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Economic growth and ecology. The Paris Agreement**Ekaterina Yu. Andreeva**

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Abstract

The paper is devoted to the analysis and development of methods for regulating environmental safety at the macro level. The research is based on statistical data from Russia and other parts of the world, as well as on the work of leading economists and political scientists. Currently, the study of economic growth and environmental protection is undoubtedly one of the most important areas of research in modern economic theory. As environmental crises escalate and the urgency of creating environmental stability arises, the importance of the ecological economy also increases. The analysis of the problem shows that the basic principles of sustainable development theory have already been formed. The article pays attention to the fact that, with the available material on the topic, it is obvious that not enough attention is paid to improving the mechanism of regulating the relations between economic growth and nature conservation. The relevance of the research and its practical significance determine the area of the research. The authors of the article come to the conclusions that reflect the general laws of the functioning of the ecological economy. They can find practical application in solving the problems of nature conservation in certain regions of the Russian Federation.

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Keywords

Economics, macroeconomics, ecology, ecological economics, sustainable development, Paris Agreement, ecological footprint, climate change, economic factors, zero-carbon development policy.

Introduction

The problem of combining economic growth and environmental conservation is the most important area of research in economic theory. The issue has been studied by many foreign and Russian scholars including K. Arrow¹, G. Grossman and A. Krueger², V. Costantini and S. Monni³, B.N. Porfiriev⁴, S.A. Mitsek⁵, T.A. Zhuravleva, E.M. Semenova and K.V. Pavlov⁶, S. Gürlük⁷, Yu.Yu. Kovalev⁸. Economic growth is necessary for the existence of any economic system, since living standard depends on it. Ecology is what surrounds each of us, a concept without which the existence of all life on Earth is impossible.

Economic growth affects most social processes: the production of goods, the culture of consumption and distribution, supply and demand chains. As a result, the conditions in which economic growth can exist are of particular importance. They have an impact on all aspects of society, can greatly change the socio-economic state of a country, constraining economic transformations and creating conditions for development of different districts.

One of the main strategies combining economic growth and environmental conservation is the Sustainable Development Policy. It includes seventeen goals that were set in 2015. All Member States of the United Nations were required to sign this agreement. The Objectives call for action by all participants in the global partnership (both developed and developing countries), united by a common goal, to improve health and education, eradicate poverty, and accelerate economic growth. And all of these must be achieved under the obligatory condition: the climate must be restored, the environment cannot be damaged, and the resources of forests and oceans must be preserved [Sustainable Development Solutions Network, [wwwhttps://www.unsdsn.org/](https://www.unsdsn.org/)].

Ecological economy

As environmental crises escalate and the urgency of creating environmental stability arises, the importance of the ecological economy also increases. Cities play the key role in this applied science, as they account for 70-80% of global economic activity and associated emissions and waste.

¹ Arrow K., Bolin B., Costanza R., Dasgupta P., Folke C., Holling C., Jansson B., Levin S., Maler K., Perings C., Pimental D. (1995) Economic growth, carrying capacity, and the environment. *Science*, 268, pp. 520-521.

² Grossman G.M., Krueger A.B. (1995) Economic growth and the environment. *Quarterly journal of economics*, 110 (2), pp. 353-377.

³ Costantini V., Monni S. (2008) Environment, human development and economic growth. *Ecological economics*, 64 (4), pp. 867-880.

⁴ Porfir'ev B.N. (2011) *Priroda i ekonomika: riski vzaimodeistviya (ekologo-ekonomicheskie ocherki)* [Nature and economics: the risks of the interaction (an ecological and economic outline)]. Moscow: Ankil Publ.

⁵ Mitsek S.A. (2012) Ekonomicheskii rost i ekologicheskaya dinamika v Rossii i regionakh [Economic growth and environmental dynamics in Russia and the regions]. *Daidzhest-Finansy* [Digest finance], 6, pp. 9-19.

⁶ Zhuravleva T.A., Semenova E.M., Pavlov K.V. (2017) Ekonomicheskii rost i problemy ekologii v Rossii [Economic growth and environmental problems in Russia]. *Izvestiya Tul'skogo gosudarstvennogo universiteta. Ekonomicheskie i yuridicheskie nauki* [Bulletin of Tula State University. Economic and legal sciences], 2-1, pp. 188-195.

⁷ Gürlük S. (2019) Economic growth and environment interactions. In: *Theories and effects of economic growth*. Nova Publishing, pp. 171-185.

⁸ Kovalev Yu.Yu. (2021) Pyat' let Parizhskomu soglasheniyu: proshloe, nastoyashchee i budushchee global'nogo klimaticheskogo dogovora [Five years of the Paris Agreement: the past, present and future of the global climate treaty]. *Istoriya i sovremennoe mirovozzrenie* [History and modern perspectives], 1, pp. 20-29.

Ecological economics recognizes local and global environmental constraints. They range from studies of local issues to long-term international policy. Environmental economists also consider global problems such as carbon emissions, deforestation, overfishing and species extinction.

Sustainable economy is stable and complies with most environmental restrictions. Drawing on the work of the mathematician Nicolas Georgescu-Regen, the economist Herman Daly developed a model by editing the 1973 anthology "The Path of a Sustainable State Economy" [Daly, 1973, 149-174].

In 1990, Herman Daly co-founded the International Society for Environmental Economics (ISEE). It included three key principles:

- human economy is embedded in nature, economic processes are biological, physical and chemical processes and their transformations;
- ecological economics is a meeting point for researchers dealing with environmental issues;
- ecological economics requires interdisciplinary work on the description of economic processes in relation to physical reality.

William Rees and Mathis Wackernagel, in collaboration with ISEE members, developed the concept of an ecological footprint [Rees, Wackernagel, 1994]. This is an indicator of environmental impact of daily human activities on the environment.

Ecological footprints are tips for governments to help them assess which areas need to be restricted to stay within the regenerative capabilities of the Earth.

The ecological economy developed partly due to frustration with the narrowness of the economy of the environment and resources. These sciences combine basic economics with the environment. However, they do not consider the critical environmental problems arising from the misuse of resources and illiterate waste distribution.

In addition, environmental economists have a broader view of what "progress" is in relation to nature conservation. Environmentalists are more skeptical about how much artificial capital affects nature.

Brian Coffey highlights the mystery of environmental values monetization [Coffey, 2021]. Despite this, some environmental economists use monetary data to create powerful statements. For example, Ida Kubiszewski and her co-authors investigated different scenarios of land use development. They concluded that the continuation of normal activities could destroy a third of the value of ecosystems in the Asia-Pacific region by 2050 [Costanza et al., 2015].

The ecological economy has a clear goal: achieving sustainability. Sustainable means both environmental and social components. Sustainability is mainly assessed in terms of intergenerational justice: the environment should be preserved so as not to undermine the ability of future generations to live a decent life, within the current generation, injustice should be fought.

In ecological economics, the question of whether a sustainable economy is compatible with modern capitalist structures is important. Social strategies are also being developed and studied, including reducing working hours, alternative currency systems, sufficiency strategies and cyclical economic processes.

The Paris Agreement

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties in Paris on December 12, 2015 and took effect on November 4, 2016.

Its goal is to limit global warming to 1.5-2 degrees Celsius, compared to pre-industrial levels.

The Paris Agreement is a milestone in the multilateral process of climate change, as it is the first

binding agreement that unites all countries with a common cause to make joint efforts to combat climate change and adapt to its consequences.

The implementation of the Paris Agreement requires economic and social transformations based on science. The Paris Agreement is working on a 5-year cycle of increasingly serious climate actions carried out by the participating countries.

In their NDC (nationally determined contributions), countries report on the measures they will take to reduce greenhouse gas emissions to achieve the goals of the Paris Agreement. They also inform the NDC what actions will be taken to improve resistance to the effects of rising temperatures.

The Paris Agreement invites countries to formulate and submit long-term strategies for the development of low-emission greenhouse gas emissions (LT-LEDS) by 2020.

Unlike NDC, they are not mandatory. Nevertheless, they put the NDC in the context of the countries' long-term priorities in the field of planning and development, providing a vision and direction for future development.

The Paris Agreement provides a framework for financial, technical, and capacity-building support for some countries.

The Agreement confirms that developed countries should play the leading role in providing financial assistance to less affluent and more vulnerable countries, as well as encourage voluntary contributions from other Parties. Climate protection financing is necessary to mitigate the effects of global warming because large-scale investments are required to reduce emissions significantly.

Moreover, the Paris Agreement mentions full implementation of the development and transfer of technologies both to increase resilience to climate change and to reduce exhaust emissions. It establishes a technological framework to provide comprehensive guidance to a well-functioning technological mechanism.

It should be noted that in the modern world not all developing countries have sufficient capacity to address the challenges posed by climate change. As a result, the Paris Agreement places great emphasis on building the climate-related capacity of developing countries. It requests all developed countries to strengthen their support for capacity-building activities in developing countries.

Since the Paris Agreement, the participating countries have created an enhanced transparency framework (ETF). As a part of the ETF, starting in 2024, they will report on measures taken and progress made in climate change mitigation, adaptation measures and provided or received support. It also provides international procedures for consideration of submitted reports.

The information collected through the ETF will fall into the Global Equity Share, which will assess collective progress towards achieving long-term climate goals. This will lead to giving certain countries recommendations to develop more substantial plans for the next round.

While much stronger action on climate change is needed to achieve the goals of the Paris Agreement, the years since its creation have already led to the creation of "low-carbon solutions" and new markets. More and more countries, regions, cities, and companies are setting carbon neutrality targets. Zero-carbon development policies are becoming competitive in different sectors of economies [America's Zero Carbon Action Plan, [www](#)]. This trend is most noticeable in energy and transport sectors.

By 2030, zero-carbon development policies can be competitive in sectors responsible for more than 70% of global emissions.

Conclusion

The peculiarity of sustainable development policy, which distinguishes it from the usual economic development strategies, is that its formation considers the influence of economic factors on the environment. No matter what happens to the economy, the development policy always provides a high level of involvement in environmental protection activities.

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Экономический рост и экология. Парижское соглашение

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Аннотация

Статья посвящена анализу и выработке эффективных методов регулирования экологической безопасности на макроуровне. В основу исследования легли статистические данные как по России, так и по всему миру, а также работы ведущих ученых-экономистов и политологов. В настоящее время изучение экономического роста и охраны окружающей среды, несомненно, является одним из важнейших направлений исследований современной

экономической теории. Следует также отметить, что по мере обострения экологического кризиса и возникновения безотлагательной необходимости создания экологической стабильности во всем мире актуальность исследований в сфере экологической экономики возрастает. Анализ работ по исследуемой проблеме показал, что в настоящее время в целом сформированы основные принципы и положения теории устойчивого развития. При всем многообразии имеющегося материала по данной тематике недостаточно внимания уделяется вопросам совершенствования механизма регулирования отношений между экономическим ростом и сохранением природы. Новизна темы исследования, ее актуальность, а также практическая значимость определили выбор темы данной статьи. Сделанные авторами выводы, в которых отражены общие закономерности функционирования экологической экономики, могут найти практическое применение при решении проблем сохранения природы в отдельных регионах России.

Для цитирования в научных исследованиях

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Ключевые слова

Экономика, макроэкономика, экология, экологическая экономика, устойчивое развитие, Парижское соглашение, экологический след, изменение климата, экономические факторы, политика безуглеродного развития.

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