



# Planning Theory and Environmental Ethics: Towards the Integration of Biodiversity and Urban Planning

**Fitriawan Umar<sup>1</sup>**

School of Architecture, Planning, and Policy Development  
Institut Teknologi Bandung, Bandung, Indonesia

**Haryo Winarso**

School of Architecture, Planning, and Policy Development  
Institut Teknologi Bandung, Bandung, Indonesia

Received : 22 April 2021

Accepted : 22 February 2022

Available Online : 30 April 2022

**Abstract:** Planning is a forward-looking and public-interest process, and for that purpose there is a choice of actions to be taken. Communicative rationality is highly recommended in planning related to the environment. However, among the factors that influence environmental planning communication, particularly regarding biodiversity issues, environmental ethics is still rarely discussed. Various environmental ethics need to be understood by a planner as a communicator and translating the desires of interested groups. Attention to environmental ethics also helps planners in selecting appropriate approaches to integrate biodiversity into urban planning. This study aims to examine the relationship between planning theory and environmental ethics that is often overlooked in efforts to integrate biodiversity and urban planning. With the narrative literature review method, the results showed that the approach of cultural ecosystem services is one of the middle paths to bridge the variety of environmental ethics that are understood by the community and government. This approach opens a wide space for motives to conserve biodiversity in urban areas so that aspects of sustainability and human well-being can be achieved together.

**Keywords:** biodiversity; ecosystem services; environmental ethics; planning theory

## Introduction

Planning, according to Banfield (1959), is the process of choosing an action as a means of achieving a goal. Planning can also be interpreted as a process for determining the future through a series of options (Davidoff & Reiner, 1962). Friedmann (1987) himself interpreted planning as an effort to connect knowledge and actions in the public domain. Thus, planning has keywords: process, choice, action, future, and public. Planning goes on a process towards a goal, namely the future and the public interest, and on that journey, there are options for action to be taken.

---

<sup>1</sup> Corresponding Author: School of Architecture, Planning, and Policy Development  
Institut Teknologi Bandung, Bandung, Indonesia  
Email: fitrawan.umar@gmail.com

At the beginning of its emergence in the modern era, planning rested on the paradigm of instrumental rationality. Rationality is influenced by positivistic views that have emerged since the Renaissance era in Europe, and the principle of efficiency that spread at the beginning of the 18th century industrial revolution. The principle is that certain tasks can be performed with minimal resource input (Rittel & Webber, 1973). The development of social thought then gave birth to the idea of postmodernism, and there was a paradigm shift in planning towards communicative rationality (Innes, 1995).

Communicative rationality is highly recommended in complex planning and involves many actors, such as in planning related to the environment (Zuidema & Roo, 2006). In communicative planning, planners no longer act as technical experts, but rather are communicators (Taylor, 1998). The effectiveness of planning is largely determined by the expertise of planners in establishing communication and collaborating with the actors involved. Therefore, planners must be able to understand the potential obstacles that can occur in the planning communication process.

Many aspects can affect communication in planning related to the environment. In addition, the aspects of environmental ethics are still very rarely discussed. So far, in the planning literature, conflict planning and the environment in general only discusses the social, economic, and environmental dimensions. In fact, in many environmental issues, such as biodiversity, it is precisely the differences in the foundation of environmental ethics that make planning hampered. Campbell (1996) stated that environmental conflict is not limited to “nature care groups” versus “groups that attack nature”.

*“... Who is to say that the lumberjack, who spends all his or her days among trees (and whose livelihood depends on those trees), is any less close to nature than the environmentalist taking a weekend walk through the woods? .... The crucial point is that all three groups (social, economic, and environment) have an interactive relationship with nature: the differences lie in their conflicting conceptions of nature, their conflicting uses of nature, and how they incorporate nature into their systems of values (be they community, economic, or spiritual values)...” (Campbell, 1996).*

Environmental ethics is the study of human ethical relationships and the natural environment. The main question in environmental ethics according to Sandler (2013) is: (1) what is the right way to understand the relationship between humans and the natural environment? (2) what values are part of or emerge from the relationship? (3) what principles and rules are justified by such values? and (4) how should humans interact and treat the natural environment? In general, the environmental ethics debate consists of anthropocentrism and non-anthropocentrism (biocentrism and ecocentrism). Conflicts in planning often involve groups that have differences on ethical grounds.

Examples of differences in views between anthropocentrism and non-anthropocentrism can be seen in the debate between conservationists and preservationists. Conservationists based on anthropocentrism think that environmental resources can be used sparingly and humans are obliged to keep them to be utilized in the future, while preservationists based on non-anthropocentrism assume that environmental resources must be maintained in their present condition and forever without human touch (Beatley, 1989). In the case of urban biodiversity, if there is a biotic community (flora or fauna) that has inhabited the city, even long before the towns residents settled, the environmental ethical view will determine whether the biotic community is maintained or not.

Discussion of environmental ethics is highly relevant to planners and has become an important part of planning (Beatley, 1989). Those involved in planning use environmental ethics to build theories and moral foundations in carrying out planning activities, and almost all aspects of planning, be it economic development, growth management, housing,

transportation, have a direct impact on the natural environment (Beatley, 1989). This article will explore more about the linkages between planning theory and environmental ethics that are often overlooked in efforts to integrate biodiversity and urban planning. The article will show that knowledge of environmental ethics can be key to urban planning that pays attention to biodiversity. Attention to environmental ethics can lead planners to choose the right approach to preserving biodiversity in the city. The structure of the article consists of a discussion on the scope of planning theory; development of planning theories and practices; environmental issues in planning; urban planning for biodiversity; environmental ethics discourse; environmental ethics, planning, and biodiversity; and cultural ecosystem services as a bridge to planning communication.

## Research Methods

This study used a narrative literature review method by synthesizing amount of literature from various databases of journals, such as Google Scholar and Science Direct, and books in the library, both digital and print. The narrative literature review comprises the following steps (Green et al., 2006): preparation; search terms & delimiting; selection criteria employed; and synthesis. The literature collected was retrieved from the classics to the latest literature related to planning theory and environmental ethics.

## Results and Discussions

### *Scope of Planning Theory*

The definition of planning theory has been debated among experts since the 1960s. According to Fainstein & Filippis (2016), there are difficulties defining planning theory because: (1) planning is multidisciplinary and overlaps with other sciences; (2) the planning field is divided between those that define it according to the planning object and who see it as a method; and (3) planning is also divided between those who understand through practical analysis and who understand it through theory to change planning practices. Davidoff & Reiner (1962) then tried to explain the scope of planning theory through three devices, namely the first device referring to the subject matter of planning and environmental circumstances to be handled; secondly, the device refers to the purpose of planning; last is the identification of elements related to the preparation of planning actions.

Faludi (1973) then contributed greatly to the understanding of planning theory, namely by dividing the theory of planning into “theory in planning” and “theory of planning”. Theory in planning is a theory derived from other disciplines for use in planning, such as location theory from Regional Economics. Theory of planning is a theory related to planning procedures. This division of the theory for years dominated the world of planning. However, according to Yiftachel (1989), the typology confuses students and planning practitioners, and creates a gulf between theory and planning practice. Yiftachel (1989) classifies planning theory based on three fundamental questions, namely: (1) what is planning? (2) what is a good urban plan? and (3) what is a good planning process? These questions can already represent elements of substantive theory, procedural theory, exoplanet theory, and prescription theory that have been used in planning.

Allmendinger (2002) also criticized Faludi’s substantive-procedural dichotomy. Allmendinger (2002) judged that the consequence of Faludi’s view was that planning was ultimately dominated by system approach and rationality. Allmendinger typologically makes his own planning theory based on post-positivistic views, consisting of Indigenous

Planning Theory, Framing Theory, Social Scientific Philosophy, Social Theory, and Exogenous Theory. However, this typology does not seem to have been widely accepted in the planning literature. Friedmann (2003) reinforced Faludi's theory, and added the term "theory about planning", which is related to criticism of planning practices.

### *Development of Planning Theory and Practice*

Modern planning was pioneered by Ebenezer Howard, Patrick Geddes, Daniel Burnham, Frank Lloyd Wright, and Le Corbusier (Fishman, 1977; Fainstein & Filippis, 2016). The ideal city which they are in is generally a response to the environmental and social conditions resulting from the industrial revolution in Europe. For example, Howard's idea of an ideal city is "Garden City", a new city concept surrounded by a "green belt", a maximum population of 30,000, a compact, efficient, healthy, and beautiful design; The city that Le Corbusier initiated was "the Radiant City", with the characteristic of the city center is a multi-storey apartment block, each complex consisting of 2,700 inhabitants (Fishman, 1977).

Cities designed by early planners were more likely to lead to physical design. They depart from the assumption that the physical changes of the city can change people's lives for the better (Fishman, 1977). Physical planning is believed to be the main determinant of individual social behavior and well-being (Webber, 1963). Planning in this early period can be referred to as "utopian planning" (Marcuse, 2011).

Next was the postwar period of the world (1945-1960). Taylor (1998) mentions the four principles that characterized this period. First, the approach used was "utopian comprehensiveness", which was still influenced by early planners. Second, attention to aesthetics, which is referred to as an anti-urban aesthetic. Third, the emphasis on ideal urban structures. Fourth, there is the assumption of consensus over planning objectives. The paradigm that developed in this period is rational comprehensive planning. Its distinctive feature is comprehensive, continuous, and consistent (Glass, 1959), with the procedure of using the Geddesian Dictum, namely "survey-analysis-plan" (Taylor, 1998). This period is also referred to as the era of planning standardization (Fainstein & Filippis, 2016), and is considered the golden period of planning (Webber, 1963). Rationality decision making is made entirely based on the knowledge of planners and decision makers (Banfield, 1959; Etzioni, 1967). Planners are positioned as technical experts, and an integral part of the planning body (Taylor, 1998).

In the 1960s, planners began to realize urban complexities, including starting to pay attention to social and economic aspects. In addition, there has been growing criticism of comprehensive planning. Planning no longer uses a "blueprint" approach, meaning planning is not the end result, but rather a process (Taylor, 1998). "Traditional" comprehensive planning is considered ineffective due to a lack of relevant information and guidance regarding the implications of long-term plans (Meyerson, 1956). Rational comprehensive planning will be hampered by human capacity and available information (Lindblom, 1959).

Lindblom (1959) prefers political decisions or market choices, and bases his arguments on the understanding that the criteria for a good decision are a deal. In lieu of comprehensive planning, Lindblom (1959) proposed "incremental planning". Etzioni (1967) sees comprehensive planning and incremental planning as both advantages and disadvantages. He also offered "Mixed-Scan" as an answerer. Mixed-Scan planning takes the advantages of each approach to cover each others shortcoming.

In America, in 1965, Davidoff (1965) introduced the term "advocacy planning". Planners are required to be able to act as "advocates" who voice the interests of all groups in the community. Planner advocates not only as information providers, trend analysts, or

predict the future, but also as part of the solutions that “clients” need by preparing plans and alternatives (Davidoff, 1965). Similar to Davidoff (1965), Krumholz (1982) gave the term “equity planning”, a planning model that emphasizes the distribution of justice so as to create equality in the community. Davidoff (1965) and Krumholz (1982) encourage plurality in plural planning. Plural planning is the antithesis of monoism that regards a state or institution as the ultimate holder of power and the sole giver of solutions believed to be the best (Mazzioti, 1974).

In the period 1970-1990, planning theories and practices grew rapidly and increasingly diverse. The postmodernism movement, whose seeds had emerged in the late 1960s (Taylor, 1998), gained more attention, and influenced the world of planning. Postmodernism itself is part of a long tradition that questions the impact of modernity (Allmendinger, 2002). The main influence of postmodern planning is the fall of rational planning (instrumental rationality). Planning also develops towards communicative planning (communicative rationality). Communicative rationality offers a new form of planning through interdiscursive communication (Healey, 1992). This planning model was inspired by Habermas’ idea of “Theory of Communicative Action” (Innes, 1995). Here planners are no longer seen as technical scientists, but as communicators (Taylor, 1998). The planning language is no longer dominated by architects and similar engineering professions, but is open to other disciplines, especially social sciences (Faludi, 1973). The concept of space geography or morphology has shifted to the concept of space sociology (Harvey, 1973). Communicative planning then gave birth to a variety of known planning models until now, such as consensus planning (Innes, 1995) and collaborative planning (Healey, 2003).

By the 2000s, Fainstein (2000) saw symptoms of re-planning such as in the early days of planning, including the reorganization of the planning process between urban and market development so as to produce a more democratic and just society; new urbanist again promotes attention to the physical form of the city; and the initiator of the “Just City” theory restored the “utopian” spirit of the Howard generation. Criticism in communicative planning is growing. Neo-marxists, for example, challenge communicative or collaborative planning, on the grounds that such planning practices are too process-focused and ignore the substance of planning (Beauregard, 2020). In this period also the advancement of information technology is very influential in the development of planning. Similarly, radical issues are growing, such as human rights, gender, and ecological justice.

### *Environmental Issues in Planning Theory*

Since the early period of modern planning, environmental issues have colored the world of planning. Ebenezer Howard’s idea of “Garden City” can not be separated from the deterioration of environmental health that occurred since the era of European industrialization. The garden city that Howard envisioned was expected to improve the quality of the environment, especially the air that was very polluting at the time, and then influenced the improvement of people’s quality of life.

However, Howard’s idea is still utopian. Industrialization is increasing and touching rural areas in Europe and America, namely the agricultural industry. Concerns about agricultural environmental damage began to emerge through Leopold (1949) and Carson (1962) and eventually sparked social movements in the environmental field. The increase in global ecological awareness was marked when the United Nations (UN) held the First Summit on the Environment in Stockholm (1972) and gave birth to an agreement on “sustainable development”. Since then, sustainable planning ideas or sustainable cities have begun to develop in planning.

The offer of sustainable development is not entirely acceptable to environmentalists. Naess (1973) came up with the idea of “Deep Ecology” which later influenced radical ideas in environmental thinking, such as the idea of “Animal Rights” which was declared in 1998. The fulfillment of animal rights certainly has an impact on the planning and design of the city, especially on pedestrian paths and public open space facilities.

The UN itself held its second Environmental Summit in Rio de Janeiro in 1992, which resulted in an agreement on biodiversity and climate change. The event also impacted the world of planning with the inclusion of biodiversity considerations and climate change in planning activities. Other UN programs in the field of environment that then color the development of planning are the Millennium Development Goals (2000), Environment World Days (2005), General Meeting-Sustainable Development Goals (2015), and Habitat-New Urban Agenda (2016).

The development of environmental thinking that implies planning is briefly outlined in Table 1.

**Table 1. Environmental Thinking and Its Implications in Planning**

<b>Year</b>	<b>Issue</b>	<b>Originator</b>	<b>Implications in Planning</b>
1949	Land Ethic	Aldo Leopold	Awareness of the environment and ecological systems is widespread
1962	Silent Spring	Rachel Carson	
1963	Ecology	Eugene Odum	
1972	Sustainable Development	Stockholm Summit	Increasing attention to the needs of future generations from social, economic, and environmental aspects.
1973	Deep Ecology	Arne Naess	Environmentalism criticism of planners escalates
1975	Bioregionalism	Allen Van Newkirk	Problem solving is limited not only to the administrative area, but also to bioregions.
1992	Biological Diversity	Rio de Janeiro Summit	The influx of biodiversity factors in planning
1992	Climate Change	Rio de Janeiro Summit	The influx of climate change factors in planning
1993	New Urbanism	Congress for the New Urbanism	Mixed-use land use; pedestrian orientation; anti-urban sprawl
1998	Animal Right	Animal Rights Association	Attention to the needs of animals in public spaces (such as pedestrian paths and public open spaces)
2000	Millenium Development Goals (MDGs)	Millennium Summit	The influx of global indicators, particularly environmental goals, in planning
2000	Green urbanism	Timothy Beatley	Ecological footprints in urban areas
2005	Green City	Environment World Days	Increased urban green open space planning; energy-friendly city
2015	Sustainable Development Goals	United Nations General Assembly	Continuation of the Millennium Development Goals
2016	New Urban Agenda	Habitat III	Growing concern for habitable cities

### *Urban Planning for Biodiversity*

Biodiversity is the diversity among living organisms of all sources, including land, sea, air, other aquatic ecosystems, and the ecological complexes in which they are located, covering diversity in species, interspecies and ecosystems (United Nations, 1992). Urban biodiversity can be defined as a collection of species and habitats with all their variations in urban areas (Ahmed & Oliveira, 2016). In many cases, animal and plant species have

settled first in a habitat that later turned into an urban area, before finally being pressured by human activities that come and develop in the area. Attention to biodiversity not only affects the balance of ecosystems, but also on the well-being of human life.

In addition to the 1992 Environment Summit in Rio de Janeiro, biodiversity issues also strengthened at the Habitat III meeting in Quito, Ecuador, which produced the “New Urban Agenda” formulation. In one of the points of the “Declaration of Cities and Sustainable Settlements for All”, it is mentioned that "We envisage cities and human settlements that ... Protect, conserve, restore and promote their ecosystems, water, natural habitats and biodiversity, minimize their environmental impact and change to sustainable consumption and production patterns" (United Nations, 2017).

Biodiversity has been under intense pressure in urban areas. Puppim de Oliveira et al. (2010) outlines the city's level of pressure on biodiversity: first, due to human settlements in the city that eventually displace biological resources; second, urban human life affects not only the biodiversity of the city, but also in the surrounding area or suburbs; third, because cities are hubs of global consumption, biodiversity in distant places is also under pressure.

Although the city's pressures are very strong on biodiversity, urban planning can still encourage conservation (Kowarik et al., 2020). Puppim de Oliveira et.al (2010) also stated that six biodiversity conservation opportunities in the city, namely: (1) cities are “an efficient body” to protect biodiversity; (2) involvement of cities to address global problems and develop new instruments; (3) city dwellers tend to be more educated and environmentally sensitive; (4) policies at the city level can be more effective because they are smaller in scale; (5) there is a chance of “win-win situations” between conservation and other benefits; and (6) there have been many movements of biodiversity convergence and urban planning. Social-mobilization in planning, such as “green urbanism”, “biophilia city”, and “green city” has actually also incorporated these elements of biodiversity.

Biodiversity integration in urban planning can be done through efforts to protect ecosystems and improve city structures as natural habitats (Heymans et al., 2019). Several approaches can be applied, including the socio-ecological system approach. The sociology approach is a reflection of the face of the city as an element of social systems and ecological systems (Kowarik et al., 2020). The city cannot be viewed from the perspective of a social system alone, so it is impossible to see the city from the point of view of the ecological system alone. One of the tools of the socioecological system that will be discussed further is ecosystem services.

Urban planning approaches to biodiversity can not be separated from criticism because of differences in environmental ethics. Houston et al., (2017) argue that many theories in planning are “human”-centric and deepen eco-social crises. The foundation of environmental ethics is indeed influential in the selection of actions on ecosystem sustainability.

### ***Environmental Ethics Discourse***

The discussion of environmental ethics in the modern era was popularized by Leopold (1949), which he termed “The Land Ethic”. Leopold (1949) argued that environmental damage occurs because people consider nature as a commodity; nature is rated as a separate part of human. In Leopold's land ethics, humans are placed as part of members of the natural community. Understanding the ethics of land can encourage people to change from “conquerors” of nature to human beings who care more about fellow members of the natural community (Leopold, 1949).

Similar to Leopold (1949), White (1967) argued that the root of ecological damage is the human perspective on nature. How human treats nature depends on how human puts

himself in relation to nature (White, 1967). White (1967) also began to refer to the term anthropocentric as a view that considers human to be the ruler of nature. Anthropocentric, according to White (1967), was influenced by religious traditions, especially Christianity in Europe in the Middle Ages. Religious people believe that God created the universe to meet all human needs. This belief leads human to the idea that human reigns over nature. This argument is certainly very interpretive considering the interpretation of religious teachings is not singular.

Naess in 1973 introduced the ethical concept of The Deep Ecology as a critique of anthropocentric, which he referred to as The Shallow Ecology. Shallow ecology only talks about pollution and the decline of natural resources, things that are perceived to be detrimental to humans only, and does not pay attention to the concept of ecology as a whole. Ecology itself has a principle, namely all living things have intrinsic value and reject human domination of the value.

Unlike Leopold (1949), White (1967), and Naess (1973), Passmore (1975) defended the anthropocentric understanding of Western society, and felt there was no need to instill a new ethic in looking at the environment. He was aware of the ecological damage done by humans, but he assumed that it was the despotic view that was his view, and not because of anthropocentrism. Passmore's defense of anthropocentrism was based on the history of rationalism in Europe. Beliefs other than anthropocentrism, he argues, are irrational, and not in line with the spirit of Enlightenment.

Passmore rejects the idea of including humans as part of a biotic (natural) community. Humans, according to Passmore, have no moral obligation to animals and plants. This is based on the Reciprocity Assumption's argument that animals and plants have no moral obligation to humans. Norton (1984) also disagreed that ethics as a solution to environmental problems should be non-anthropocentrism. Norton (1984) explains by first dividing the two types of anthropocentrism, namely strong anthropocentrism, and weak anthropocentrism. Weak anthropocentrism according to Norton (1984) is enough as an ethical basis in establishing relationships with the environment. Norton (1984) also bases his arguments on individualistic and non-individualistic factors. Adequate environmental ethics are not by being non-anthropocentrism, but being non-individualistic (Norton, 1984).

The view that places humans as part of the biotic community is referred to by Taylor (1986) as biocentrism (or life-centered). Contrary to Passmore, Taylor (1986) prefers and considers biocentrism to be rational. Biocentrism gives moral value to all living beings members of the biotic community, while anthropocentrism only gives moral value to humans. Biocentric views can increase human appreciation of other living things. Furthermore, Taylor (1986) explained through the term moral agents and moral subjects. A living being is said to be a moral offender if he has the ability to distinguish between right and wrong, has the ability to consider, and has the ability to make decisions; while moral subjects are subjects that are treated good or bad by moral actors. Every moral offender, who is predominantly human, has an obligation to nurture and protect moral subjects. However, the distinction of moral actors and moral subjects actually gives a gap to the weakness of biocentrism. How can a creature that has the ability to distinguish which is right and which one can be equivalent to one that does not have similar abilities?

Naess (2001) then expanded biocentrism into ecocentrism, namely considering the un-living environment (abiotic) as the foundation of environmental ethics. The implication is that all components of the environment, both living, and non-living, such as soil, water, air, mountains, lakes, rivers, and the sea are considered to have intrinsic value. Arimbawa & Putra (2021) claimed that the Balinese philosophy in Indonesia, namely "Tri Hita Karana" refers to this ethic. However, this claim requires verification, both in theory and practice.

Naess (2001) expansion further deepens the debate between the pros and cons of anthropocentrism, but does not reinforce the answer to criticism of biocentrism. Other criticisms continue to pour in, among them Kidner (2014) who disagrees if anthropocentrism is considered an environmental damage. Kidner (2014) separates anthropocentrism and industrialism. The view that separates human and nature from arbitrary exploitation is derived from industrialism, not anthropocentrism (Kidner, 2014). Kidner (2014) continued his defense of anthropocentrism from Passmore (1974) and Norton (1984). This view is reinforced by Ferrando (2016) who says that there was no Anthropocene (the geological era when humans began to intervene in nature) without anthropocentrism.

Environmental ethics anthropocentrism is hard to avoid. The rationality aspect of anthropocentrism is still strong enough that it remains the dominant current. Pinto's (2020) study showed that the planners in the Australian case paid attention to the environment, but the ethical foundations remained anthropocentric. Some experts who are in line with anthropocentrism propose the ethical term post-anthropocentrism (post-humanism or beyond anthropocentrism) as the middle way. Ferrando (2016) himself revealed that post-anthropocentrism is an anthropocent view that places humans as part of the ecosystem, and realizes that when ecosystems are damaged, the impact will be detrimental to humans. Post-anthropocentrism, according to Kopnina (2020) who prefers to use the term post-humanism, is a view of life that is critical of traditional humanism that overestimates human superiority. Post-humanism is rooted and inspired by ecocentric views, deep ecology, and animal rights literature (Kopnina, 2020). In the case of Pinto's (2020) study and the philosophy of "Tri Hita Karana" it may fall into this group.

### ***Environmental Ethics, Planning, and Biodiversity in the City***

When summarized, the concept of environmental ethics can be categorized into anthropocentrism and non-anthropocentrism (biocentrism and ecocentrism). Other variants of environmental ethics concepts not discussed above include ecofeminism and ecocosmopolitanism (Pak, 2016).

As explained, anthropocentrism holds that among all elements of the earth, only human has the right to have intrinsic value. Ecosystems beyond humans have only instrumental value. Therefore, the assessment of right and wrong or good and bad actions against ecosystems is based solely on human needs. If an ecosystem is deemed to be of no benefit to humans, or detrimental to humans, it is not obliged to be looked after. Anthropocentrism tends to have a negative impact on biodiversity. Biodiversity in urban areas is only maintained if it is considered to have the value of benefits to humans. When referring to Norton (1984), the anthropocentrism of this model is included in strong anthropocentrism and individualistic. This understanding even often assumes biodiversity is not important in the city. As for weak anthropocentrism still considers human beings have a moral obligation to protect nature so that it has a tendency to preserve biodiversity in the city, but still with motives for human benefit. Weak anthropocentrism has similarities to post-anthropocentric views. In planning, ideas of anthropocentrism are used in the socio-ecological approach to ecosystem services.

The view of ecocentrism, as an extension of biocentrism, considers that abiotic and biotic components, like humans, also have intrinsic value. Consideration of right and wrong or good and bad actions against ecosystems is not based solely on human needs, but also the needs of abiotics and biotics. This view can have a positive impact on the preservation of biodiversity in the city. Although in certain circumstances biodiversity may be detrimental to humans, biocentrism and ecocentrism still judge that biodiversity has a right to be sustainable in the city. In planning, these non-anthropocentrism ideas are based only

on a purely ecological approach. To make it easier to understand, the above description is presented in Table 2.

As a follow-up illustration, there can be examples of cases concerning snake conservation in India and alligators in the United States. At first glance, these two animals do not have service for humans, but instead disservice. Snakes and alligators are even dangerous for the safety of human life. In the view of anthropocentrism, snakes and alligators should be removed from the city's ecosystem, while non-anthropocentrism persists to preserve their life rights. Here planners play their part to be able to accommodate both views.

### *Cultural Ecosystem Services as a Communication Bridge*

Friedmann (1987) highlighted the often-ineffective planning, especially in the implementation phase. For planning to be effective, planners need to develop communication or negotiation skills. This skill is not only related to implementation, but also related to the fact that planners will be dealing with many forces, such as politics and economics (Forester, 1982). With regard to environmental sustainability, planners need to act as translators to assist the group in understanding the priorities and reasons of others (Campbell, 1996).

**Table 2. Comparison of Environmental Ethics and Their Impact on Biodiversity**

<b>Ethical Foundation</b>	<b>Description</b>	<b>Impact on Biodiversity</b>	<b>Planning Approach</b>
Anthropocentrism	Right/wrong or good/bad action on ecosystems is based on human needs; only humans have intrinsic value (ecosystems only have instrumental value)	Biodiversity depends on its benefits to humans	Socio-ecological approach (ecosystem services)
Strong Anthropocentric (Individualistic)	Human is the master of nature	Biodiversity is considered ins important	
Weak Anthropocentric (Non-Individualistic) – Post Anthropocentric	Human has a moral obligation to protect nature	It is important to maintain biodiversity because it has the value of	Socio-ecological approach (cultural ecosystem services)
Biocentrism	The biotic community has intrinsic value, regardless of its benefits to humans; Consideration of right/wrong or good / bad should not be based on human needs, but also the biotic community.	Attention to biodiversity is very high. - Ignoring the factors of whether the biotic community can harm humans	Pure ecological approach
Ecocentrism	Abiotics and biotics have intrinsic values. Consideration of right / wrong or good / bad include the interests of abiotics.	Attention to biodiversity and all abiotic components is very high. - Ignoring the factors of whether environmental components can harm humans	Pure ecological approach

Ecosystem services approach can be used in planning to give consideration to interested groups related to action on ecosystems. Assessment of ecosystem services itself

is one of the efforts so that the existence of natural ecosystems that have given many benefits to humans can be again appreciated and maintained sustainability. This approach is part of a socio-ecological analysis that examines the interaction between humans and ecosystems (Bennett et al., 2009). The concept of ecosystem services has been used to facilitate collaboration between scientists, professionals, decision makers, and other stakeholders in order to enhance ecosystem conservation and conservation activities (MA, 2005; Schröter et al., 2014). Every element of the ecosystem has a role in the ecological system (biophysical model) even without human intervention. The role in the ecological system produces services that are beneficial for ecological balance and for humans. Among its benefits for humans are food sources, production materials, sources of knowledge, recreation, and others. Ecosystem service assessment can be information and input for institutions in decision making.

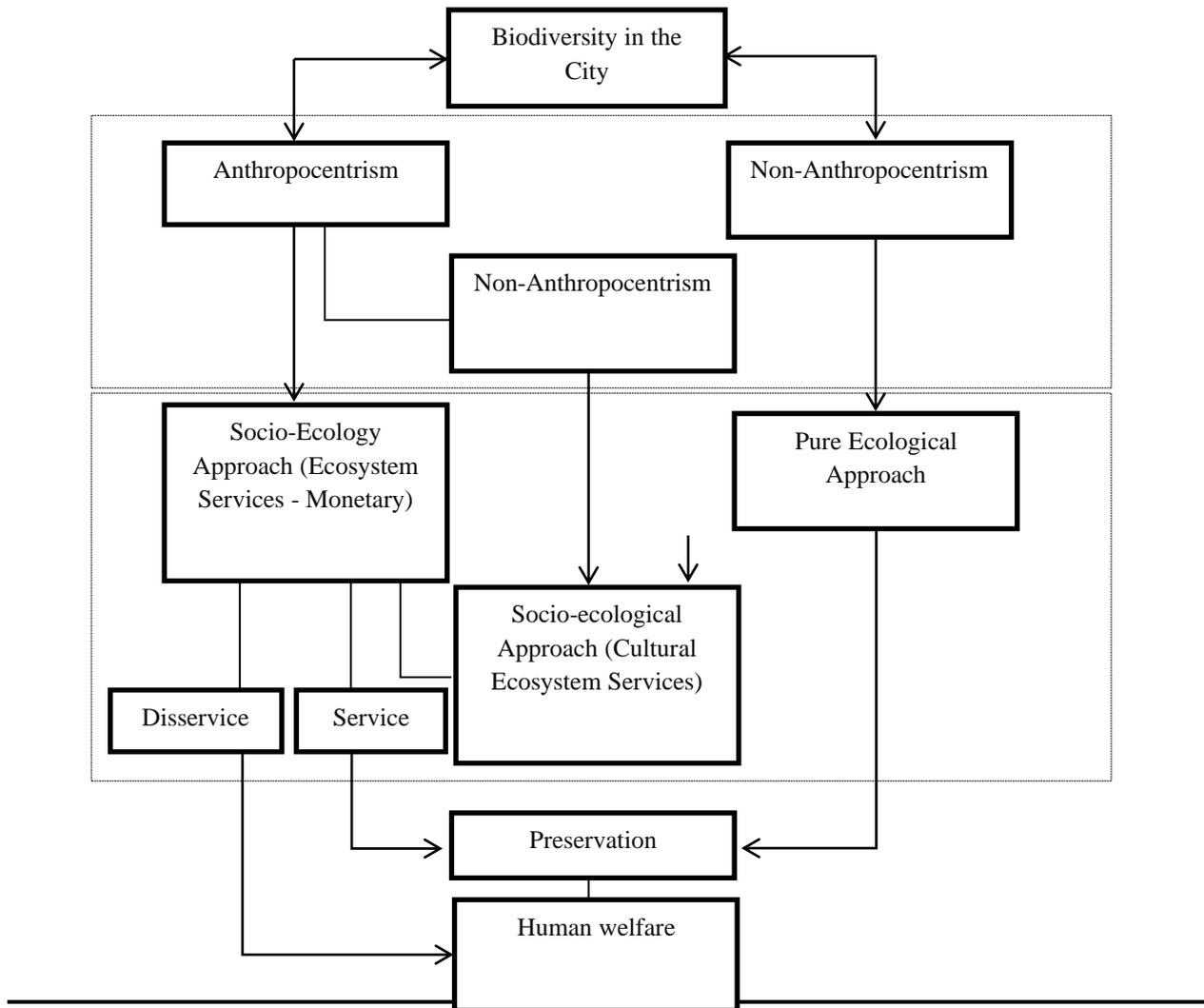
However, ecosystem services generally use an economic valuation approach, one example is the Cost Benefit Analysis to provide alternative options for ecosystem-related policies (Daily et al., 2009). These economic valuation makes the ecosystem services approach ineliable from the debate. McCauley (2006) criticized that ecosystem services approach is based on market calculations, and does not give intrinsic value to ecosystems, or is highly anthropocent. Sagoff (2008) argues that the concept of an ecosystem services approach that assesses ecosystems based on price only results in confusion because the prices are not correlated with value, benefits, and usability. Ecosystem services approach is also considered not to describe the ecological, economic, and political complexity due to limited economic current models (Norgaard, 2010), as well as ignoring the existence of ecosystem disservice factors, namely the negative effects of an environmental element on humans, such as wildlife hazards, infectious diseases, and so on (Lyytimäki et al., 2008).

In an effort to mediate criticism and counter criticism of ecosystem services approach, Schröter et al (2014) proposed that ecosystem services approach be emphasized on cultural ecosystem services with non-monetary valuations. Thus, the assessment used is more qualitative and explanative. In the context of environmental ethics debate, the approach of cultural ecosystem services has the potential to serve as a communication bridge so that different groups can meet and find solutions together.

Cultural ecosystem services are non-material benefits of ecosystems perceived by humans, such as spiritual enrichment, cognitive development, reflection, recreation, aesthetics (MA, 2005), and include sense of place and local identity (Tandarić et al., 2020). The approach to cultural ecosystem services is very effective, logical, and gives the concept of a strong relationship between social and ecological elements (Milcu et al., 2013). Several studies mention the success of cultural ecosystem services in environmental conservation, among them Do (2019) which examines the aesthetic valuation of ecosystems that are proven to influence the increasing public attention. Hausmann et al., (2016) also examined the successful benefits of "sense of place" in environmental preservation.

The approach of cultural ecosystem services can be said to be the embodiment of post-anthropocentrism ethics. This approach opens a wide space to the motives of preserving biodiversity in the city so that it is not only the service factor that is of concern, but also the disservice factor. Thus, aspects of human preservation and welfare can still be achieved together. More details can be seen in the frame of mind Figure 1.

In the case of snakes and alligators as mentioned earlier, cultural ecosystem services play a significant role in the decision making to preserve both animals. Snakes in India are protected because they have cultural ecosystem services as part of religious traditions (Narayanan & Bindumadhav, 2019). Similarly, alligators in the United States are protected because they serve as a source of education and history for scientists and the public. Alligators were age-era survivors who were thought to be the same age as dinosaurs.



**Figure 1. Cultural Ecosystem Services Framework as a Communication Bridge**

### Conclusion

The ethical position of the environment and the preservation of biodiversity in the theory of planning can be seen from “theory in planning” and “theory of planning”, and also from the typology “What is a good urban plan?” and “What is a good planning process?” or “social theory” and “exogenous theory”. Biodiversity is already a substantive part of the ideal city form as environmental issues throughout planning history enter, while as a procedure to make that happen, a planner needs communicative action. In the context of communicative action, environmental ethics debates have a significant influence. Conflicts in planning related to biodiversity are not only limited to the environmental-socio-economic dimension, but also related to the different ways of human view in looking at human and natural relationships. In the discussion above, the approach of cultural ecosystem services is promoted as a communication bridge so that anthropocentrism and non-anthropocentrism groups can meet. Research on cultural ecosystem services in

planning, related to biodiversity conservation, such as “sense of place” and urban identity, is still very potential to be studied.

### Acknowledgement

The first author would like to thank the Indonesia Endowment Fund for Education (LPDP), as the full-ride scholarship from the Indonesian Ministry of Finance, for supporting the first author as a doctoral candidate at Institut Teknologi Bandung.

### References

- Ahmed, A., & Oliveira, J. A. (2016). Integration of biodiversity in urban planning instruments in developing countries: the case of Kumasi Metropolitan Assembly, Ghana. *Journal of Environmental Planning and Management*.
- Allmendinger, P. (2002). Towards a post-positivist typology of planning theory. *Planning Theory*, 1(1), 77–99. doi:10.1177/147309520200100105.
- Arimbawa, W., & Putra, I. K. A. (2021). Dari Antroposentrisme menuju ekosentrisme: Diskursus pengelolaan lingkungan dan tata ruang di Bali. *Jurnal Ecocentrism*, 1(2), 103–112. Retrieved from: <http://e-journal.unmas.ac.id/index.php/jeco/article/view/2423/1825>.
- Banfield, E. (1959). Ends and means in planning. *International Social Science Journal*, 11, 361–368.
- Beatley, T. (1989). Environmental ethics and planning theory. *Journal of Planning Literature*, 4(1), 1–32. doi:10.1177/088541228900400101.
- Beauregard, R. A. (2020). *Advanced introduction to planning theory*. Edward Elgar Publishing.
- Bennett, E. M., Peterson, G. D., & Gordon, L. J. (2009). Understanding relationships among multiple. *Ecology Letters*, 12(12), 1394–1404.
- Campbell, S. (1996). Green cities, growing cities, just cities?: Urban Planning and the contradictions of sustainable development. *Journal of the American Planning Association*, 62(3), 296–312.
- Carson, R. (1962). *Silent spring*. Fawcett Publications.
- Daily, G. C., Polasky, S., Goldstein, J., Kareiva, P. M., Mooney, H. A., Pejchar, L., Ricketts, T. H., Salzman, J., & Shallenberger, R. (2009). Ecosystem services in decision making: Time to deliver. *Frontiers in Ecology and the Environment*, 7(1), 21–28. doi:10.1890/080025.
- Davidoff, P. (1965). Advocacy and pluralism in planning. *Journal of the American Institute of Planners*, 31(4), 331–338. doi:10.1080/01944366508978187.
- Davidoff, P., & Reiner, T. (1962). A choice theory of planning. *Journal of the American*, 28, 103–115.
- Do, Y. (2019). Valuating aesthetic benefits of cultural ecosystem services using conservation culturomics. *Ecosystem Services*, 36(January), 100894. doi:10.1016/j.ecoser.2019.100894.
- Etzioni, A. (1967). Mixed-scanning: A “Third” approach to decision-making. *Public Administration Review*, 27(5), 385–392.
- Fainstein, S. S., & Filippis, J. D. (2016). Introduction: The structure and debates of planning. In J. D. Fainstein, S. S., & Filippis (Ed.), *Readings in Planning Theory* (Fourth, pp. 12–28). John Wiley & Sons, Ltd.
- Fainstein, S. S. (2000). New directions in planning theory. *Urban Affairs Review*, 35(4), 451–478. doi:10.1177/107808740003500401.
- Faludi, A. (1973). What is planning theory? In A. Faludi (Ed.), *A reader in planning theory* (pp. 9–18). Pergamon Press Ltd.
- Ferrando, F. (2016). The party of the anthropocene: Post-humanism, environmentalism and the post-anthropocentric paradigm shift. *Relations*, 4.2, 159–173. doi:10.7358/rela-2016-002-ferr.
- Fishman, R. (1977). Urban utopias in the twentieth century: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier. In & J. D. S. S. Fainstein (Ed.), *Readings in Planning Theory* (pp. 33–59). John Wiley & Sons,

Ltd.

- Forester, J. (1982). Planning in the face of power. *Journal of the American Planning Association*, 48(1), 67–80.
- Friedmann, J. (1987). *Planning in the public domain*. Princeton University Press.
- Friedmann, J. (2003). Why do planning theory? *Planning Theory*, 2(1), 7–10. doi: 10.1177/1473095203002001002.
- Glass, R. (1959). The evaluation of planning: Some sociological considerations. In A. Faludi (Ed.), *A reader in planning theory*. Pergamon Press Ltd.
- Green, B. N., Johnson, C. D., & Adams, A. (2006). Writing narrative literature reviews for peer-reviewed journals: secrets of the trade. *Journal of Chiropractic Medicine*, 5(3), 101–117. doi:10.1162/ling\_a\_00246.
- Harvey, D. (1973). *Social justice and the city*. Edward Arnold.
- Hausmann, A., Slotow, R., Burns, J. K., & Di Minin, E. (2016). The ecosystem service of sense of place: Benefits for human well-being and biodiversity conservation. *Environmental Conservation*, 43(2), 117–127. doi:10.1017/S0376892915000314.
- Healey, P. (1992). Planning through debate: The communicative turn in planning theory. In S. S. . C. Fainstein (Ed.), *Readings in planning theory* (pp. 235–257). Blackwell Publisher.
- Healey, P. (2003). Collaborative planning in perspective. *Planning Theory*, 2(2), 101–123. doi:10.1177/14730952030022002.
- Heymans, A., Breadsell, J., Morrison, G. M., Byrne, J. J., & Eon, C. (2019). Ecological urban planning and design: A systematic literature review. *Sustainability (Switzerland)*, 11(13). doi:10.3390/su11133723.
- Houston, D., Hillier, J., MacCallum, D., Steele, W., & Byrne, J. (2017). Make kin, not cities! Multispecies entanglements and “becoming-world” in planning theory. *Planning Theory*, 17(2), 190–212. doi:10.1177/1473095216688042.
- Innes, J. E. (1995). Planning theory’s emerging paradigm: Communicative Action and interactive practice. *Journal of Planning Education and Research*, 14(3), 183–189. doi:10.1177/0739456X9501400307.
- Kidner, D. W. (2014). Why “anthropocentrism” is not anthropocentric. *Dialectical Anthropology*, 38(4), 465–480. doi:10.1007/s10624-014-9345-2.
- Kopnina, H. (2020). Anthropocentrism and post-humanism. *The International Encyclopedia of Anthropology*, October, 1–8. doi:10.1002/9781118924396.wbiea2387.
- Kowarik, I., Fischer, L. K., & Kendal, D. (2020). Editorial biodiversity conservation and sustainable urban development. *Sustainability*, 12. doi:10.3390/su12124964.
- Krumholz, N. (1982). Retrospective view of equity planning: Cleveland, 1969–1979. *Journal of the American Planning Association*, 48(2), 163–174. doi:10.1080/01944368208976535.
- Leopold, A. (1949). *A sand county almanac*. Oxford University Press.
- Lindblom, C. E. (1959). The science of “Muddling Through.” *Public Administration Review*, 19(2), 79–88.
- Lyytimäki, J., Petersen, L. K., Normander, B., & Bezák, P. (2008). Nature as a nuisance? Ecosystem services and disservices to urban lifestyle. *Environmental Sciences*, 5(3), 161–172. doi:10.1080/15693430802055524.
- MA. (2005). *Ecosystems and human well-being: Synthesis report*.
- Marcuse, P. (2011). Social justice and power in planning history and theory. In & S. S. F. N. Carmon (Ed.), *Urban planning as if people mattered*. Penn Press.
- Mazzioti, D. (1974). The underlying assumption of advocacy planning: Pluralism and reform paris. *Journal of the American Institute of Planners*, 40(1), 38–47.
- McCauley, D. J. (2006). Selling out on nature. *Nature*, 443(7107), 27–28. doi:10.1038/443027a.
- Meyerson, M. (1956). Building the middle-range bridge for comprehensive planning. *Journal of the American Institute of Planners*, 22(2), 58–64. doi:10.1080/01944365608979224.
- Milcu, A. I., Hanspach, J., Abson, D., & Fischer, J. (2013). Cultural ecosystem services: A literature review and prospects for future research. *Ecology and Society*, 18(3). doi:10.5751/ES-05790-180344.
- Naess, A. (1973). The Shallow and the Deep, Long-Range Ecology Movement: A Summary. *Inquiry (United Kingdom)*, 16(1–4), 95–100. doi:10.1080/00201747308601682.

- Naess, A. (2001). Ecology, Community and lifestyle. *Ecology, community and lifestyle*. doi:10.1017/cbo9780511525599.
- Narayanan, Y., & Bindumadhav, S. (2019). "Posthuman cosmopolitanism" for the Anthropocene in India: Urbanism and human-snake relations in the Kali Yuga. *Geoforum*, 106, 402–410. doi:10.1016/j.geoforum.2018.04.020.
- Norgaard, R. B. (2010). Ecosystem services: From eye-opening metaphor to complexity blinder. *Ecological Economics*, 69(6), 1219–1227. doi:10.1016/j.ecolecon.2009.11.009.
- Norton, B. G. (1984). Environmental ethics and weak anthropocentrism. *The Ethics of the Environment*, 4, 333–350. doi:10.5840/enviroethics19846233.
- Pak, C. (2016). *Terraforming*. Liverpool University Press.
- Passmore, J. (1975). Attitudes to nature. *Royal Institute of Philosophy Lectures*, 8, 251–264. doi:10.1017/s1358246100001260.
- Pinto, M. P. (2020). Environmental ethics in the perception of urban planners: A case study of four city councils. *Urban Studies*, 57(14), 2850–2867. doi:10.1177/0042098019887932.
- Puppim de Oliveira, J., Balaban, O., Doll, C., Gasparatos, A., Iossifova, D., Moreno Penaranda, R., et al. (2010). *Governance, cities and biodiversity: Perspectives and challenges of the implementation of the CBD at the city level UNU-IAS Policy Report*.
- Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory. *Policy Sciences*, 4, 155–169. doi:10.1007/BF01405730.
- Sagoff, M. (2008). On the economic value of ecosystem services. *Environmental Values*, 17(2), 239–257. <https://doi.org/10.3197/096327108X303873>.
- Sandler, R. L. (2013). Environmental virtue ethics. In Hugh LaFollette (Ed.), *International Encyclopedia of Ethics* (pp. 1–10). Wiley-Blackwell.
- Schröter, M., van der Zanden, E. H., van Oudenhoven, A. P. E., Remme, R. P., Serna-Chavez, H. M., de Groot, R. S., & Opdam, P. (2014). Ecosystem services as a contested concept: A synthesis of critique and counter-arguments. *Conservation Letters*, 7(6), 514–523. doi:10.1111/conl.12091.
- Tandarić, N., Ives, C. D., & Watkins, C. (2020). Can we plan for urban cultural ecosystem services? *Journal of Urban Ecology*, 8(1), 1–17. doi:10.1093/jue/juaa016.
- Taylor, N. (1998). *Urban Planning Theory since 1945 Urban Planning Theory*. 184.
- Taylor, P. W. (1986). Respect for nature: a theory of environmental ethics (25th anniversary edition). In *respect for nature: A theory of environmental ethics (25th Anniversary Edition)*.
- United Nations. (1992). *Convention on biological diversity*.
- United Nations. (2017). *The sustainable development goals report*.
- Webber, M. M. (1963). Comprehensive planning and social responsibility: Toward an AIP consensus on the profession's roles and purposes. *Journal of the American Institute of Planners*, 29.
- White, L. (1967). The historical roots of our ecological crisis. *Science*, 155, 1203–1207.
- Yiftachel, O. (1989). Towards a new typology of urban planning theories. *Environment and Planning B: Planning and Design*, 16, 23–39.
- Zuidema, C., & Roo, G. D. (2006). Integrating complexity theory into planning theory: Truth or dare? *AESOP Conference, Grenoble*.