



SCIENTIFIC AND THEORETICAL FOUNDATIONS OF THE ECONOMIC AND GREEN ECONOMIC EFFICIENCY OF MINING INDUSTRY ENTERPRISES

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Abstract: *In the modern era, the green economy has become a crucial element of sustainable development, especially in sectors like the mining industry, where environmental concerns are increasingly urgent. This paper explores the scientific and theoretical foundations of both economic and green economic efficiency in mining enterprises. It highlights how the green economy not only contributes to environmental protection but also improves quality of life, reduces costs, and creates new job opportunities. The historical roots of ecological consciousness in various civilizations — such as Roman, Greek, Islamic, Japanese, and Scandinavian cultures — are examined to illustrate the long-standing human values related to cleanliness and environmental responsibility. Additionally, modern interpretations and frameworks for green economy implementation are discussed, including the work of leading scholars on the topic. This underscores the importance of developing strategic, policy-driven, and innovation-based approaches for fostering a sustainable and environmentally friendly industrial future.*

Keywords: *Green economy, sustainable development, environmental efficiency, mining industry, ecological culture, renewable energy, historical perspectives, environmental policy, innovation, clean technologies*

Nowadays, the importance of the green economy is becoming more evident in our daily lives than ever before. It is no secret that uncontrolled economic development and production in the wrong direction have caused significant damage to nature. At a time when problems such as air pollution, water scarcity, and climate change are affecting all of our lives, the green economy plays a vital role in addressing these challenges.

In today's world, the green economy is important not only for protecting 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, the creation of new jobs expands the economic opportunities for every individual. Thus, the green economy is a fundamental direction that provides us with clean air, a healthy environment, and confidence in a sustainable future.

The importance of the green economy has become a strategic principle at the government level of every country. Every year, in developed countries, models aimed at developing this economic system, infrastructural improvement mechanisms, and advanced modern technologies have been highlighted as a separate direction of innovation. This, in turn, has expanded opportunities aimed at improving its scientific and theoretical foundations.




In ancient times, the importance of this economy was defined solely by its impact on improving the lifestyle and health of the population. For example, in Ancient Rome, the introduction of public baths and cleanliness maintenance groups laid the foundation for values that promoted hygiene and a positive attitude toward cleanliness. Similarly, the ancient Greeks, like the Romans, highly valued cleanliness and transformed it into a distinguishing characteristic of the elite class. In Islamic civilization, by the Middle Ages, maintaining cleanliness was regarded not only in terms of personal hygiene but also with a strong emphasis on environmental cleanliness. This eventually led to a kind of “competition in ensuring environmental protection” among countries with dominant religious views and values. In Japan, gratitude for agricultural productivity and the belief that “if a person is clean, their soul is pure and their attitude toward the environment is protective” guided environmental management. According to Scandinavian culture, cleanliness is held to very high standards in all areas, and the widespread promotion of such practices is marked by the expansion of green spaces around human habitats.

By today, the green economic system has gained significant recognition, and meeting various criteria is required for it to attain “green” status. For instance, in 2016, researchers Eleonore Loiseau, Laura Saikku, Riina Antikainen, Nils Droste, Bernd Hansjürgens, Kati Pitkänen, Pekka Leskinen, Peter Kuikman, and Marianne Thomsen published an article titled *“Green Economy and Related Concepts: An Overview”*, in which they analyzed “the development and interpretation of the green economy across different fields and sectors, focusing on environmental protection, production, economic impacts, government policy requirements, geographic regions, and the foundations of sustainability. The above-mentioned scientific-theoretical foundations demonstrate the appropriateness of adopting an economically “green” status, primarily due to the dominance of interests in production and profit. The management of these interests based on criteria and standards is mainly observed in the economic infrastructure. Therefore, the organization of management and the implementation of its control mechanisms are characterized by their unique features and are explained by their relatively stronger influence.

When analyzing the historical development of the green economic system, it becomes clear that “in the 1960s, the negative impacts of industrialization and its damaging characteristics were particularly addressed during the post-World War II reconstruction of countries around the world.” The relevance of this issue increasingly became associated with ensuring economic stability, and the integration of the green economy concept into the economic infrastructure for the welfare and living standards of the population was supported by many political scientists and economists. Before providing a general description of these factors, it is first necessary to explain the origin of the green economic system. Between the 1980s and 1990s, the need for allocating special funds for environmental protection, as well as delivering not only clean and pure products but also natural goods to the population, steadily increased. Moreover, due to the emergence and spread of new diseases and viruses among the public, representatives of relevant






international organizations began addressing this issue at the global level, and its resolution came to require international cooperation and global implementation.

Eventually, in 1992, at the "Earth Summit" in Rio, the idea of integrating environmental sustainability into the economic system was proposed. Since these initiatives were clearly articulated and did not go unheeded, topics related to the green economy—such as the provision of clean drinking water, healthcare, and zero-waste areas—were included in the United Nations' list of sustainable development goals. Subsequently, it was supplemented by goals such as ensuring the health of mothers and children.

Conclusion. The green economy is no longer a theoretical concept but a practical necessity for ensuring ecological balance and long-term socio-economic development. Especially in resource-intensive industries like mining, shifting towards green economic principles is essential. This includes the adoption of renewable energy, eco-friendly technologies, and strict environmental regulations. As demonstrated by both historical practices and modern research, maintaining environmental cleanliness and sustainability is deeply rooted in human culture and should be integrated into modern industrial policies. Future development must prioritize green efficiency as a core value to ensure a cleaner, healthier, and more resilient world.

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