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Paradigms of Human Survival

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Abstract: The article discusses the current environmental crisis, which is rapidly developing as a result of humanity's domination over nature. From this perspective, the issues of forming ecological-epistemological paradigms for humanity's survival are widely discussed.

Keywords: ecological, epistemology, paradigm, modern humanity, technical progress, ecological crisis, fundamental, modern, natural sciences, global approach, nature, development.

Introduction. The development of modern humanity embodies a complex ontological paradox. Man has made great progress in transforming nature through his rational abilities, but at the same time, this process has put him at risk of destroying the natural foundations of his existence. This is not a problem related only to technical or economic factors, but a fundamental contradiction that lies at the very heart of humanity's spiritual way of thinking.

Most experts say that the modern ecological crisis is a practical result of man's belief that he is superior to nature. At the same time, a number of scientists explain that this crisis is also caused by human negligence. In particular, the philosopher and scientist S. Mamashokirov [2]emphasizes: "The main reason for the universal ecological catastrophe, which is currently becoming globalized and intensifying, and which is causing concern and danger to the world community, is the indifference and negligence of humanity, the political systems that have formed and are operating in the process of historical development, towards nature and its protection. "

the current global ecological crisis requires the acquisition of not only practical, but also deep theoretical knowledge and educational skills. In this regard, the ecological-epistemological paradigm that forms the content of our research is the basis of a new worldview that provides a strong dialectical connection between the process of cognition and ecological relations. Through this paradigm, it becomes possible to reconsider humanity's relationship with nature and develop long-term survival strategies.

The issue of the ecological foundations of cognitive activity is gaining particular importance in modern philosophy. As the American scientist Daniel Bates noted, “ Human nature reflects a complex dialectical interaction between the ecological environment, cultural traditions, and political systems, which in turn has a multifaceted impact on the formation and development of cognitive methodologies [3]. ”

In our opinion, the following issues play an important role in the formation of an ecological-epistemological paradigm:

First , there is a crisis of the traditional bipolar worldview, where the strict separation between the spiritual (thinking substance) and the material (extended substance) world established by Rene Descartes no longer corresponds to modern ecological realities. There is a need to abolish artificial boundaries between human consciousness and the natural environment and recognize their interconnectedness and unity.

Secondly , there is the development of systems thinking, and the world's intellectual community is increasingly recognizing the importance of understanding the interconnectedness and wholeness of

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[2]Mamashokirov S. Fear or truth. T.: "Economics-Finance" 2012. B-29.

[3] Bates DG Human Adaptive Strategies: Ecology, Culture and Politics. 2019. P-14.

modern science, rather than studying individual phenomena in isolation. As Professor Michael Hannon of the University of Nottingham has noted, "The main intellectual goal of philosophy is to provide real answers to philosophical questions, and this process must be carried out in conjunction with ecological systems." [4]Such an approach requires a comprehensive approach to problems and taking into account the deep connections between nature, society, and human thought.

Thirdly , the influence of globalization processes is increasing, and environmental problems are becoming global, transcending national borders. This also requires a global approach to the methodology of knowledge. In turn, the correspondence (or often inconsistency) between ontology, epistemology and axiology plays a decisive role in social research and is of great importance in the formation of environmental knowledge.

The ecological-epistemological paradigm is of fundamental importance for the sustainable survival of humanity. This paradigm constitutes the conceptual basis for re-understanding human relations with nature, improving the methods of knowledge of natural systems, and identifying ways to achieve ecological sustainability. In the context of the deepening modern ecological crisis, the ecological-epistemological paradigm offers humanity new criteria for decision-making, spiritual and moral foundations of relations with nature, and ecological imperatives of cognitive processes. This new paradigm is aimed at a critical reconsideration of the scientific and philosophical foundations of technogenic development, the rejection of anthropocentrism and exploitative thinking, and the formation of harmonious relations with nature.

The ecological-epistemological paradigm, embodying the synthesis of traditional theories of knowledge and ecological concepts, serves to ensure the unity of theory and practice in solving global environmental problems. Through this paradigm, humanity improves the mechanisms for creating, accumulating, systematizing and implementing knowledge related to ecological sustainability, mastering new cognitive methods in understanding ecological realities, understanding nature, and developing the ability to effectively use ecological knowledge in decision-making processes. In turn, the ecological-epistemological paradigm is based on the following principles:

The principle of integrative knowledge takes into account the multifaceted nature of today's environmental problems. This principle implies blurring the boundaries between the natural, social and human sciences, unifying them into a single system of knowledge. Natural sciences - physics, biology, chemistry - reveal the laws of nature. Social sciences - sociology, psychology, anthropology - study the specific features of human society. Humanities - philosophy, art history, literature - analyze the spiritual experience of humanity. Integrating knowledge from these areas forms new views on environmental problems and makes it possible to develop effective solutions. This approach allows us to cover environmental problems not only from technical or biological, but also from social, cultural and ethical aspects. Such a comprehensive approach makes it possible to conduct a deep analysis of environmental situations, identify their causes and develop strategies aimed at maintaining a balance between humanity and nature in the future.

The principle of coevolution implies the harmonious and synchronous development of human society and the natural environment. According to this principle, human development should be carried out within the framework of the stability and carrying capacity of natural ecosystems. The relationship between humans and nature should be built on the basis of cooperation, not competition or conflict. When the processes of biological evolution and cultural development interact, new forms of relationships arise in which human activity is directed at supporting and enriching natural processes, rather than harming them. As a result, both humanity and natural ecosystems will have the opportunity for sustainable development.

The principle of reflexivity requires the development of the ability to critically reflect on the methods, limits and results of the process of knowledge. When conducting ecological research, the

[4] Hannon M. Understanding philosophy. International Journal of Philosophy. 2022. DOI: 10.1080/0020174X.2022.2146186. https://www.tandfonline.com/doi/full/10.1080/0020174X.2022.2146186 .

scientist must constantly analyze the impact he has on the object of research and the position he occupies. This principle ensures that scientific activity itself complies with ecological norms and allows for timely identification of errors and misdirections that arise in the process of knowledge. Through a reflexive approach, the researcher foresees the ecological consequences of his work and, if necessary, adjusts his methodology. This leads to a more environmentally responsible and ethically sound process of scientific knowledge.

The principle of global responsibility requires, taking into account the global nature of modern environmental problems, to assess local activities in terms of global consequences. Every individual, community and state must understand the impact of their actions on the entire planet's ecosystem and feel responsible for this. Global problems such as climate change, biodiversity loss, and ocean pollution are directly related to local decisions and practices. To apply this principle in practice, it is necessary to create mechanisms for taking into account global environmental consequences in decisions made anywhere in the world, improve international cooperation and environmental legislation, and increase the environmental literacy of the world's population. This principle is a practical expression of the principle of "think globally, act locally."

According to the Russian scientist VIDanilov-Danilyan, "The epistemological foundations of ecological knowledge are of not only theoretical, but also practical importance, determining the future fate of humanity [5]. "

the ecological -epistemological paradigm can be conditionally divided into three main periods:

The initial period (early 20th century) is marked by the concept of the noosphere of scientists such as V.I. Vernadsky and P. Teilhard de Chardin as the foundation of the ecological-epistemological paradigm. During this period, for the first time, the interaction between human consciousness and natural processes was scientifically substantiated, and the role of mental activity as a geological force on Earth was recognized. Through the theory of the noosphere, the global impact of human activity and the need for harmonious cooperation with nature were first scientifically stated.

The Middle Ages (mid-20th century) are characterized by the global nature of the ecological crisis and the emergence of new methodological approaches in response to it. The negative consequences of industrial development, the rapid exploitation of natural resources, and environmental pollution led to the formation of environmental awareness on a global scale. During this period, it became clear that traditional scientific methods were insufficient, and new methods began to be developed, such as an interdisciplinary approach, systematic analysis, and ecological modeling.

The modern era (21st century) is characterized by the full formation of the ecological-epistemological paradigm and its active integration into all stages of the educational system. Nowadays, ecological knowledge is considered not only as a separate scientific field, but also as a methodological basis that unites all areas of knowledge. Digital technologies, global monitoring systems, and the possibilities of international cooperation provide new tools for implementing the ecological-epistemological paradigm.

The process of transformation of the modern paradigm of knowledge in an ecological direction is of crucial importance for the long-term survival of humanity. This transformation requires not only a synthesis between different scientific fields, but also a fundamentally new approach to the nature of knowledge itself. Along with global ecological processes, it is necessary to take into account the specific ecological conditions and cultural traditions of each region. In this regard, Uzbek researcher Sh.Kh. Kadyrov comments as follows: “The dialectical relationship between the national characteristics of ecological knowledge and universal human values plays an important role in the sustainable development strategy of Uzbekistan [6]. ” A similar view can be found in the following thoughts of Bruno Turnheim, a researcher at the University of Manchester, Innovative Studies: “

[5] Danilov-Danilyan V.I. Ecological safety. Priroda i obshchestvo. 2021. S-79.
[6] Kadyrov Sh.Kh. Ecological education and sustainable development of the system. Information of the Academy of Sciences of the Republic of Uzbekistan. 2023. Issue 3. B-57.

Sustainable development should be in the context of achieving specific goals of ecological sustainability [7]. ”

ecological knowledge and universal values plays an important role in the strategy of sustainable development. This view emphasizes the need for each country to act on the path to sustainable development based on its own cultural and historical traditions, while at the same time mastering universal ecological values. In the context of Uzbekistan, this approach involves the harmonization of local ecological traditions, historically formed experience of attitude to nature and modern ecological standards in the formation of ecological knowledge. This allows achieving ecological sustainability, taking into account specific natural conditions (limited water resources, the problem of desertification, the impact of climate change) and national and cultural characteristics.

The above views are reflected to a certain extent in the UN Sustainable Development Goals. In particular, the preamble to the 2030 Agenda [8]states: “We commit ourselves to protecting and sustainably managing the earth’s resources, including land, water, air, climate and biodiversity, so that people and nature can live in harmony with each other.” SDG Goal 15 — “Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss” [9]— is aimed at ensuring environmental sustainability.

It can be said that the UN and other international organizations directly resort to theoretical approaches in improving their practical activities. Therefore, the need to create new paradigms of ecological knowledge is more important than ever . Today, works published in periodicals and scientific sources mention a number of paradigms of ecological knowledge. Below we will dwell on some of them:

1. Holistic approach . In contrast to traditional reductionist methods, ecological knowledge considers the wholeness of systems and their interdependencies. As Finnish scientist Vicente Sáez has pointed out, “Opening up science for a sustainable world can be achieved through an expanding epistemological approach, which includes new scientific practices and fundamental principles and relationships [10]. ”

2. Interdisciplinary integration . The complexity of environmental problems requires a synthesis between the natural, social, and human sciences. In the process of this synthesis, new ways and methods of knowing are formed.

3. Reflexive methodology . The process of knowledge must be self-aware and critically evaluate its results. This allows to increase the quality of ecological knowledge and reduce errors. According to ADUrsul, “The ecologicalization of knowledge plays an important role in the formation of the noosphere, and this process is of strategic importance for the further development of humanity [11]. ”

Ecological knowledge also encompasses epistemological characteristics, which include:

Contextuality - the contextuality of ecological knowledge means that, despite its universal nature, it is always formed in accordance with specific geographical, cultural and historical conditions. For example, biodiversity problems in tropical forests are fundamentally different from environmental problems in the Arctic regions. Also, the relationship of different peoples with nature, their traditions and values \u200b\u200bhave a significant impact on the formation of ecological knowledge. Historical processes also play an important role - such phenomena as the industrial revolution,

[7] Turnheim B. Opening up the feasibility of sustainability transitions research. Research Policy. 2021. DOI: 10.1016/j.respol.2019.01.016. https://www.sciencedirect.com/science/article/pii/S0048733318302968 .
[8] United Nations. Transforming our World: The 2030 Agenda for Sustainable Development. A/RES/70/1. New York: United Nations.
[9] United Nations. Sustainable Development Goal 15: Life on Land. https://sdgs.un.org/goals/goal15
[10] Vicente-Saez R. Opening up science for a sustainable world: An expansive epistemological approach. Science and Public Policy. 2021. DOI: 10.1093/scipol/scab040. https://academic.oup.com/spp/article/48/6/799/6340010 .
[11] Ursula A.D. Knowledge of noospherogenesis and ecologization. Philosophical science. 2022. DOI: 10.30727/0235-1188-2022-65-3-89-108. https://phisci.info/jour/article/view/2896 .

urbanization and globalization determine the emergence of ecological problems and methods for solving them.

Prognostic feature - modern ecological knowledge not only describes and explains existing ecological processes, but also performs the function of predicting future changes on a scientific basis. Climate change models, population dynamics forecasts, and ecosystem degradation scenarios demonstrate the prognostic power of ecological knowledge. This feature is especially important in environmental planning, natural resource management, and environmental policy development. Early warning systems are created on the basis of prognostic knowledge and measures are taken to reduce environmental risks.

Normative feature - the normative aspect of ecological knowledge means that it is not purely scientific information, but includes ethical criteria and value orientations. These types of knowledge answer the question of how the relationship between man and nature should be. The concept of sustainable development, the principles of ecological justice, and a sense of responsibility to future generations reflect the normative aspect of ecological knowledge. Therefore, ecological knowledge not only answers the question "what?", But also determines practical goals "what to do?" and shows the path of ecologically correct actions for society.

American scientist Mary Evelyn Tucker emphasizes the educational importance of ecological knowledge, citing the following conceptual idea: "Ecological enlightenment is the process of developing a new understanding of the relationship between man and nature and translating this understanding into practical life [12]. "

There are methodological principles of ecological knowledge such as systematicity, dynamism, hierarchy, and non-determinism, and it is necessary to describe each of them separately when researching the topic.

ecological knowledge requires taking into account the close interdependence and mutual influence of all elements in nature. According to this principle, each component of the ecosystem forms a complex network of interactions with each other. For example, a decrease in the number of predators leads to an increase in herbivorous species, which in turn leads to a change in the structure of the vegetation cover. Based on a systems approach, ecologists study food chains, energy flows, and material cycles to identify mechanisms that ensure the stability of the ecosystem. This principle helps to predict the global consequences of local changes.

The principle of dynamism implies the recognition of the constant variability and development of ecological systems. Natural ecosystems never remain static - they are subject to changes of varying degrees, such as seasonal cycles, succession processes, population fluctuations. Changes in climatic conditions, migration of species, invasion of new species lead to constant transformation of ecosystems. Modern ecology has adopted the concept of dynamic equilibrium, according to which ecosystems maintain relative stability only through constant changes. This approach encourages the development of adaptive strategies in ecological management.

The principle of hierarchy is aimed at studying the organization of ecological systems at different scales and their coordinated activity. This hierarchy begins at the level of the organism and rises to the levels of the population, community, ecosystem, and biosphere. At each level, specific features emerge, and higher levels cannot be fully understood based on information obtained from lower levels. For example, population dynamics cannot be determined solely by studying the behavior of individual organisms - specific mechanisms at the population level operate in this. The hierarchical approach allows us to understand the connections between local and global processes and to solve ecological problems at different scales.

The principle of nondeterminism recognizes the probabilistic nature of natural ecological processes and the limitations of their precise prediction. Many stochastic (random) processes occur in

[12] Tucker ME Ecological Education and Spiritual Transformation. Environmental Ethics. 2020. DOI: 10.5840/enviroethics202042139. https://www.pdcnet.org/enviroethics/content/enviroethics_2020_0042_0001_0139_0158 .

ecosystems : demographic stochasticity, ecological stochasticity, and ecological disasters. This nondeterminism requires the use of probabilistic approaches in ecological modeling. For example, the risk of species extinction, population changes, or the spread of invasive species are assessed only on a probabilistic basis. This principle requires that uncertainty be taken into account in ecological projections and that decisions be made based on different scenarios, which makes ecological management more realistic and flexible.

In turn, ecological knowledge includes a number of social functions:

- **Selection function** : helping to choose specific environmental directions;
- **Planning function** : development of long-term environmental strategies;
- **Control function** : monitoring and assessing the environmental situation;
- **Educational function** : formation of ecological culture.

Russian VSStepin, emphasizing the socio-cultural significance of ecological knowledge, expresses the following opinion: "The formation of ecological consciousness is a necessary condition for civilizational changes, which covers all areas, from methods of obtaining knowledge to social practice [13]. "

The reshaping of the modern education system based on the ecological paradigm is a decisive factor for the survival of humanity. This paradigm requires a reconsideration of the goals, content and methods of education from the perspective of ecological realities. In this regard, there are the following basic principles of the ecological education paradigm, the separate analysis of which will ensure an increase in the quality of our work:

environmental education, the principle of **integrativeness serves as a strong bridge between** the natural sciences (biology, chemistry, physics, geography) and the humanities (history, social sciences, economics, cultural studies). Through this principle, students learn to understand environmental problems not only from a natural-scientific perspective, but also from the perspective of the human factor, cultural values, and socio-economic processes. For example, when studying the topic of climate change, historical data, economic analysis, political decisions, and cultural factors are considered along with physical and chemical processes. An integrative approach develops critical thinking skills in students and prepares them to comprehensively solve complex environmental problems in real life.

holistic thinking forms the ability of participants in the educational system to perceive the world as a whole, a closely interconnected global system. According to this principle, each local phenomenon is connected with global processes, and, conversely, historically, global changes are manifested at the local level. According to it, the deforestation of tropical forests is of great importance not only for the region, but also for the climate of the entire planet. Through holistic thinking, future specialists acquire the ability to assess local environmental problems in a global context, understand their role in universal processes, and understand the need for global cooperation. This approach forms a sense of environmental responsibility and develops the qualities of global environmental citizenship.

of contextualization significantly increases the effectiveness of education by bringing environmental education from abstract theoretical knowledge to local ecological reality. This principle allows students to deeply study the ecological characteristics, problems and opportunities of their living area. For example, students studying in the Aral Sea region can conduct practical research, seeing firsthand the problems of salinization, water scarcity and desertification. Through a contextual approach, theoretical concepts are reinforced with real examples, and students are prepared to take an active part in solving the environmental problems of their society. This principle also contributes to the enrichment of global ecological culture by teaching appreciation of local ecological knowledge and traditions.

[13] Stepin V.S. Civilization and culture. Philosophical science. 2021. S-67.

Russian scientist NMMamedov emphasizes the importance of environmental education, writing: "Environmental education is the process of forming the ecological culture of the individual, which serves to establish harmonious relations between man and nature [14]. "

One of the main requirements for our paragraph is to study the development of the relationship between enlightenment and ecological consciousness. It is known that the ecological transformation of enlightenment occurs in the following main directions:

1. Epistemological direction : development of ecological criteria and methods of knowledge. Through this direction, traditional scientific methods are enriched with ecological truths.

2. Axiological direction : the formation of ecological values and their social acceptance. This process leads to the formation of new moral norms and standards.

3. Praxeological direction : the application of ecological knowledge in practical activities. This direction strengthens the connection between theory and practice.

The relationship between education and environmental consciousness is not without contradictions. The traditional education system often promotes the values of industrial society and the ideas of technogenic development, which may conflict with the requirements of modern environmental consciousness. A contradiction arises between the education system that promotes consumerist ideals and environmental consciousness that emphasizes the need to save natural resources. Also, the education system, divided into traditional disciplines, cannot fully reflect the complex nature of environmental problems. These contradictions, in turn, create the need to revise the education system, to harmonize it with environmental imperatives, a process that is not easy in itself and requires a number of institutional and methodological changes.

The mass media - television, radio, Internet publications, social networks, print publications - perform the function of promptly delivering environmental information to the general public, drawing public attention to current environmental problems, and promoting models of environmental behavior.

Non-governmental non-profit organizations - environmental movements, foundations, local public associations - as an important part of civil society, carry out practical environmental education work by involving the population in environmental initiatives, solving local environmental problems, organizing environmental campaigns and events. State institutions - the Ministry of Ecology, nature protection committees, territorial environmental control bodies - provide the institutional foundations of the environmental education system by forming a legislative framework, setting environmental standards, implementing state programs on environmental education and allocating the necessary financial resources, and also perform the functions of collecting, analyzing and disseminating official environmental information.

In our opinion, the evaluation of the effectiveness of environmental education should be based on specific criteria, and these criteria include the following:

- **Coverage level** : what proportion of the population participates in environmental education programs;
- **Quality indicators** : scientific basis and clarity of educational materials;
- **Practical results** : positive changes in people's environmental behavior;
- **Long-term effect** : sustainable formation of environmental awareness.

In general, the ecological integration of the spheres of knowledge, education, and enlightenment is of strategic importance for the survival of humanity. This integration process is not just a methodological synthesis, but the formation of a new civilizational paradigm.

[14] Mamedov N.M. Ecological education is the basis of sustainable development. Ecology and Life . 2022. P. 77.

In conclusion, the future development of the ecological-epistemological paradigm determines the main directions in the development of survival strategies and solutions to global environmental problems of humanity. This paradigm requires fundamentally new approaches not only in theory, but also in practice . At the same time, this paradigm represents a dialectical synthesis of the spheres of knowledge, education and enlightenment, which are of fundamental importance for the survival of humanity. Through this paradigm, it is possible to develop a comprehensive approach to modern global environmental problems and implement long-term survival strategies.