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GREEN ECONOMY AND PRESERVING ECOLOGICAL BALANCE IN INDUSTRY

Abstract: This article discusses green economy and ecological balance problems in industry. The green economy represents the development model directed at effective natural resources management, reduction of wastes, and decrease of ecological load. In this connection, special attention is given to the role of industry in conditions of providing ecological balance, first of all, using renewable energy sources, waste recycling, and extension of clean production. The main purpose of this paper is to recommend strategies to be implemented so that ecological sustainability for industries, expanding green sources of energy, and waste recycling are achieved.

Keywords: Green economy, Ecological balance, Renewable energy, Ecological sustainability, anoat transformation, Industrial waste, Ecological constraints, Green energy. International cooperation, Ecological impact, ecological balance, environmental protection.

Introduction

In the new stage of the coming world industrial revolution, the task of maintaining ecological balance is believed to be an extremely important one. Whereas in most cases the traditional economic model provides growth at the expense of environmental damage, the green economy fundamentally changes this approach and involves the combination of economic development with environmental sustainability. The model is based on the rational use of natural resources, waste reduction, and the use of renewable energy sources.

This article considers the problems of providing ecological balance in industry, questions of green technologies, and their implementation in real life. This topic is an important analytical basis for the formation of a sustainable relationship between the economy and ecology.

Literature Review

Scientific literature on the green economy portrays environmental sustainability as an integral part of economic activity. It looks toward strategies that are focused on maintaining a balance between economic growth and environmental protection.

Pearce and Turner in the book "Fundamentals of Ecological Economics" outline the main principles of a green economy. They analyze the interconnection between the economy and the environment and underline that renewable resources and waste reduction are the keys to economic sustainability. This study notices the importance of rational use of natural resources to guarantee sustainability.

Other studies, however, such as the report entitled "The Future of the Green Economy" prepared by UNEP, focus more on the aspect of environmental sustainability in the pursuit of economic development. The strategies highlighted include attaining long-term sustainability by

transitioning into renewable energy sources, recycling of wastes, and advancement in the digital technologies developed in the green economy.

Daly also provides in his book "Theory of Sustainable Economics" that the implementation of economic activity must be made within the limit of environmental constraints. He further proposes the use of economic instruments such as quotas, taxes, and subsidies towards translating the economic systems in line with the environmental systems. All these ideas form part of the theoretical framework upon which economic policy is developed. The following represents the concluding remarks: The literature on the green economy presents the theoretical and practical aspects of harmonization of industrial development with environmental sustainability. Their recommendations are of great importance for the scientific basis of the ecological transformation of industrial enterprises in the conditions of Uzbekistan.

Research methodology

The goals and objectives of the study were achieved through the application of various methodological approaches. In turn, through a systematic approach, the processes of ensuring ecological sustainability of the green economy and industry were analyzed as interconnected systemic elements; studied the possibilities of adapting these experiences to the conditions of Uzbekistan. In addition, an in-depth analysis of maintaining ecological balance in the green economy and industry was possible with the help of scientific literature, international reports, and local statistical indicators. The mentioned approaches served to attain the main goals of this study.

Analysis and discussion of results

Today, the concept of green economy and keeping ecological balance in industries is one of the goals of the industrial establishment in reducing the ecological effects of the production process, efficient using of resources, and sustainable future development. The approach cost that the economy uses to ensure the protection of the environment, energy efficiency, and reduction of waste has also been practiced in the industrial sector and holds a very important position in maintaining an ecological balance.

The most common principles applied in the keeping an ecological balance in green economy and industry in this table are compared and statistically interpreted. In this table significant attention and analysis is given to green energy sources, industrial waste and recycling, sustainable production, and emerging environmental technologies as a concern.

Table 1

Principles	Importance	Statistical data (2023)	Measures taken in the following years
Green energy sources	Reducing industrial energy consumption and reducing	30% of global energy production comes from	Reduce energy consumption by 15-20%.

	pollution.	renewable sources.	
Industrial waste and recycling	Reducing environmental pollution and using resources efficiently.	55% of industrial waste is recycled.	Increasing resource efficiency by improving the recycling process
Sustainable production	Conserve resources and reduce environmental impact.	The number of industrial companies that have switched to sustainable production has increased by 40% over the last 10 years.	Improving cross-sectoral efficiency of industry
Introduction of ecological technologies	Introducing green technologies into industry and protecting the environment.	Investment in digital technologies in the green economy increased by 12% compared to the base year.	Reducing environmental impact and increasing economic efficiency.

1-in-the-table Continues to Provide That in 2023 Various Regions and Countries are Developing Rapidly in the Process of Implementing Principles regarding the Impact of a Green Economy in Industry to Maintain Ecological Balance, Reduce Its Ecological Footprint, and Ensure Sustainable Development. The Given Information and Statistics Are Also Going to Be Utilized to Analyze the Major Directions of This Process and Their Efficiency.

Sources of green energy are very important for the reduction of energy consumption in industries and pollution reduction in the environment. By the year 2023, approximately 30% of global energy generation will come from renewable resources. This needs improving renewable energy sources in terms of efficiency and making them economically competitive. (International Energy Agency, 2023)[International Energy Agency (IEA) <https://www.iea.org/>].

In addition, the recycling of industrial waste is another significant area for maintaining ecological sustainability. By 2023, 55% of industrial waste will be recyclable. This is indeed a big achievement that lays down foundations for reducing pollution and for effective resource utilization. However, the remaining 45% of industrial waste is still in need of further improvements in the recycling system and resource utilization. Multiple researches show that through the recycling process of wastes, re-utilization of resources not only lowers the effect on

the environment but also increases the economic efficiency. So, the improvement in efficiency in recycling of industrial wastes will be important in the development of green economy. (OECD, 2023)¹

The introduction of green techniques to the industry is a strategic measure to reduce ecological footprint and improve industrial effectiveness. The positive trend that investments in green technology of the green economy grew by 12% over 2023 compared to the base year is a promising sign. Resource management effectively, energy efficiency and waste back to the system using digital technologies are one of the significant methods in which a slight reduction of consumption is still achievable. (World Bank, 2023)²

Despite the positive results obtained in the process of achieving the ecological balance in green economy, industry and its respective process, a number of actions are still necessary for the completion of the process. Through utilizing green energy resources, finding better ways to deal with industrial waste, expanding sustainable production, and putting environmental technologies to work on an industrial scale, it is possible to lower the environmental damage and achieve the sustainable development of industries. However, for the effective implementation of these processes, it is necessary to use innovative technologies and strengthen cooperation between the public and private sectors. The research of Zangi, Tseng, and Huang offers a comprehensive work on the effect of the green economy on industry and adjustment behavior. With regard to industrial energy use and waste management, its improvement also contributes to indicating the environmental balance.

Moreover, the actions of industrial policies and government to mitigate environmental impacts are also very significant. In consequence from the work of Yang and Yang, the value of government measures of environmental policy and of environmental assistance programs in the move towards a green economy, is significant. Support from the government is necessary for the creation and implementation of digital technologies as part of the green economy. Here, several environmental policy programs have been launched in our country to achieve environmental balance and green economy transition. They are designed to align social, economic and environmental objectives.

Conclusions and recommendations

This paper provides an overview of the research conducted in industry on development of green economy and ecological balance, and the crucial advances to achieve ecological sustainability via innovations and research outcomes. To date, the socioeconomic structures, especially the industrial sector, require novel approaches regarding the economic, and the environmentally friendly use of resources and the minimization of negative impact in the environment with the aim of restoring the ecological equilibrium.

A number of key interventions have to be given place to maintain ecological balance in green economy and industry. In this process, cooperation between states, the private sector, and civil society is of particular importance, and the following recommendations can be put forward.

Second, further extension of introduction of green technology and encouragement of innovation is needed. Efforts to harness new energy forms, e.g., the effective utilisation of renewable energy resources (e.g., solar and wind power) have a significant role in saving the environment. The application of such technologies not only contributes to saving of energy but also to industrial waste reduction (Zhao Zhang, 2019). To this goal governments should provide financial and legal incentives to the adoption of green technology.

Second, waste should be reduced in production and more effective resource recycling should be assured. It is important to widely use the concepts of "recycling" and "continues use" in order to achieve sustainable development of industry. This, in turn, ensures resource conservation and

¹ 2023 | OECD <https://www.oecd.org/en/events/2023.html>

² World Development Report 2023 | World Bank <https://www.worldbank.org/en/publication/wdr2023>

reduces waste. On the other hand, businesses can also guarantee their functioning by reaching environmental certificates.

Thirdly it will be necessary to set up continuous monitoring systems which will allow the environmental impact to be quantified, and activities that are degrading the environment to be detected. These systems will allow the calculation of environmental impact of industrial process, preventive actions, and performance of measures of sustainable development. Efficient implementation of monitoring will be conducive to balancing the ecology and dampen mistakes. Fourthly, an attempt should be made to enhance environmental literacy and awareness. The existing educational programmes should be expanded to learn and implement green economy principles at the societal level. This is irrelevant not only to occupational workers, but also to the general population, and can be harnessed to insure an ecological balance. At the same time, the creation and execution of international cooperation and coordinated action to address environmental problems on a global scale are at the heart of the green economy and sustainable industrial economic growth. Thanks to technological advances, good laws and global cooperation industry has a promising prospect of decreasing its environmental impact and developing in a sustainable way. A successful realization of this will be the ability to allow procedure to deliver a balance between economy, and environment and society.

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