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Scientific and Theoretical Foundations of Economic and Green Economic Efficiency of Mining Enterprises

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Abstract: *Today, the importance of the green economy is becoming more noticeable in our daily lives than ever before. It is no secret that economic development and production, not directed in the right direction, have caused great harm to nature. At a time when problems such as air pollution, water scarcity and climate change affect all of our lives, the green economy is of paramount importance in solving these problems.*

Keywords: *industrial enterprises, theories, efficiency, economy.*

Nowadays, the green economy is very important not only for preserving nature, but also for improving the quality of our lives. For example, the use of renewable energy sources not only reduces environmental damage, but also saves on electricity costs. In addition, with the creation of new jobs, the economic opportunities of each person expand. Therefore, the green economy is the main direction that gives us confidence in clean air, a healthy environment and a sustainable future.

The importance of the green economy has become a strategic principle of each country at the government level. Every year in developed countries, the development of models and mechanisms for improving infrastructure, as well as advanced modern technologies, aimed at developing this economic system, has emerged as a separate direction of innovation. This, in turn, has expanded the opportunities for improving its scientific and theoretical foundations.

In the past, this economic aspect was determined only by improving the living standards of the population and, on its basis, improving their health. For example, “Ancient Rome, with the introduction of public baths and general cleanliness groups, laid the foundation for a value oriented towards the promotion of human hygiene and cleanliness. Similarly, the ancient Greeks, like the Romans, highly valued cleanliness and transformed its importance into an aspect that distinguished the people and acted in a “noble” status. In Islamic civilization, this foundation was determined by the importance given to cleanliness not only in personal hygiene, but also in the cleanliness of the environment by the Middle Ages. This, in turn, led to a “competition in ensuring ecology” in order for countries to gain superiority in these religious views and values. In Japan, cleanliness and nature conservation were guided by the criterion of being grateful for the productivity obtained from agriculture and that if a person is clean, his heart will be clean, and his attitude towards the environment was promoted in the context of preserving it. Scandinavian culture is characterized by a high standard of cleanliness in every aspect and the expansion of green areas around people, which is the basis for its popularity.

Today, the green economic system is highly valued, and many criteria must be met for it to be considered green. For example, in 2016, scientists Eleonore Loiseau1, Laura Saikku, Riina Antikainen, Nils Droste, Bernd Hansjürgens, Kati Pitkänen, Pekka Leskinen, Peter Kuikman, Marianne Thomsen in their article “Green Economy and related concepts: an overview” analyzed “the degree of development and interpretation of the green economy approach in sectors and industries, examining the basis for determining environmental protection, production, economic losses, government policy requirements, geographical areas and sustainability”.

The framework of the green economy concept includes approaches and principles aimed at integrating economic, environmental and social factors to achieve sustainable development. The basis of this framework consists of two main areas: ecological economics and environmental economics. While ecological economics aims to create an economic system that takes into account natural resource flows, environmental regeneration potential, and social benefits, environmental economics aims to analyze the impact of economic activity on environmental problems and identify ways to reduce them.

This concept has developed various concepts and approaches to ensure sustainable development. For example, the concepts of resource regeneration, eco-production, and resource efficiency are based on the rational use of natural resources and the minimization of waste. Also, approaches such as natural solutions and biomimicry emphasize learning from nature and working in harmony with the ecological environment. Solutions based on living nature, such as nature conservation, the development of green infrastructure, or the restoration of natural systems, create environmental and social benefits.

Another important aspect of the concept is the integration of the principles of the circular economy and industrial ecology. These approaches are based on the principles of the economy of "reuse, recycle, and recover" and aim to increase sustainability by using resources efficiently and re-injecting waste into economic processes. These principles are especially important for ensuring environmental sustainability in industrial sectors and infrastructure. The following are explanations of the CBA, EE-IO, LCA, MFA/SFA, LCC and SLCA models:

CBA (Cost-Benefit Analysis): “This method aims to measure costs and benefits for making economic decisions. In the green economy, CBA is used to evaluate environmental and social benefits by adding them to economic indicators. This model is mainly used in evaluating projects aimed at saving resources or reducing negative environmental impacts. Developed by US economists Jorgenson and Clark in 2012, this approach was initially used to evaluate environmental investment projects.”

“EE-IO (Environmentally Extended Input-Output Analysis)- “This model studies the relationship between economic activities and environmental impacts. It allows for the assessment of emissions and resource consumption of various sectors at the national and international levels. In the green economy, this analysis is used to gain a deeper understanding of resource flows and environmental impacts. Developed by Leontiev in the 1970s, this model allows for a deeper analysis of the interdependencies of industries and resource consumption.

“LCA (Life Cycle Assessment): “A model for measuring the environmental impact of a product throughout its ‘life cycle’ (from raw material extraction to disposal). In a green economy, LCA is a key tool for evaluating products and services that are resource-efficient and waste-reducing” (developed in the 1990s based on the ISO 14040 standard, which serves as the main tool for measuring the full environmental footprint of a product. Based on this, Bauman, an economist, emphasized that each country should demonstrate that their products are suitable for consumption and introduce them to the production market by adhering to strict standards.

The principle of full life cycle coverage - the LCC concept involves taking into account all costs incurred during the life of a product or project, including the costs of operation, maintenance, modernization and final disposal, starting from initial planning. This principle requires focusing on factors affecting costs throughout the entire cycle, not just initial capital expenditures.

In assessing the impact of strategic decisions, in the LCC theory, decisions made in the early stages of the project life cycle determine 70-95% of costs, since at these stages the project technological solutions, operational strategies and production processes are determined. Theoretically, the decisions made at this stage determine the overall efficiency of the project, and making mistakes in them can increase economic losses.

The LCC concept in continuous assessment and optimization requires constant monitoring and optimization of costs to increase economic efficiency. This is achieved through rational allocation of resources, increased energy efficiency and waste recycling. This principle is consistent with the theory of sustainable development and aims to combine environmental safety with economic benefits.

The principle of recovery and value enhancement: The LCC concept in the mining industry is based on the principle of maximizing the economic value of minerals while minimizing their life cycle costs. This theory requires assessing the value of a project not only in terms of short-term capital investments, but also in terms of long-term operating benefits and costs.

Before giving a general description of these factors, it is first explained by the emergence of the green economic system. Between 1980 and 1990, the need for special funds for environmental protection and the need to provide the population with natural products in addition to clean and pure products increased. In addition, as a result of the spread of new diseases and viruses among the population, this issue was further enhanced by the involvement of representatives of relevant international organizations on an international scale and the need for a global solution. Finally, “In 1992, at the Earth Summit in Rio, the implementation of environmental sustainability in harmony with the economic system was put forward. Since the broad interpretation of these initiatives was not ineffective, the United Nations included in the list of targeted development goals for the green economy such as clean drinking water supply, health care, and waste-free areas, which were subsequently supplemented by maternal and child health.

In 1989, the Italian economist Isabel Escalona Orcao “studied the factors affecting the sustainability of the green economy and also identified their classification bases.” This was facilitated by the introduction of a “law requiring the sale of beer and soft drink bottles with a mandatory deposit on a returnable basis” in Denmark in 1981. At the same time, it is worth noting that the widespread experience of operating on the basis of this legal and regulatory criterion in the United States prompted its widespread introduction in other countries. “The Economist, a US economic and political newspaper, has turned the economists’ phrase “The freedom to be cleaner than others” into a slogan as a rallying cry. Another issue raised at the time was how countries at different stages of economic development and with different shades of green could determine the limits of the scope of the mechanism for conducting national environmental policies that do not hinder free trade.” . Putting even greater emphasis on this issue, the newspaper staff in each column increasingly pushed their appeal to the people and the Government about the “green economy” in the form of “cold pressure”. For example, ““Green growth will certainly be somewhat slower than the transition to dirty varieties. Today, most economic activities take little account of the costs to the environment. Factories pollute rivers as if the water they wash away is free, power plants burn coal without charging consumers for the carbon dioxide they emit into the atmosphere, loggers destroy forests without thinking about the impact on wildlife and the climate. The bills are paid by others - neighbors, citizens of other countries, and future generations. Indeed, the green economy pays such payments as they come, rather than passing them on to future generations. Today, it must abandon consumption to the extent that it leaves its children the ability to consume more of the world's resources and waste, and the green economy cannot develop as quickly as the dirty economy. The publication of such articles every month in the newspaper has also attracted scientists on a very large scale.

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REFERENCES

1. Xashimov P. Z. i dr. RESURSLARNING ChEKLANGANLIGI VA “YASHIL IQTISODIYOT” GA O‘TISH ZARURIYATI //Science and innovation. – 2022. – T. 1. – №. A3. – S. 305-308.
2. ESCALONA, A. (1989): La cooperación de la CEE al desarrollo de Iberoamérica el caso de los países del Pacto Andino. Working Paper, Instituto Universitario Europeo. Rorencia, 67 pp
3. Meister A. D. Environmental regulation and use of economic instruments for environmental planning and management: an overview. – 1990.
4. Meister A. D. Environmental regulation and use of economic instruments for environmental planning and management: an overview. – 1990.
5. Jorgenson, A.K. and Clark, B. (2012) Are the Economy and the Environment Decoupling? A Comparative International Study, 1960-2005. American Journal of Sociology, 118, 1-44. https://doi.org/10.1086/665990
6. Leontief, Wassily, 1974. "Structure of the World Economy: Outline of a Simple Input-Output Formulation," American Economic Review, American Economic Association, vol. 64(6), pages 823-834, December.
7. Baumann, Henrikke & Tillman, Anne-Marie. (2004). The Hitch Hiker's Guide to LCA: An orientation in life cycle assessment methodology and application.

8. Bobojonova Zarnigor Shokirovna. "Moliya bozorini rivojlantirishning ustuvor yo'nalishlari, zamonaviy tendensiyalari va istiqbollari". Respublika ilmiy-amaliy konferensiyasi materiallari to'plami. Toshkent-2022. – C. 942-946.
9. Bobojonova Zarnigor Shokirovna. "Strategik kuch" Xalqaro ilmi jurnal. №4, 2023, ISSN 2992-9032-P. 23-26
10. Bobojonova Zarnigor Shokirovna. "Xorazm Ma'mun akademiyasi axborotnomasi" ilmiy jurnali. № 12/5 (109). ISSN 2091-573 X. Xiva-2023. – B. 39-42
11. Bobojonova Zarnigor Shokirovna. Journal of "Management Value & Ethics". Volume 14, No. 03. ISSN-2249-9512. India - 2024. - P. 182-187
12. Bobojonova Zarnigor Shokirovna. "Moliya bozorini rivojlantirishning ustuvor yo'nalishlari, zamonaviy tendensiyalari va istiqbollari". Respublika ilmiy-amaliy konferensiyasi materiallari to'plami. Toshkent-2022. – C. 942-946.