systems should be planned taking into account the formation and orientation of the urban macro form, provision of alternative accessibility and various recreation opportunities, protection of wildlife and creation of air corridors.
- Climate compatible planning and design: Climatic factors such as insolation, wind directions, temperature, humidity and precipitation should be taken into account in settlement planning and design.
- Energy efficient planning and design: Sustainable use of natural energy resources such as sun, wind and rainfall should be ensured in structural and vegetal design.
- Planning and design in accordance with the topographic structure: Data such as slope, aspect and elevation should be used effectively in settlement selection, determination of view points, and design of active and passive recreation areas.
- Planning and design in accordance with natural vegetation texture: Existing vegetation texture should be taken into consideration in planning and design studies.

- Efficient use of water resources: Natural water resources such as rivers, streams, lakes and seas must be used in a physical, technical and sustainable manner.
- Design that will reveal and strengthen local identity: The natural and cultural resource values that characterize the city should be highlighted.
- People-centered transportation planning: Planning and designing a transportation system that prioritizes pedestrians and encourages cycling and public transportation.
- Ensuring accessibility: Service, residential and work areas should be connected to each other by road networks.
- Ecological design at the city-neighbourhood-street-building scale: Designs that complement and support each other should be provided at every scale.
- Adopting an urban agriculture approach: Permaculture, hobby gardens, etc. should be encouraged.
- Developing solutions to increase the amount of open green space: Vertical gardens, roof gardens, green roofs, etc. should be disseminated.
- Design based on the principle of ecological sustainability in vegetative applications: In vegetal design studies, it should be preferred to use local plants that do not require much maintenance, are perennial, and are suitable for natural structure, instead of large grass areas and seasonal flower beds. However, in plant design, different characteristics of plants should be taken into account (For example, deciduous trees and shrubs provide shade in summer and transmit sunlight in winter, tall and high-crowned trees can shade roofs, walls and windows, horizontal shading is more preferred). Suitable for north-facing windows, vine plants can be used for this, vertical shading is more suitable for east and west directions, densely textured trees, shrubs and deciduous ivy plants can be used together. Climbing plants can also provide both shade and insulation. bioclimatic comfort conditions (walls) should be taken into account.

As a result, as stated by Rees and Roseland (1991: cited in Korkut et al., 2017); For sustainable cities, there must be a healthy and harmonious combination of ecological systems and economic systems. This situation reveals the necessity of ecological planning and design of cities. For this purpose, educational institutions, especially universities that provide environmental, planning and design education, have important duties. In order to raise awareness and awareness on the subject, meetings should be organized by university faculty members and professional training seminars should be given. In addition, local governments, non-governmental organizations and graduates who will enter the profession need to be made aware of the importance and necessity of the ecological approach in urban design.

5. CONCLUSION

In creating livable and sustainable urban environments, the development of both biotic and abiotic components should be expanded to include socio-cultural elements. The connection between urban landscape planning and the sustainability of urban life lies in the recognition of the unique value of the natural environment in cities as a source of social factors vital to improving the quality of human life. These social elements emerge as integral aspects of the sustainability paradigm. Ecological landscape planning is emerging as a specialized field that regulates spatial arrangements, regulates uses, and aligns land use with established landscape planning goals such as habitat restoration and sustainability. At the heart of the ecological landscape planning approach is the complex interaction between ecological dynamics and human interventions that requires social and economic considerations. This comprehensive perspective considers landscapes as holistic systems in which natural-local resources are of great importance. Using these resources as key elements, ecological landscape planning attempts to minimize the negative effects of human use. This approach prevents possible harm by harmonizing human activities with the rhythm of nature by taking advantage of available resources. The ecological landscape planning paradigm embodies integration

by combining various dimensions of planning into a coherent whole. His ethics revolve around recognizing the synergy between ecological models, natural processes, human actions, and social well-being. This synergy confirms a holistic approach that not only ensures environmental health but also supports social harmony and economic stability. In essence, ecological landscape planning underlines the indispensability of harmonizing urban development with the natural dynamics of nature and emphasizes that sustainable and livable cities can only develop when ecological balance coexists with human aspirations. The distinctive feature of the approach lies in a deep understanding of the complex interdependence between natural systems and human activities that results in urban spaces that develop as vibrant, harmonious ecosystems.

Within the scope of Landscape Planning and Design Approaches for Ecologically Sustainable Cities, protecting green areas and natural ecosystems is a great priority. In order to ensure ecological balance in cities, existing natural resources must be used effectively. This should include the protection of green spaces and biodiversity. Additionally, ecosystem services should also be taken into account in urban design projects. Factors such as water retention, improving air quality and aesthetics are essential elements of a sustainable urban life. The creation of ecological corridors and green infrastructure networks is also important. This approach is an effective way to connect urban areas with natural areas and enable species movement. Finally, public participation and awareness should be encouraged. Communities play an important role in building sustainable cities. Awareness-raising campaigns and effective communication tools can help achieve ecological sustainability goals.

As a result, landscape planning and design approaches for ecologically sustainable cities aim to maintain environmental and social balance. Effective use of natural resources, protection of ecosystems and social participation will contribute to the construction of a livable, healthy and balanced urban life for future generations.

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