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Approaches to and Appropriate Application of Environmental Models from Scientific, Ethical, and Religious Perspectives: With an Emphasis on Environmental Citizenship

*Hossein Rahmani Tirkolaei¹, Mohammad Javad Mahdavi Lasibi²

1. Associate Professor, Payame Noor, University, Tehran, Iran

2. Assistant Professor, Department of Agrotechnology, Technical and Vocational University (TVU), Tehran, Iran

Correspondence:

Hossein Rahmani Tirkolaei

Email: ahmani1391@pnu.ac.ir

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ABSTRACT

The relationship between individuals and the environment is one of the most important dimensions of human relations. At the same time, the interplay among science, ethics, and religion is an important factor in shaping appropriate environmental models. This study aims to explain appropriate approaches to and applications of environmental models from scientific, ethical, and religious communication perspectives. This theoretical study employs a descriptive-analytical approach, with data collected through library research and the examination of relevant documents, books, and scholarly articles. The study maintained textual authenticity, honesty, and fidelity to the sources throughout the research process. Environmental citizenship provides a flexible framework that incorporates environmental protection and sustainable development by enhancing citizens' roles in shaping the nature and quality of their interactions with the environment. The environmental citizenship model seeks to protect the environment and promote sustainable development by engaging members of society in environmental responsibility and action. This model can help establish an appropriate pattern of human-environment interaction. Science, ethics, and religion can contribute effectively to environmental protection when their principles become part of society and guide human relationships and behavior.

KEYWORDS

Citizenship Rights; Environmental Citizenship; Environmental Protection; Sustainable Development, Environmental Ethics.



Introduction

The relationship between human beings and the environment constitutes one of the most significant dimensions of contemporary social, legal, ethical, and religious relations. Throughout history, human societies have transformed their natural surroundings to satisfy fundamental needs, including survival, settlement, food production, and economic development. However, industrialization, population growth, technological advancement, and increasing consumption have intensified human intervention in nature and contributed to environmental degradation. The traditional environmentalist approach largely viewed nature as an unlimited reservoir of resources and placed human beings in a dominant position over the natural world. The consequences of this approach gradually led to the emergence of sustainable development and ecocentric perspectives, which emphasize ecological limits, interdependence, conservation, and responsibility toward future generations.

Within this conceptual transformation, environmental citizenship has emerged as a relatively recent and flexible framework for regulating human–environment relations. Unlike the classical conception of citizenship, which primarily emphasizes individual rights and political participation, environmental citizenship combines rights with duties and responsibilities. It seeks to enhance citizens' knowledge, attitudes, skills, participation, and environmentally responsible behavior. The central question of this study is to what extent environmental citizenship, as an environmental model, incorporates science, ethics, and religion in pursuing environmental protection and sustainable development. The study advances the proposition that environmental citizenship can function as an integrative framework capable of incorporating the factors that influence human–environment relations according to social, legal, scientific, ethical, and religious circumstances.

Methodology

This theoretical research adopts a descriptive–analytical approach. The required data were

collected through library research and the examination of relevant books, scholarly articles, legal documents, jurisprudential sources, and theoretical literature concerning environmental models, sustainable development, environmental citizenship, environmental ethics, science, religion, and Islamic environmental principles. The study first examines the historical development of human approaches to nature and then compares the environmentalist and ecocentric models. It subsequently analyzes the conceptual foundations of environmental citizenship and investigates the respective contributions of scientific knowledge, ethical principles, and religious teachings to environmentally responsible behavior. Particular attention is given to the Islamic perspective and its relationship with environmental responsibility, ownership, stewardship, moderation, and the protection of natural resources. Throughout the research process, textual authenticity, accuracy, honesty, and fidelity to the consulted sources were maintained.

Results

The findings demonstrate that the environmentalist model is fundamentally characterized by the separation of human beings from nature and by the perception of natural resources primarily as instruments for satisfying human needs and promoting material development. Historically, the expansion of industrial production and technological power reinforced this approach and reduced attention to ecological carrying capacity and the intrinsic value of nature. In contrast, ecocentrism emphasizes the interconnectedness of human beings and the natural world and recognizes the finite character of natural resources. It therefore calls for sustainable patterns of production and consumption, ecological protection, responsible resource management, and consideration of the interests of future generations and non-human forms of life.

Environmental citizenship occupies an important position within this transformation. The findings indicate that an environmental citizen is not simply a person who possesses

environmental information but an individual who accepts responsibility for the environmental consequences of personal and collective actions. Environmental citizenship encourages citizens to participate in protecting their living environment, reducing environmental hazards, conserving natural resources, and contributing to sustainable development. It consequently transforms environmental protection from an obligation primarily imposed on governments into a shared responsibility between public authorities and members of society.

Science and technology constitute an important foundation of environmental citizenship. Although scientific and technological development historically facilitated extensive exploitation of natural resources, contemporary scientific advances increasingly provide practical solutions to environmental problems. Renewable energy technologies, including solar, wind, and geothermal energy; recycling and energy recovery; microbial biotechnology for pollution remediation; climate-responsive architecture; efficient irrigation systems; natural pesticides; and environmental standards demonstrate the capacity of science to support ecocentric approaches. Scientific knowledge can therefore provide the information, technologies, and practical instruments required for responsible environmental citizenship.

Ethics constitutes a second fundamental dimension. Environmental ethics examines the moral status of nature and the duties of human beings toward other species, ecosystems, and future generations. The study shows that different ethical perspectives—including utilitarianism, biocentrism, ecocentrism, virtue ethics, responsible use, and stewardship—provide alternative foundations for evaluating human behavior toward nature. Among these perspectives, ecocentrism and stewardship are particularly compatible with environmental citizenship because they recognize that humans have responsibilities extending beyond immediate individual interests. Environmental ethics can consequently transform environmental protection from a merely legal obligation into an internalized moral commitment.

Religion represents a further source of

environmental responsibility. The analysis of religious perspectives indicates that several major religious traditions contain principles supporting respect for nature and responsible resource use. Within Islam, these principles have a particularly significant normative foundation. The Qur'an presents nature as a manifestation and sign of divine creation and identifies human beings as God's vicegerents on Earth. This status entails responsibility rather than unlimited domination. Islamic teachings emphasize the cultivation and preservation of the Earth, moderation in consumption, avoidance of waste, environmental cleanliness, and the protection of water, soil, vegetation, animals, and natural habitats.

The Islamic concept of ownership further reinforces this responsibility. Although individuals may possess legally recognized property rights, such rights are not absolute and must be exercised within religious and legal limitations. Ultimate ownership belongs to God, while human beings act as trustees or stewards of creation. Consequently, individuals should not use their rights in ways that unjustifiably damage natural resources, other creatures, or the environmental interests of future generations. This principle establishes a close conceptual relationship among Islamic jurisprudence, environmental ethics, and environmental citizenship.

Conclusion

The findings indicate that environmental citizenship can serve as a comprehensive and flexible model for establishing appropriate human–environment relations. Its distinctive feature is the integration of environmental rights with environmental duties and responsibilities. While classical citizenship primarily emphasizes political and social rights, environmental citizenship requires citizens to participate actively in environmental protection and to modify individual and collective behaviors that contribute to environmental degradation.

The effective application of this model depends on the integration of three complementary foundations. Science provides environmental knowledge, evidence, technologies, and practical solutions; ethics

establishes moral standards for determining responsible and irresponsible relationships with nature; and religion can provide normative guidance, moral motivation, and a sense of responsibility toward creation. In the Islamic context, stewardship, moderation, avoidance of waste, respect for living beings, and responsibility for the Earth provide significant foundations for environmentally responsible citizenship.

The study therefore concludes that environmental protection cannot be achieved solely through governmental regulation, legal sanctions, or technological innovation.

Sustainable environmental governance requires the active participation of citizens whose knowledge, values, and everyday behavior support environmental responsibility. Environmental citizenship provides an institutional and conceptual framework through which scientific knowledge, ethical commitment, religious responsibility, legal rights, and civic duties can converge toward a common objective: protecting the environment and promoting sustainable development for present and future generations.

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نحوه برخورد و عملکرد متناسب الگوهای زیست محیطی از منظر ارتباطات علمی-اخلاقی و مذهبی با تأکید بر شهروندی زیست محیطی

*حسین رحمانی تیرکلایی^۱، محمد جواد مهدوی لاسیبی^۲

۱. دانشیار، گروه معارف اسلامی، دانشگاه پیام نور،

تهران، ایران

۲. استادیار، گروه آموزشی فناوری کشاورزی، دانشگاه

ملی مهارت، تهران، ایران

نویسنده مسئول:

حسین رحمانی تیرکلایی

رایانامه: Rahmani1391@pnu.ac.ir

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چکیده

ارتباط میان افراد و محیط زیست یکی از موضوعات مهم در فضای روابط انسانی است. از طرفی نیز مناسبات میان علم، اخلاق و مذهب یکی از متغیرهای مهم در تعیین الگوی زیست محیطی مناسب محسوب می شود. هدف از پژوهش حاضر تبیین نحوه برخورد و عملکرد متناسب الگوهای زیست محیطی از منظر ارتباطات علمی-اخلاقی و مذهبی است. روش این تحقیق از نوع نظری بوده و روش آن به صورت توصیفی تحلیلی است و ابزار جمع آوری اطلاعات نیز به صورت کتابخانه ای است. در تمام مراحل نگارش پژوهش حاضر، ضمن رعایت اصالت متون، صداقت و امانتداری رعایت شده است. شهروندی زیست محیطی یکی از چهارچوب های منعطفی است که با افزایش نقش شهروندان در ماهیت و نحوه مناسبات با محیط زیست، حفظ و توسعه آن را در دستور کار خود قرار می دهد. الگوی شهروندی محیط زیستی، با اتکا به افراد جامعه، به دنبال حفظ محیط زیست و توسعه پایدار است. این الگو، مناسب ترین عملکرد را در مناسبات با محیط زیست ایجاد می کند. متغیرهای علم، اخلاق و مذهب به هر میزان که در جامعه و در روابط انسانی نفوذ پیدا کنند به همان میزان در راستای حفظ محیط زیست نقش آفرینی می کنند.

واژه های کلیدی

شهروندی زیست محیطی، حفظ محیط زیست، توسعه پایدار، حقوق شهروندی.

Introduction

Among the various relationships established between legal subjects, the environment constitutes one of the most important areas of concern. Under the classical approach, states exploited environmental resources without clearly defined limits or boundaries, exposing the human environment to extensive degradation and destruction (Fisher, 2019). Over time, as the importance of environmental protection became widely recognized, the concept of sustainable development emerged in the scholarly and legal literature. Within this framework, states are expected to pursue development in ways that avoid harming natural resources and the environment while ensuring that future generations can benefit from natural resources and environmental assets (Singh, 2013).

Within the broad and flexible conceptual framework of sustainable development, more specific concepts have subsequently emerged in the scholarly and legal literature. These concepts help implement sustainable development across various dimensions of human life. One such concept is environmental citizenship. The European Union's 2020 Growth Strategy, consistent with its vision of a green, renewable, and low-carbon economy and aligned with the EU 2050 roadmap, emphasizes citizen participation, interaction, and environmental citizenship (Migliore et al., 2019).

This study asks: To what extent does environmental citizenship, as an environmental model, consider science, religion, and ethics in pursuing environmental protection? The study hypothesizes that environmental citizenship is a flexible model that incorporates the various factors influencing human–environment relationships to the extent that they affect these relationships and can produce desirable outcomes in accordance with prevailing circumstances.

Regarding the research background, the study by Seidi et al. (2020), entitled “Modeling the Factors Affecting the Environmental Ethical Behavior of Rural Residents with Emphasis on the Value–Belief–Norm Theory,” is particularly relevant. The authors argue that the emergence and increasing prevalence of environmental

problems have become major concerns for international organizations and scholars. Because human behavior is a major factor contributing to environmental hazards, how people interact with and behave toward the environment is increasingly a central concern for the international community.

Accordingly, the study sought to model factors influencing environmental ethical behavior among rural residents based on the Value–Belief–Norm Theory. Most existing studies have focused on specific case studies rather than on environmental citizenship itself, which represents an innovative aspect of the present research.

Research Methodology

This theoretical study uses a descriptive–analytical approach. Data were collected through library research using relevant documents, books, and scholarly articles.

Research Findings

The findings indicate that environmental citizenship is a flexible framework that promotes environmental protection and sustainable development by enhancing citizens' roles in shaping the nature and quality of their interactions with the environment.

1. Environmental Models

From the beginning of human existence to the present, all human societies have altered their natural surroundings to meet their fundamental needs, including survival and reproduction. Throughout this process, both social organization and the level of human development have changed substantially. As human lifestyles evolved from cave dwelling and hunting to permanent settlement, agriculture, and land ownership, and later to the Industrial Revolution, the discovery of atomic energy, and the exploration of outer space, it became increasingly evident that the relationship between human beings and their environment, particularly the Earth's natural environment, is inseparable. Accordingly, effective environmental protection plays a crucial role in ensuring human survival, safeguarding health and well-being, and promoting the development of human societies

(Salehi, 2013).

Sociologists have identified several broad perspectives on the environment, including views of the natural environment as wilderness, a village or garden, an urban setting, and a global environment.

The wilderness-oriented perception, partly rooted in medieval Christianity, was associated with a fearful view of spaces such as dark forests, mountains, and wetlands. This perception corresponds to a stage in which human beings primarily relied on hunting and cave dwelling for their livelihoods. The village-or-garden perception has largely been used to explain cultural differences between industrial societies and societies that remain within the preceding worldview. The urban environment refers to spaces created by human beings and differs fundamentally from earlier environmental perspectives. Historically and conceptually, the settlement of human beings and other living organisms in cities represents the most modern form of the environment.

Although the global environment and the interdependent existence of all organisms on a single planet have existed since the beginning of life, the global environment did not occupy a significant position in the conceptual frameworks of scholars, particularly sociologists, political scientists, and legal scholars, until the period from the 1960s to the 1980s. During this period, humanity faced environmental crises resulting from uncontrolled human activities (Moharramnejad & Tehrani, 2010). After this period, the need to protect the environment through an integrated international approach was increasingly recognized.

The history of international environmental law can be traced back to the period between 1902 and 1931, which saw the adoption of several instruments, including conventions concerning animal species and the 1909 Convention concerning transboundary water pollution. Another significant development was the Convention for the Preservation of Fauna and Flora in their Natural State in Africa, concluded in London on November 8, 1933. Major subsequent developments included the 1972 Stockholm Conference and the establishment of the United Nations Environment Programme (UNEP); the formulation of the World Conservation Strategy

in 1980 by the International Union for Conservation of Nature (IUCN), UNEP, and the World Wide Fund for Nature (WWF); and the 1992 Rio de Janeiro Earth Summit, which resulted in the adoption of a declaration on the environment and sustainable development (Ansari, 2016).

1.1. The Environmentalism Approach

From the mid-eighteenth century onward, as Enlightenment social theory emerged, scientific knowledge and technology were increasingly used in industrial production to extract the maximum possible benefits from nature, and this approach came to be regarded as a fundamental condition of human progress. With the Industrial Revolution, the perception emerged that human beings were separate from nature and could make decisions about other species. More radically, nature and everything within it came to be viewed as an unlimited reservoir of resources through which some human beings could attain the greatest possible wealth and material well-being.

Even after the democratic revolutions that introduced the principle of popular government, people viewed the environment as an unlimited resource available for human exploitation. Accordingly, two features stood out: first, the separation of humans from nature, with humans positioned as owners and exploiters; and second, the absence of clearly recognized limits on the use of environmental resources and insufficient attention to their carrying capacity.

Within this approach, human beings are conceived as rulers over all other organisms and, therefore, as entitled to exercise power over subordinate forms of life as they wish. Consequently, effective legal mechanisms to regulate this power were largely absent. The law itself was also used to further environmental exploitation (Tehrani & Moharramnejad, 2010).

1.2. The Ecocentrism Approach

In the contemporary era, population growth and increasing demand for economic and industrial development have made sustainable development increasingly necessary. Sustainable development is a process that envisions a desirable future for human societies in which living conditions and resource use meet human needs without compromising the

integrity, beauty, and stability of life-support systems (Leopold, 1949).

The combination of development and sustainability demonstrates that sustainability is no less important than development itself. Accordingly, management strategies for protecting limited natural resources must meet present needs while ensuring their continued availability for future generations. Development that protects land, water, plant and animal genetic resources, air, and natural ecosystems not only prevents environmental degradation but can also contribute to economic and social development and sustainable human security (Mehrra et al., 2018).

The question of how human society came to recognize that development must include stabilizing factors such as environmental protection can be examined through ecocentrism in environmental sociology. This approach emerged from criticism of, and conflict between, human society and the environmental problems generated by the prevailing environmental paradigm over centuries, particularly following the Industrial Revolution. Scholars associated with this perspective seek management strategies that can fundamentally transform humanity's relationship with the non-human natural world and replace previous practices with new approaches to social life and political organization (Leopold, 1949).

Because ecocentrism emphasizes the unity of human beings and nature, it first advocates limiting socioeconomic growth and, consequently, consumption, given that natural resources are finite. Second, it advocates shifting human motivations away from consumerism toward spiritual fulfillment. A sustainable society is one in which people experience inner satisfaction rather than seeking satisfaction through consumption. Therefore, the assumption that unlimited consumption necessarily leads to satisfaction should be reconsidered (Salehi et al., 2014).

Accordingly, human beings should adopt a new identity within nature—an identity that transcends national, ethnic, and racial boundaries and is based on a shared global objective: preserving the Earth (Salehi et al., 2014). Within this approach, people reconsider

nature and transform environmental values. Natural ecosystem functions promote attachment, respect, and appreciation. Ethical principles that seek to minimize harm in social organization and development are considered valuable, while people assume ethical responsibility for exploiting nature and its resources (Wahabzadeh, 2012; Salehi, 2013).

One of the most important movements to emerge from the ecocentric approach in the 1980s was the environmental justice movement. This movement called for justice worldwide, emphasizing not only rights and responsibilities toward future generations in relation to nature, but also rights and responsibilities toward individual elements of nature as living components of the natural world (Salehi et al., 2014). Its emphasis on food justice, health justice, and meeting the basic needs of poor and vulnerable populations worldwide can also be understood as an outcome of this movement. In this context, global sustainable development becomes closely connected with ecocentrism.

2. Environmental Citizenship

To understand what constitutes a city, it is useful to recognize that a city is a dynamic environment in which human beings play a fundamental role in transforming and developing it (Khatibi, 2013). The urban environment comprises artificial, natural, and socioeconomic dimensions and emerges in response to two basic human needs: adequate housing and a clean environment (Barakpour & Jahan-Siraj, 2016; Karimi & Kamiar, 2017).

The term “citizen” combines “city,” which refers to a human community created by people and contrasted with the village, with the suffix “-vand,” referring to a person connected to something. The concept originated in Greek political thought, although not in precisely its present-day sense. Instead, it referred to a person belonging to a city-state and enjoying the protections, rights, and duties associated with membership in that political community (Karimi & Kamiar, 2017).

A citizen is an individual who has attained a level of intellectual maturity that enables them, as a social being, to pursue equality and live under the rule of law. Accordingly, taking

responsibility for addressing corruption and preventing the misuse of the law for personal gain at the expense of collective interests is a key quality of citizenship (Karimi & Kamiar, 2017).

Two approaches to citizenship can therefore be identified. The first equates citizenship with nationality within a country, whereas the second recognizes urban residents as having citizenship rights regardless of their nationality (Karimi & Kamiar, 2017). Citizenship and nationality differ in several respects. Nationality may be acquired at birth, whereas citizenship is associated with individuals' political rights. Judicial sanctions may suspend or restrict citizenship rights, whereas courts generally cannot revoke individuals' nationality. Citizenship rights are also linked to the human status of urban residents; therefore, legal entities do not fall within this concept of citizenship (Karimi & Kamiar, 2017).

Two further concepts appear in the literature: global citizenship and environmental citizenship. Environmental citizenship refers to a person who, with a sense of responsibility toward the urban environment, takes appropriate actions to reduce environmental hazards and problems; these actions are called environmental behaviors (Barakpour & Jahan-Siraj, 2016; Karimi & Kamiar, 2017). A person who has global citizenship rights and works to protect the global environment may be described as a global citizen. Because human life across the planet is interconnected, like links in a chain, the term "global citizen" can also apply to environmental citizens. Thus, the two concepts are closely related and, in practice, difficult to separate.

2.1. The Position of Environmental Citizenship within Environmental Models

To clarify the concept of environmental behavior, we first define it. An environmental citizen respects the environment, values efforts to create a safe and clean urban environment, and acts responsibly to achieve these goals within the framework of citizenship rights.

Considering the definitions of the two established models—environmentalism and ecocentrism—it appears that a person who possesses the characteristics of an environmental citizen acts in practice in accordance with the ecocentric approach and

serves as one of its driving forces. Such a person must possess not only a sense of responsibility but also the competence required to take effective environmental action.

According to Lenore, the right to the city is closely related to citizenship rights but differs from them in that it establishes two specific rights for urban residents: the right to access and use urban space and the right to participate in its production. If citizenship is understood as membership in a political community known as the city, this concept differs from the status of a person who is considered a member simply because of residence in an urban environment. Jean-François Tribillon has identified additional dimensions of the right to the city, including the right to enjoy a beautiful, convenient, and healthy city while respecting the environment (Karimi & Kamiar, 2017).

Iran's legal system recognizes various urban rights through constitutional provisions and statutory laws. Article 40 of the Constitution provides that no person may exercise their rights in a manner that harms others or infringes on the public interest. Even ownership, recognized as the highest proprietary right of individuals, must not be exercised in a way that harms others. Therefore, although individual rights and freedoms are protected, individuals should exercise them without violating others' rights, including the right to a clean environment and future generations' right to access natural resources securely (Karimi & Kamiar, 2017). Other constitutional provisions also address the right to self-determination, public participation in urban administration, freedom of movement, adequate housing, and a healthy environment.

Other sources of Iranian law include development plans, ordinary statutes, and regulations. Under Article 64(a) of the Fourth Development Plan and Article 189(a) of the Fifth Development Plan, the Environmental Protection Organization was required to take measures to promote a culture of respect for and protection of nature, the use of clean technologies, and formal education in these areas in schools and among different social groups. This obligation is also related to the Free Access to Information Act of 2009, under which citizens should have access to municipal documents and regulations concerning plans that directly affect the natural environment.

Municipalities are among the institutions covered by the relevant implementing regulations (Karimi & Kamiar, 2017).

The 1935 Municipalities Act also directly addresses citizenship rights and their exercise in municipal governance, although it has traditionally served primarily as an administrative framework. In addition, under the relevant provisions of Article 690 of the Islamic Penal Code and Article 50 of the Fair Water Distribution Act, acts such as environmental destruction and water pollution are criminalized under specified statutory conditions and are subject to legal penalties (Karimi & Kamiar, 2017).

At this point, the behavior or set of civic behaviors associated with the environmentalist model becomes apparent. The defining characteristic of such citizenship appears to be environmental indifference (Firouzjaian & Shafiei, 2017). Social indifference refers to a situation in which people who witness an event fail to intervene, even when an emergency requires immediate assistance, and instead pass by without taking action (Hosseini et al., 2014). Examples include excessive household use of energy and water; overuse of rangelands; imbalances between livestock numbers and available pasture; drought; severe soil erosion and desertification; land subsidence caused by excessive groundwater extraction; and damage to historical sites and monuments. Taken together, these problems indicate that the environmentalist model continues to shape how Iranian citizens interact with the environment (Farahmand et al., 2013).

3. The Position of Science within Environmental Models

To understand how law and science influence environmental models, we first examine the relationship between science and law. Many legal scholars have examined the relationship between law and other social sciences, including political science, sociology, economics, and psychology. However, this perspective is insufficient because the relationships among legal subjects changed profoundly following the Industrial Revolution. Power that was expected to be constrained by law became a source of increasing conflict

among legal subjects as social development accelerated and changed in nature. The growing influence of social classes and labor movements, the expansion of global communication, and increased interactions among societies further transformed these relationships. These changes also influenced how power shaped government and political authority (Martin, 2022).

At first glance, the natural and mathematical sciences may appear to have little direct relationship with law. However, inventions and advances in empirical and rational knowledge have influenced both law and the implementation of legal rules in at least two ways. First, steam, electricity, and atomic power radically transformed the social environment and human needs, creating a need for new legal rules. For example, transportation rules based on animal and human power for freight transport became inadequate for modern air and maritime transportation. Second, the expansion of international trade required new rules governing commercial instruments, industrial property, patents, and sales. Similarly, developments in artificial insemination and biology affected family law and questions of parentage, while changes in land use affected human life. The development and efficient management of water resources shared by several states, such as the Tigris, Euphrates, and Nile, also created new legal needs arising from advances in empirical science, the natural sciences, engineering, and mathematics (Barkan, 2013).

When examining the historical development of science, scholars encounter ideas examined in sociological theory. Modern science developed through a social process that unfolded over centuries and culminated in the Scientific Revolution. Modern science, understood as empirical science developed outside the Church's authority, is closely linked to the work of Galileo and Copernicus and has continued to evolve to the present. Carolyn Merchant argues that one consequence of modern science and the Scientific Revolution was the justification, under Baconian ideas, of environmental damage in pursuit of scientific progress and scientific methods at any cost. Aggressive intervention in nature and economic

activities aimed solely at maximizing profit, without regard to nature's capacity—and, in some cases, even human well-being—especially during the Industrial Revolution and following the introduction of steam power, accelerated the pace of life, contributed to urban growth, and intensified the perception of human beings as separate from nature (Salehi, 2013).

Thus, the characteristics of environmentalism—human separation from nature and the belief in dominion over apparently unlimited resources—are clearly evident in this historical period (McCusker et al., 2022). Over time, however, social perceptions shifted toward environmental protection and a renewed recognition of the interconnectedness of human beings and nature, particularly in the early twenty-first century. This shift led to numerous efforts based on a sense of human responsibility toward the environment, including the development of environmentally friendly technologies.

Examples include advances in renewable energy production, including geothermal, wind, and solar energy generated through photovoltaic cells and solar power plants; waste recycling and energy recovery; the use of microbial biotechnology to clean up oil pollution in the seas; the increased use of climate-responsive architecture to reduce energy consumption; environmental standards such as the RoHS standard for restricting hazardous substances, including polybrominated diphenyl ethers (PBDEs), which are harmful and persistent in the environment; educating farmers about efficient water use and modern irrigation and agricultural systems; and the introduction of natural pesticides to reduce dependence on chemical and ammonia-based pesticides. Together, these developments demonstrate the significant contribution of science and technology to ecocentric environmental strategies (Rajan & Baral, 2020).

4. The Position of Ethics within Environmental Models

Ethics is a branch of philosophy concerned with morality and values. Morality involves distinguishing between what is good and what is undesirable, while values concern the fundamental judgments we make about actions and matters. Ethics examines relationships,

rules, and principles to determine whether specific behaviors are desirable and morally good. Western ethicists have frequently returned to Socrates' well-known question: What is the good life, and how should we act if we wish to live ethically? (Jalaluddin, 1991; Cunningham et al., 2003).

In most societies, religion is inseparable from important aspects of human life, and ethics is a significant part of it. Islamic scholars have defined ethics through concepts such as character, disposition, nature, habit, and the inner nature of human beings, which reflects their personality and essence (Nasiri, 2013). Allameh Tabatabaei defines character as behavior that has become a stable disposition of the soul. He defines disposition as an action that arises from a person without deliberation or hesitation (Tabatabaei, 2008). From this perspective, ethics has three main areas: teaching moral virtues and vices; explaining how to cultivate the self through moral virtues; and moral philosophy or metaethics, which examines why specific acts or behaviors are considered good or bad (Nasiri, 2013).

Islam views the various relationships of human beings as governed by ethical principles, including the relationship with God, or the ethics of servitude; the relationship with oneself, or individual ethics; the relationship with society, or social ethics; and, specifically, the relationship between human beings and the environment (Nasiri, 2013).

The relationship between ethics and law also requires examination. Law is established to regulate relations among legal subjects and, in practice, to regulate relationships in which power is a major influencing factor. To prevent power from becoming unrestrained and destroying anything it considers an obstacle, a control mechanism is necessary. If this mechanism exists merely as a value or an anti-value, without an external coercive force, and is understood—from Aristotle to Khajeh Nasir al-Din Tusi, Imam Muhammad al-Ghazali, and Kant—as governing human conscience alone, it is understood as ethics (Katouzian, 2016).

According to Katouzian, ethics occupies a distinctive position among the sources that influence law. A legal rule can be implemented only when it does not conflict with ethical principles. At the same time, ethics can moderate legal rules and bring them closer to

achieving justice. In Iranian law, many ethical rules are supported by legal sanctions, and the influence of ethical norms on legal rules—and vice versa—is particularly evident in family law, criminal law, property law, and the law of obligations (Katouzian, 2016).

Environmental ethics is a relatively recent branch of philosophical ethics. It examines fundamental questions about the relationship between humans and the environment: Is the natural environment valuable only for its material benefits, or does it also have non-material value? How should humans behave toward nature? Do humans have duties or responsibilities toward other species or toward nature as a whole? Do ethical principles determine how humans may use nature? If so, which principles should guide such use? How should the conflict between human responsibilities toward nature and human preferences for unlimited consumption be resolved? (Cunningham et al., 2003).

Some philosophers and social scientists attribute a distinctive role to ethics in addressing environmental problems. They argue that the environment can recover from its current degraded condition only when the natural environment and human culture are placed in an appropriate relationship. They argue that this will not occur unless environmental ethics is integrated into all sectors of society (Nabavi & Shahriari, 2014).

Leopold proposes an ecosystem-centered approach to ethics. He argues that an action is ethically right when it contributes to the integrity, stability, and beauty of the land. He calls this ethical approach the “Land Ethic” (Azderi, 2003).

Environmental problems are no longer limited to individual hazards. Environmental problems are no longer limited to individual hazards. Because the consequences of one person’s actions can affect people around the world, we must consider whether traditional ethical standards can adequately regulate human–environment interactions. The answer appears to be no for two reasons: human needs and priorities have changed throughout history, and ethical frameworks capable of adequately addressing environmental hazards and explaining their causes had not been

sufficiently developed in the past (Sarostani et al., 2007).

The main objectives and benefits of environmental ethics include developing a proper understanding of the environment so that the Earth and nature are not treated merely as consumable commodities; helping human beings recognize their role within nature; and establishing appropriate interactions between human beings and the environment so that human behavior preserves nature for both present and future generations (VahabZadeh, 2003).

Human approaches to nature and the environment are shaped by underlying philosophical and ethical beliefs. Therefore, it is important to examine several major ethical schools. Universalists, represented by thinkers such as Plato, regard moral principles as unchanging and applicable in all circumstances. Some derive these principles from divine revelation, while others derive them through rational reasoning (Ghasemi & Moghadam, 2010).

In contrast, Sophists and other critics of Plato defended the relativity of moral principles, arguing that ethical principles are not necessarily the same for all individuals, societies, or circumstances. Nietzsche is among the prominent thinkers associated with this relativistic orientation (Moghadam & Ghasemi, 2010).

Others, such as Schopenhauer, have argued that everything is accidental and that life has no definitive purpose or meaning. Accordingly, they see no sufficient basis for ethical conduct and are associated with nihilism. Within this worldview, power becomes the principal standard, leaving little room for an ethical framework that can protect the environment and promote human responsibility toward it (Ghasemi & Moghadam, 2010).

Another perspective, associated with Jeremy Bentham, is utilitarianism, which holds that an action is right when it produces the greatest overall benefit for a large number of people. Bentham equated happiness with pleasure, while John Stuart Mill later modified this view by distinguishing higher intellectual pleasures from purely bodily pleasures. Gifford and early conservationists applied this reasoning to argue

that natural resources should be protected to secure the greatest good for the greatest number of people over the longest possible period (Jalaluddin, 1991).

Modernism and postmodernism place greater emphasis on reason. From this perspective, reason can solve problems, particularly through mathematical and instrumental rationality. Thinkers such as Descartes, Bacon, and Newton sought to develop principles through empirical science to understand and control nature.

Postmodernists, however, tend to emphasize that concepts, including the concept of nature, are shaped by social and historical conditions. If people from different social settings are asked what nature means to them, they may give different answers. For an urban resident, nature may mean a park, whereas for a villager, it may mean a farm. From the postmodern perspective, neither definition necessarily reflects an objective reality (Jalaluddin, 1991).

Several broad approaches to environmental ethics exist. Many indigenous societies depended closely on nature and therefore used natural resources responsibly, avoiding unnecessary destruction. They considered themselves responsible for the natural resources they used. This approach has been described as the responsible approach (Ghasemi & Moghadam, 2010).

Another approach encompasses biocentrism and ecocentrism. In biocentrism, plant and animal species have intrinsic value, biodiversity has the greatest ethical significance, and human beings are considered one species among many. In ecocentrism, ecological processes such as adaptation, mutation, and biogeochemical cycles are important, and the ecosystem as a whole deserves respect (Ghasemi & Moghadam, 2010).

In anthropocentrism, human beings consider themselves superior because of their intelligence and creativity and regard themselves as having unique rights and value. Excessive anthropocentric thinking has contributed to environmental damage because humans treat nature as a resource under their control. The Australian philosopher and environmental thinker Richard Routley argued, within a liberal philosophical framework, that individuals should be free to do what they wish as long as they do not harm others or cause

irreversible harm to themselves. Therefore, controlling anthropocentric tendencies requires an ethical framework.

Among religious thinkers, two models exist: domination and stewardship. Under the domination model, human beings are considered superior to other animal species and therefore have greater rights. In its strongest form, nature has no intrinsic value and matters only because of its effects on human beings. In a more moderate form, some goods exist in nature, but they are valued less than human interests. By contrast, the stewardship model recognizes both intrinsic and instrumental value in nature. Under this ethical system, humans are not merely beneficiaries of the environment but are also responsible for caring for it. Other living beings therefore have intrinsic value and should be protected (Ghasemi & Moghadam, 2010).

Based on these schools and perspectives, there are three theories of environmental ethics: utilitarianism, in which norms are assessed according to the welfare of affected people; contractarianism, in which ethics and moral values are defined through social agreements among members; and virtue ethics, in which moral duties and prohibitions ultimately derive from a theistic source (Fahimi & Mashhadi, 2009).

Two philosophical approaches have become particularly influential in environmental thought. One places humans at the center of nature, sees them as separate from it, and regards them as its absolute owners—the environmentalist model. The other recognizes that although humans occupy a central position within nature, they are not its eternal owners and their lives are interwoven with the life of nature—the ecocentric model (Shahriari & Nabavi, 2014). Ultimately, a sense of responsibility, environmental ethics, the revival of religious values, and environmental protection are directly linked. In light of the distinctive Islamic worldview, Islam provides strong ethical foundations for guiding humans to protect the environment (Nabavi & Shahriari, 2014).

5. The Position of Religion within Environmental Models

Imami jurisprudence has been a major source of Iran's legal system, both before and after the

Islamic Revolution. After the Islamic Revolution, the first chapter of the Constitution is based entirely on religious values and Islamic norms. In particular, Article 4 of the Constitution provides that all civil, criminal, financial, economic, administrative, cultural, military, political, and other laws and regulations must be based on Islamic criteria. Article 167 likewise directs judges, when a dispute cannot be resolved under codified laws, to determine the applicable rule through authoritative jurisprudential sources. This demonstrates the influence of religion, specifically Islam and Imami jurisprudence, on Iranian law.

The role of religions in shaping and selecting environmental models should be examined through historical events, religious principles and rules, and their followers' behavior. A common feature of the major world religions—including Islam, Christianity, Judaism, and Hinduism—is the agrarian basis of their traditional economies. Many civilizations where these religions flourished were organized around cities and centers of political, economic, religious, and military importance (Pourian & Tavakoli, 2001).

Among Indigenous peoples in Africa, Australia, and the Americas, environmental attitudes and behaviors were shaped by spiritual beliefs, including animism, forest spirits, nature worship, and sun worship. In these cultures, humans and nature were not seen as completely separate (Ghasemi & Moghadam, 2010).

Hinduism emphasizes religious duties aimed at liberation from worldly suffering, and spiritual discipline and meditation help reduce suffering. Certain Hindu traditions regard rivers, mountains, and forests as sacred. Buddhism likewise recommends meditation as a way to achieve liberation. Zen traditions associate gardens in East Asia with the symbolic perfection of Buddha nature as manifested in the natural world. In recent decades, socially engaged Buddhists in Asia and the United States have also participated in environmental protection.

Other East Asian traditions, such as Confucianism and Taoism, emphasize the relationship between God, human beings, and nature. Although these traditions may include

anthropocentric elements, they also contain principles that support nature. Harmony between humans and nature is an important goal of personal cultivation in both Confucianism and Taoism (Moghadam & Ghasemi, 2010).

Many Native American peoples likewise hold distinctive environmental worldviews. By observing seasonal changes and natural events, they adapted their lives accordingly. Their traditions included gratitude toward natural forces and respect for nature. In this sense, Native American peoples also developed forms of ecological ethics and ecocentric behavior (Moghadam & Ghasemi, 2010).

Within the worldviews of the Abrahamic religions, Judaism, Christianity, and Islam include forms of anthropocentric ethics, but this does not necessarily mean that nature is regarded as secondary in every respect. A closer examination reveals significant environmental teachings. The Old Testament tradition imposes obligations toward all creatures. Christians may also recognize a form of sacredness in the created order through the doctrine of divine incarnation in Christ. In the Qur'anic concept of the human being as God's vicegerent, humans likewise have responsibilities toward nature and other creatures. Although humans possess particular advantages, they also have corresponding responsibilities and obligations toward nature (Moghadam & Ghasemi, 2010).

The Islamic approach requires closer examination because Islamic environmental law is based on a "theocentric approach to the environment." According to Islamic teachings, environmental problems arise partly because human beings fail to recognize God's encompassing authority and the Divine's ultimate ownership of the environment. Within Islamic discourse, therefore, human independence from the environment and the resulting separation from the divine environmental order contribute to contemporary environmental degradation and crisis (Yaqouti, 2022).

According to Mulla Sadra's interpretation, inspired by Qur'anic teachings, all existence and all beings—including beings with will and agency as well as non-volitional entities—participate in religious devotion. In other words, within Islamic discourse, nature is

connected to God even if human beings cannot perceive this connection (Damad, 2004). Islamic discourse therefore opposes anthropocentrism in human–environment relations and rejects human transgression against nature (Yaqouti, 2022).

The Qur'an repeatedly encourages humans to contemplate the signs of divine power revealed in creation. It also emphasizes protecting nature and presents several environmental teachings. The Qur'an describes nature as a sign for humans (Qur'an 41:53; 3:83; 4:126) (Qur'an 41:53; 3:83; 4:126). Human beings are described as God's vicegerents in their use of nature and are therefore expected to take responsibility for it (Qur'an 2:30; 6:165; 57:7; 41:53; 4:120; 2:115; 24:55). Humans are required to cultivate and improve the Earth rather than destroy it (Qur'an 11:61), preserve nature (Qur'an 11:57; 12:55), and observe the principle of environmental cleanliness (Qur'an 7:31–32) (Yaqouti, 2022).

Islamic teachings do not limit human responsibility toward nature to these principles. They also emphasize moderation in consumption, frugality, and avoiding waste. They prohibit the pollution of natural resources such as water, soil, and air. They also prohibit the contamination of watercourses, even during wartime. They also prohibit the pollution of public spaces and pathways, environmental destruction, and noise pollution. In addition, they require proper drainage and measures to prevent water contamination. Islamic teachings also emphasize respect for animal rights, livestock, and vegetation. They restrict the cutting of fruit trees and other trees, prohibit recreational hunting and the destruction of agricultural land, fields, animal nests, and habitats, and recommend planting, protecting, and irrigating trees (Yaqouti, 2022).

6. The Foundations of Environmental Citizenship in Science, Ethics, and Religion

In science, although scientific knowledge was historically used to serve powerful actors and contributed to uncontrolled interventions in nature and environmental degradation, contemporary scientific and technological efforts increasingly focus on environmental protection and developing solutions consistent with ecocentrism. These developments can provide the material basis for responsible

environmental citizenship (Striebig et al., 2022).

As discussed in the preceding sections, ethics and commitment to ethical norms have developed through approaches such as responsible relationships with the environment and the theistic worldview. Applying the ecocentric approach in environmental citizenship reflects these ethical foundations.

In Islam, God ultimately owns everything, and no created being has absolute original ownership. Once people are recognized as legal owners, the need to follow divinely established legal and ethical rules becomes clear. This reveals a key difference between Western and Islamic conceptions of ownership. In Western law, ownership has historically been treated as a strong right, subject primarily to restrictions when its exercise harms others. The right to a healthy environment was not fully recognized as an independent Western human-rights entitlement until relatively recently and is still debated. In Islamic law, by contrast, ownership is a legally recognized right constrained by religious and legal requirements (Vijeh, 2009).

The role of ownership in the Islamic system of environmental protection is therefore clearer. Islamic rules, whether explicit or implicit, recognize the rights of other creatures and the natural environment, and this approach is rooted in Islamic ontological foundations (Bahrami, 1966). Consequently, a sense of responsibility and appropriate environmental behavior within the framework of citizenship rights and environmental citizenship, consistent with ecocentrism, closely aligns with Islamic expectations for Muslims living in an Islamic society.

Conclusion

Environmental citizenship is one of the most flexible and relatively recent environmental models. It integrates ethics, religion, and science. As discussed above, environmental citizenship generally refers to having knowledge, attitudes, and skills related to the urban environment that ultimately promote pro-environmental behavior.

Environmental citizenship is a flexible framework that promotes environmental protection and development by increasing citizens' role in shaping their interactions with

the environment. The environmental citizenship model relies on members of society to protect the environment and promote sustainable development. It can therefore provide an appropriate framework for human–environment relations. The greater the influence of science, ethics, and religion in society and human relationships, the greater their potential contribution to environmental protection.

Environmental citizenship is an influential concept in many fields, including economics, politics, philosophy, management, and corporate activity, and it can be particularly effective in education. Under the classical concept of citizenship, individuals acquire certain rights through their relationship with the government. Classical citizenship is therefore primarily a rights-based concept that includes public rights such as political participation and priority access to public services. In environmental citizenship, however, members of society not only enjoy certain public rights but also have specific duties. These duties generally involve promoting and working

toward sustainable development, which means development that protects the environment for future generations.

The duty to protect the environment is closely connected to various aspects of private life and individual behavior. Therefore, governments cannot fulfill all obligations related to sustainable development and environmental protection without citizens' involvement. Therefore, citizens play a crucial role. Citizens must share these responsibilities with the state and change certain aspects of their private behavior. Responsibility thus becomes an essential part of citizenship alongside rights.

The most important change in the transition from classical citizenship to environmental citizenship is that citizens have legal responsibilities and obligations related to environmental protection. Environmental citizenship provides an institutional framework that brings together rights, duties, scientific knowledge, ethical commitment, and religious responsibility toward a common goal: protecting the environment and promoting its sustainable development.

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