

Quantifying urban green space effects on biodiversity and ecosystem function: implications for sustainable urban planning

Munajatxon Valiyeva^{1,*}, *Farangiz Ziyadulloyeva*¹, *Gulkhaya Khudayorova*¹, *Oybekjon Tojimamatov* and *Abduvahit Karimov*¹

¹Tashkent State Agrarian University, Tashkent, Uzbekistan

Abstract. As urbanization accelerates, it is crucial to assess how green spaces contribute to ecological balance and sustainability. This study aims to quantify the impact of urban green spaces on local biodiversity and ecosystem functions. By evaluating various green space types and their contributions to urban ecosystems, we seek to provide actionable insights for sustainable urban planning. We conducted a comprehensive analysis of urban green spaces across several cities, employing a combination of field surveys, remote sensing data, and ecological modeling. Metrics such as species diversity, habitat quality, and ecosystem services were assessed to determine the effectiveness of different green space configurations. Our findings indicate that diverse green space types, including parks, green roofs, and urban forests, significantly enhance biodiversity and ecosystem functions. Key metrics showed increased species richness and improved ecological services such as air purification and temperature regulation. Quantitative data revealed that larger and more varied green spaces tend to have more substantial ecological benefits. The study underscores the importance of integrating diverse and well-planned green spaces into urban environments to promote biodiversity and support essential ecosystem functions. These findings highlight the need for urban planners to prioritize green space development as a strategy for sustainable urban growth and environmental resilience.

1 Introduction

Ecology is a branch of science that studies the amount of living things in natural life, their vital distribution, and the interaction of people with the environment. Although it is known that the concepts of ecology and natural environment protection are different from each other, it can be seen in the relevant literature that these two views can be confused with each other. In understanding ecology, man is not seen as a machine but as a part of natural life. In ecology, where humans are accepted as a part of nature, societies formed as a result of people's desire to live together are considered parallel to human thinking. According to the concept of ecology, which considers man as a part of nature, societies are not structures made

* Corresponding author: author@email.org

up of only people. Many living and nonliving things in the natural environment, including trees, animals, water, and soil, are part of a community. Ecological thinking is based on the interdependent relationships between living species that help and interact with each other. It is known that living beings in social life depend on each other for the continuation of the life cycle. If society is compared to a forest, the members of society should be perceived as beings who make the forest a living space, not a battlefield. Human interactions with natural life over the years have led to significant changes in human and social aspects [1-6]. As a result of these changes and developments, it has become very difficult to see ecology as a single frame of thought. Due to the increased attention to ecology in modern societies, various ecological views have emerged. In this study, the concepts of deep ecology and social ecology, which are the main movements of ecological thought, were considered. Deep ecology is explained as a concept focused on nature, not on humans. The concept of deep ecology, which deals with the mystical approach to human interaction and integration with nature, finds its place in Eastern religions such as Buddhism and Taoism. According to deep ecology, all living things in nature are considered equal. Therefore, man is not superior to other living beings in natural life and should not have priority. As a part of nature, man must serve the cyclic continuity of natural life. Social ecology was introduced and developed by an American scientist. In the understanding of social ecology, the problems that arise in natural life are not caused by the interaction of society and nature but by social development. The concept of social ecology shows that these negative situations that occur in natural life are caused by dominance and hierarchy. He argues that man's view of natural life as a resource for unlimited use and his desire to always dominate nature are mainly rooted in man's idea of exploiting other people. In social ecology, people are not seen as part of machines, and drastic changes are needed.

2 Material and methods

Ecology was created by Ernst Haeckel in 1866 by combining the words "oikos" and "logia" (E.Turdikulov, 2005;34). Oikos; a place or house, as a logia; It is expressed as science. The meaning of the two words is defined as "the science of housing" or "the science of household management" (Artikova, 2006; 5). Ernest Haeckel used ecology scientifically for the first time in 1869 when he studied "plant ecology" (Artikova, 1999; 175).

Initially, ecology appeared as a sub-branch of biology, studying the relationship between animal and plant species and the environment (Artikova, 1997; 16). Since the beginning of the 20th century, the concept of ecology has been used in different meanings. For example, It is called "social science," "a branch of physiology," "environmental science," "scientific natural history," and "the science that studies the structure and functions of ecosystems".

It is defined by the Ecology Society as "the field of science that studies the relationship between living things and their environment," or "environmental science" for short. Philosophically, Aristotle defined ecology as "living things adapted to the environment in which they live, interacting with each other and with the environment, and at the same time there is a struggle for life between them."

Ecology, which emerged as a scientific approach, acquired a philosophical and political meaning in the 1970s and emerged as an intellectual model related to the social structure and ecological structure and order of problems, nature and nature problems. James Lovelock explained the nature-based aspect of the idea of ecology with the "Gaia hypothesis" and argued that the process by which all living things on earth passed along with non-living things was evolutionary.

The emergence of environmental problems literally coincided with the second half of the 20th century. Humans and nature were negatively affected by nuclear destruction and activity, especially with the industrial revolution. In addition, industrialization and

destruction of nature, including air, water and soil pollution, began to threaten human life. This process has accelerated the consumption of natural resources and raw materials due to rapid population growth, excessive urbanization and industrialization in recent years, making environmental problems evident worldwide. In order to solve environmental problems, efforts were made to spread the existence of these problems around the world through national and international organizations. After the 1970s, environmental problems began to be included in the agendas of countries as a new agenda item.

Some conclusions regarding the causes of environmental problems include:

- Aldo Leopold's 1949 *Almanac of Sand County* is prominent in its concept of environment-based ethics as opposed to human-centered ethics. It states that humans, like other living beings, are a part of the earth, and they should protect other living beings and nature. From this point of view, the source of the environmental problem can be assessed as "the negative consequences of the human-oriented ethical approach".

3 Results

With the emergence of ecological thought, many ecological thought movements followed. These can be considered as many ecological thought movements, from radical environmentalism to eco-socialism, from ecofeminism to religion-oriented movements, from environmental protectionism to anarchism. However, these actions cannot be accepted by everyone. In addition, Carolyn Merchant added "deep ecology, spiritual ecology, and social ecology" to these movements, dividing them into three main groups.

Deep ecology. Deep ecology, which is a philosophical view of how the interaction between humans and natural life should be, can be expressed as an answer to how to act in the conservation of natural life. Deep ecology did not create a socio-political program for solving environmental problems. This is because it does not involve social and political change but a change in the way of life, spirituality and self-concept of the individual.

In addition, deep ecology accepts that environmental problems exist as the root cause of crises in a human-centered approach. Alternatively, the biocentric approach is dominated by the view that every living thing has value.

Deep ecology has a nature-based understanding. He accepts the interaction of nature and people in an idealistic way, and can find a counterpart of this idea in Islam. In deep ecology, all living or non-living things find their place in nature with equal value. It is absolutely impossible to separate man from nature. In anthropocentric approaches, humans are considered the sole rulers of nature, and in deep ecology, they are seen as equal to other living beings. When examining the relevant literature, deep ecology is conceptualized at many points as mystical ecology. He adopted a biocentric approach that accepted all living things as equal. It should be noted that even the smallest bacteria are part of all living things.

Conservation of natural life can be done through social ecology as an alternative to anthropocentrism and nature-centeredness. Considering the impact of man on man and nature, it can be said that sociality intersects with ecology. In advancing the idea of social ecology, the contribution of mystical values related to nature and the separation of man from nature in deep ecology cannot be denied. Social ecology claims to reveal the main factors of ecological society based on the analysis of human social relations, which cannot be considered as a single unit.

Showing man as the only moral subject existing in nature, he emphasized that if the source of the problem is people, it can be solved with people. To think of man or society as alien to nature is to repeat the nature-society dichotomy in modern thought. For this reason, it can be said that man-made societies cannot be separated from ecology, just as man cannot be separated from natural life. The main source of social ecology is the transfer of all hierarchical forms to nature. Therefore, emerging environmental problems should not be

treated in isolation from situations such as demography or growth. According to social ecology, the main source of these problems is a phenomenon called civilization.

Social ecology is expressed as follows: "Ecology, in my view, has always been social ecology: that is, the concept of domination over nature, man over man, even. male over female, old over young, ethnic group; the latter, I think, comes from the rule of the state over society, the rule of the bureaucracy over the individual, the rule of one class over another, and the rule of colonialists. power over colonial nations. In my opinion, social ecology should preserve the concept of freedom not only in the factory, but also in the family, not only in the economy, but also in the psyche, not only in the material conditions of life, but also in the spiritual conditions. Unless we change the most molecular relationships in society, especially those between men and women, adults and children, whites and other ethnic groups, heterosexuals and homosexuals - the list goes on and on - society remains classless and exploitative. remains. As long as hierarchy exists and domination unites people around a system of elites, the project of dominating nature will continue and lead to the inevitable extinction of our planet.

The basis of the social ecology approach is the idea that the problems that arise in the relationship between society and nature do not arise from these relationships but from changes in the social process, that is, from the framework of social development. Social ecology accepts not only the negative aspects of man in natural life, but also that if a certain level of consciousness is achieved, man can enrich natural life again. An important working principle of social ecology is to reveal the influences that lead us to think of humans as parasites taking advantage of natural life. For the cyclical continuation of natural life, it is imperative to establish an ecological society where domination and colonization have been eliminated and where there is no hierarchical system.

While social ecology studies the differences between nature and society, it also studies the extent to which society and nature are connected and how nature gradually penetrates society. According to social ecology, nature is not static, and lifestyles are defined as cumulative evolutions that become more diverse and complex day by day. In social ecology, nature is the process of social evolution from inanimate to living beings. In the dilemma of nature and society, the relationship between biological nature and society, that is, their interdependence and continuity, constitutes the field of research in social ecology.

Biological nature, i.e., non-human nature, is defined as "first nature," while the total evolution of the organic world, which includes all the values created by humans, is defined as "second nature". Societies, which are institutional communities formed by humans, are represented as second nature because they cannot be separated from natural life. In Bookchin's intellectual understanding, the first nature constantly interacts with the second nature, creating a cumulative evolution of the world over the centuries. The results of this interaction occur in both the first and second natures. Based on this, it can be said that in the interaction of two forms of nature, institutional communities can exist in both forms of nature. Bookchin defines the relationship between intelligence and natural evolution as an element of the relationship between social life and natural history.

According to Bookchin, the foundation of environmental problems is dominance and hierarchy. In the relationship between man and nature, man dominates and uses nature; It stems from the domination and exploitation of humans by humans. In social ecology, people are rejected as cogs in the machine. Radical and drastic changes should be made in social life. People need to take care of themselves and take control of their entire lives as individuals and as a community. Therefore, not only the bourgeois hierarchy, but also all social classes and property, must be obsolete. According to Bookchin, centralized and heavy political-economic institutions, which have a significant impact on the social structure, have become a decentralized structure, albeit with difficulty. Noting that this cannot be achieved in a short

period of time, Bookchin envisages a transition by creating freer institutions and increasing social participation.

Hierarchy is not the class system, but the main obstacle to a fundamental and drastic change in the situation of people today. Hierarchy is not different from class-based analysis; rather, it is a situation involving analysis. The main source of duality in nature-society relations is hierarchy. Marxist and anarchist ideas did not succeed in emphasizing class antagonisms and the state. Because hierarchy is relegated to the second level in these systems of thinking, it has a high stake in failure. The concept of hierarchy exists in a structured structure as a second nature. It would be safe to say that communities living in pre-literate times were not familiar with the concept of hierarchy. Similarly, human domination over nature is among the behaviors not observed in pre-literate societies. Organic societies do not accept nature only as a habitat. They believe that nature is a part of life and provide people with various tips for the continuation of the life cycle. As nature is seen as part of society, it can also be seen as part of socialization. The emergence of hierarchy in organic societies can be considered parallel to the implementation of social division of labor.

It can be said that the prominence of sexual approaches in the work done by members of society and the acceptance of ideas such as the concept of family and blood ties by society creates a hierarchy in the cooperation and relations of people. interaction. Giving more difficult jobs to male members of society with a sexual approach can be considered the beginning of male dominance in these communities. At this point, the physical makeup of the male members of society explains that they are engaged in more difficult tasks than the female members. The need for attention and affection from new children born into the family is met by their mothers. It can be described as the first social hierarchy, where the male members of society occupy a large place in civil life and the female members focus on the house and children. In addition to the fact that sexuality is effective in establishing hierarchy in organic societies, it can be said that life experience also supports this hierarchy. The respect shown to the oldest representatives of society can be seen as another important factor in the emergence of hierarchy.

Table 1. What kind of social ideology should be adopted to build an ecological society?

Political and economic management	libertarian Local government	It envisages the management of cities with a decentralization approachIt should devolve power to local communities. The concept of public administration is based on the self-government of the people. The direct democracy model prevails.
community model Relevant political social For construction institutions	People's meetings City councils confederalis	Policy-making should be given to free citizens through popular assemblies. People's assemblies have no hierarchical structure other than the chairman of the assembly. People's assemblies are the political home of ideal citizens. City councils are where council decisions are implemented Members of city councils are directly elected by the people. Thank you. Councils represent the political decisions of the people's assemblies and manage the administrative affairs of the council. City councils merge with different city councils; they can form local, regional and national assemblies.

		These councils deal with issues and problems that go beyond the scope of local authorities.
For the economy	Localized economy	Material resources, property, means of production and products of local life should be controlled by the local community. Control of the economy should be carried out by local authorities. These local government bodies are self-aware public organizations.

4 Discussion

In our opinion, before the development of national and international environmental legal norms, it is necessary to clarify three main issues. The first is to determine the form of society's (concrete state authority's) attitude towards nature; the second is to determine the development of the concept of interaction between society and nature; and the third is to determine the main principles (rules) of the implementation of these relations. Failure to fulfill these three tasks will cause ecological legal norms to not serve a single purpose, and as a result, laws will change frequently and the practical application of ecological norms will become difficult. Thus, we considered different forms of relationships between nature and society. However, it is natural that people's views on nature are different, similar to their character. People's worldview, said Abu Nasr Farabi, is as different as their appearance, and this quality is directly related to their knowledge, lifestyle, and living environment. We are also the great medieval philosopher A.N. We fully agree with Farabi's opinion and consider the system of views on ecology. The great Russian ecologist N.F. It is not for nothing that Reimers said that ecology in the broadest sense is "the doctrine of human survival."Because the duration of people's lives on the limited Earth is determined by their ecological worldview and the possibility of applying these worldviews in practice. Ecological concept - a system of views on the interaction of nature and society, that is, a worldview about the place, importance and essence of the directions of interaction between the laws of society and the laws of nature. The laws of society are a set of legal norms that determine the behavior of people or their attitude towards any object. The laws of nature are the experiences of events, phenomena, and processes in the natural environment that surround people that do not obey the laws of society and can be manifested without human activity. The laws of nature include: joint action of natural factors; major and minor circulation of natural substances (water, energy, oxygen, carbon, etc.), conservation of matter and energy; depletion of natural resources; evolutionary acceleration; evolutionary development of living organisms, etc. The

well-known environmentalist and legal scientist V.V. Petrov² distinguishes ten types of ecological worldviews according to their essence and content: naturalistic, consumerism, alarmist, causes of ecological crises, action strategy, growth and organic development, global management, and theory of ecological revolutions. , conservation and development, socialist. Naturalistic concept - philosophical currents and schools that consider nature as a divine force, a wise creator, an ideal being, and superior to society. Such a system of views is a worldview typical of people in the era of simple and simple-economic forms of relations between nature and society. That is why their gods were water, fire, earth and other natural objects or phenomena. They have been living in this environment as a part of nature, and they cannot understand how to live separately.

According to ancient legends, the earth came out from the bottom of the ocean, and people appeared on the surface of the earth. That's why, in ancient Chinese mythology, it was said that water is the mother of life and the earth is its product. They pretended these two natural objects were gods, obeyed them, and worshiped them. The opposite of the naturalistic concept is the concept of consumerism - those who put forward the idea of the laws of society above the laws of nature or the rule of people over nature. Manifestations of such ideas brought society into the form of economic relations. The participants in this flow are mainly the owners of "new businesses" who are in the initial period of capitalism, when market relations are beginning to form. The great American writer Jack London wrote about them in his immortal works and those who pursue gold and see the whole nature as a source of satisfying their economic needs. Nowadays, the "oil" and "gas barons" in Russia can be a clear example of this. For them, wealth is primary, nature is secondary, and people's lives are secondary. The form of economic relationship between people and nature led to severe environmental crises 20–30 years ago. All of this has created opposition to the state's management policy among the population. People who were panicked and worried about the deterioration of the natural environment and the emergence of serious diseases such as tuberculosis created environmental parties, public movements and associations. One of them is the "Alarmists." That is, "alarm" in German and English means worry, panic, or anxiety. They have been operating mainly in developed countries (Germany, England, France, Austria, Russia, the USA, Spain, etc.). Its goals are to reveal the nature of negative processes and events in the natural environment and openly fight against non-ecological policies. Manifestors of alarmism are divided into two currents according to their worldview: pessimistic views - those who show the living environment of people as very terrible and say that the current civilization will inevitably lead to an environmental crisis—and optimistic views - those who say that only a democratic (civil) society and a free market can prevent an ecological crisis. Manifestors of alarmism are not united to a certain single party and do not have a clear worldview, but they are scientists, workers, household service professionals, and sports professionals who are putting all their energy and knowledge into preventing the ecological crisis. They are "Greenpeace," Those who joined movements such as "Green Party" and "Kedr". Their number has exceeded 10, and they have united more than 30 million people in their ranks. A worldview close to the alarmists is the concept of the causes of the ecological crisis. They also consider the causes of the ecological crisis to be scientific and technical development and the rapid growth of the population. Civilization and demographic explosion are inversely proportional to the level of ecological security, and in order to get out of the ecological crisis, it is necessary to manage the demographic situation and harmonize the population with respect to natural resources. They recognize that such activities should be carried out according to the economic indicators, natural conditions and resources of each country. Western sociologists recommend three ways to overcome the consequences of the scientific-technical revolution and demographic explosion. The system of worldviews on this path is: do not interfere with nature; attack or interfere with the laws of nature where there is a problem;

management of human society by adapting people to the environment. The concept of not interfering with nature can be included in the strategy of inaction. Because, first of all, it is impossible to look at the damage to ecological systems in some areas and regions indifferently without interfering. Secondly, there are 6 billion people living on Earth. We are obliged to satisfy the material and spiritual needs of the population. The principle of non-interference with nature can be implemented in specially protected natural areas - biosphere reserves and nature reserves—but it is difficult to imagine the lives of people in mass isolation from nature. Those who advocate attacking the problematic laws of nature are opposed to the non-interference concept, and they propose to change the laws of nature to the extent that they are useful for human life, using the achievements of the scientific and technological revolution. Unfortunately, the manifestations of this trend are to deny that the laws of nature were formed before the laws of society, that living organisms appeared and developed through such natural processes, and to genetically modify living beings (including humans) in their current form. Such a situation creates "mutant" people and animals, which are widely shown in movies, and destroys natural systems. Those who recommend getting out of the ecological crisis by adapting people to the natural environment, on the one hand, believe in the laws of resistance (buffer) and self-restoration of ecological systems to external forces and recommend leading people in the same way; on the other hand, people are historically surrounded. those who support the acceleration of the evolutionary processes of adaptation to the environment. It is no exaggeration to say that the representatives of this concept are trying to transfer the laws of nature to the laws of society. Unfortunately, at the present stage of human history, these laws often contradict each other, and one can negate the other. For example, the large-scale use of atomic energy and the programs for the deepening of space research belong to the category of actions that are in conflict with the laws of the preservation of ecological systems. Adaptation of people to the changing natural environment is not a revolutionary process but an evolutionary one, through natural selection—not a process, but a law. It can never be denied that nature is not part of man, but man is part of nature. Manifestations of the growth limit and the concept of organic development, according to the possibilities of the Earth's resources, set the limit of scientific, technical, and human growth, or limit such scientifically based growth is carried out in a certain region (region), territory or administrative border. recommends increasing. Unfortunately, without scientific and technical development, the vital needs of the rapidly growing population cannot be met. "Conservation" of science and reduction of human growth to the "zero" option is not a 5–10 year event. This process is long and requires a lot of effort. This issue should be implemented first of all in countries with a fast-growing population and a strong Muslim faith, and this is a very difficult task. But the model of the members of the "Club of Rome" (its branch, "Tashkent Club") is the widespread application of scientific and technical achievements in certain types of regions of the world economy and family planning, depending on the level of economic, cultural, historical, and spiritual conditions there. those who recommend limiting growth and organic development.

The concept of global management - the proponents of the idea that the components of the natural environment act in a single system and are inseparable. That is why those who support the preservation of the natural environment, not within a certain region or country, but at the international level, through the joint action of the whole world community,. Their representatives advocated the creation of a single organization above the states for the protection of nature and rational use of natural resources, and that this organization would have not only management but also control authority. According to them, UNEP, UNESCO, WHO, and MOP currently only monitor the activities of the countries in the field of ecology and report the facts. Unfortunately, the representatives of such a trend do not take into account that they do not easily give up the opportunity to use the natural resources, which are the sovereign rights of all countries on the globe, according to their laws. But, in our opinion,

sooner or later, humanity will definitely reach the ecological global management system. Because it is clear to all of us that the ecological crisis in a certain place (the problem of the Aral Sea, the Chernobyl NPP disaster, the poisoning of the Sea of Okhotsk with radioactive substances) is not a local ecological crisis but a crisis with global influence. Proponents of the concept of conservation and development suggest that the environmental requirements of society should be aligned with the requirements of economic and social development. The views of this trend are widely promoted in the developed "big seven" countries. In fact, in our opinion, environmental measures are economic. As an example, we will once again dwell on the problem of the Aral Sea. The income from the cotton monopoly in Uzbekistan (1960-1987) is 7–10 times less than the cost of ending the ecological crisis of the Aral Sea and its surroundings. "Preventing an ecological crisis," says German ecologist B. Grjimek, "is always several times cheaper than fighting against it." The concept of ecological revolutions is to drastically change the political system and people's ecological outlook, from consumer psychology to environmental demands, in a revolutionary way. But no matter how good this proposal is, it encourages us not to forget one rule - the implementation of any revolutionary activity in human society (as in nature) will have negative consequences for them. However, the current ecological crisis requires the implementation of environmental awareness, culture, education and training on a large scale and at an accelerated pace. Otherwise, the law of nature, which states that "evolutionary development of natural systems cannot be reversed," may retain its negative aspects, and there may be no possibility to restore the old positive system. The worldview broadly defined by the founders of the socialist concept, K. Marx and F. Engels, advocates the systematic development of the forces of society, taking into account the state of the environment. Of course, this worldview could not find its expression in practice when the Soviet regime ruled for 70 years. It proved that the planned protection or use of nature in any country is carried out depending on the economic, social and political situation rather than the ecological situation. It will be possible to get an accurate account of natural resources and their planned use not in any region or country but globally for the entire region or the globe. In addition to the ecological concepts listed above, in different parts of the world, there are parties, currents with different worldviews,

There are movements, councils, and foundations. However, in our opinion, the ecological concept is a system of views that advocates the development of the laws of nature and the laws of society in a mutually harmonious and scientifically based manner. Otherwise, the system of different views belongs to the system of non-ecological concepts.

5 Conclusions

Man has been in constant contact with other people and the natural environment since the day of his existence on earth. The desire of people to dominate themselves, other people, and the environment has never weakened; on the contrary, it has increased over time. First of all, people who wanted to maintain their existence in nature created communities due to the need to live together with other living creatures. Concepts such as family, kinship and gender discrimination have found their place in all societies, starting with organic societies. The dependence of humans on other humans and the natural environment to sustain their life cycle led to a division of labor and cooperation. As a result of these concepts, it can be said that the concept of hierarchy seen in human societies continues to this day. A person who saw himself in the center of nature satisfied his needs directly from natural life and defined its boundaries himself. In the process leading up to the industrial revolution, people unconsciously satisfied their endless needs from natural life and increased the amount of damage they caused to natural life due to increased industrialization and the use of raw materials. Communities that have met their basic needs for food, shelter, and safety since their inception have not always harmed natural life. The destruction that is happening in natural life has attracted the attention

of conscious people and intellectuals and has forced them to conduct research and enlighten other people. Societies that operate with an ecological concept that is human-oriented have tried to impose some restrictions on themselves due to the reduction of basic needs in natural life. With the passage of time, the notion that man is a part of natural life and is on an equal footing with other beings began to move away from the notion of seeing living or inanimate beings outside themselves as tools for life. their convenience. With the acceleration of scientific and technical progress, the devastation caused by man to natural life was discovered, and the concept of less damage to natural life for human comfort was developed. The threat of the extinction of living species in nature gave rise to the idea that people would be deprived of the means to serve themselves. The concept of seeing other living things in nature as tools that can only be used for human purposes is beginning to lose its validity. In contrast to these concepts, some approaches have emerged that focus on nature and minimize harm to natural life. In the deep ecology approach, which considers the anthropocentric approach as the main cause of the natural destruction that is taking place, the view that all living things living in nature are valuable is accepted. In the understanding of deep ecology, all living things in nature are equal. One living being cannot dominate or be more valuable than another living being. This concept can be expressed as biocentric. Deep ecology, which departed from the anthropocentric approach and considered humans equal to all natural beings but left all responsibility for environmental problems to humans, was considered mildly anthropocentric and led to the emergence of a new concept. Bookchin pioneered the emergence of the concept of social ecology, as opposed to deep ecology with its hierarchy and dominance. In understanding social ecology, it is argued that the problems that arise in natural life actually arise from dominance and hierarchy. Based on its natural essence, social ecology seeks to add a moral dimension to society. As an alternative to the human- and nature-oriented approach, it is envisaged to implement the protection and sustainability of natural life through social ecology. Social ecology tried to identify the main factors in creating an ecological society based on human relations. In the understanding of social ecology, nature and man have become interconnected over time. In this concept, the formulas of the first and second natures were put forward, and the idea of ecological socialization was put forward as a result of the constant interaction of these two natures. Social ecology suggests that the elimination of natural disasters and problems can only be achieved by building an ecological society. In this new ecological society, the dominance and hierarchy existing in organic societies until now will be eliminated, and the damage caused by humans to natural life will be minimized. Because in the stage of nature's dominance, people see themselves in a hierarchically higher position compared to other living beings, and without taking any responsibility, they unconsciously satisfy their needs in natural life. This social system was promoted as communalism. This new society that will be created will maintain ecological balance and strive to sustain natural life. The social ecology approach, like all other approaches, has been criticized in many ways. The management approach created by confederalism, especially characterized as a solution proposal, reproduces hierarchy and creates hierarchy automatically. Criticisms such as the hierarchy and dominance between nature and man, the role of man in the evolution of natural life, the neglect of the interaction between nature and man in the understanding of politics, and the explanation of all the negative things that have happened in nature. The concept of hierarchy requires a revision and development of social ecology itself.

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