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ORGANIZATIONAL AND ECONOMIC INSTRUMENTS FOR IMPLEMENTING GREEN PUBLIC POLICY

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The article explores the organizational and economic instruments for implementing Green Public Policy (GPP) in Ukraine, their impact on sustainable development, and the environmental transformation of the economy. The key organizational and economic instruments of state regulation in the field of environmental policy have been identified, including legislative acts, environmental taxation, public procurement of environmentally friendly products, and digital technologies for environmental monitoring.

The main legislative initiatives aimed at implementing GPP in Ukraine have been analyzed, including the laws «On Environmental Protection», «On Energy Efficiency», and «On Alternative Energy Sources». It has been determined that environmental taxation, particularly the CO₂ emissions tax, serves as an essential instrument for encouraging enterprises to adopt environmentally friendly technologies. Special attention has been given to public procurement of environmentally friendly products as an organizational and economic instrument for implementing GPP. It has been established that this instrument is an effective way for the state to influence the development of the green economy and reduce environmental impact.

The role of digital technologies in the implementation of Green Public Policy has been examined, specifically the use of satellite monitoring, Big Data, and artificial intelligence to analyze the environmental situation. It has been determined that the development of such technologies facilitates effective compliance control with environmental standards and helps predict crisis situations.

Additionally, the key barriers that hinder the effective implementation of GPP in Ukraine have been identified. These include insufficient support from the government and businesses, low public awareness, inadequate regulation of environmental standards, weak integration of environmental policy at the local level, and the negative impact of military actions. Possible ways to overcome these barriers have been analyzed, such as strengthening financial and legal support, promoting innovation in green technologies, conducting information campaigns, and enhancing environmental control.

As a result of the research, it has been concluded that a comprehensive approach combining legal, economic, and technological solutions is necessary for the effective implementation of Green Public Policy in Ukraine. The further development of environmental regulations, the expansion of digital monitoring capabilities, and the promotion of environmental awareness among the population will contribute to the country's sustainable development.

Key words: innovations, public management and administration, efficiency of public management, Big Data, digital transformation.

Скібіна Т. І. Організаційно-економічні інструменти впровадження «зеленої» публічної політики

У статті досліджено організаційно-економічні інструменти впровадження «зеленої» публічної політики (Green Public Policy, GPP) в Україні, їх вплив на сталий розвиток та екологічну трансформацію економіки. Визначено ключові організаційно-економічні інструменти державного регулювання у сфері екологічної політики, зокрема законодавчі акти, екологічне оподаткування, державні закупівлі екологічно чистої продукції, цифрові технології моніторингу навколишнього середовища.

Було проаналізовано основні законодавчі ініціативи, спрямовані на впровадження GPP в Україні, зокрема закони «Про охорону навколишнього природного середовища», «Про енергетичну ефективність» та «Про альтернативні джерела енергії». Визначено, що екологічне оподаткування, зокрема податок на викиди CO₂, є важливим інструментом стимулювання підприємств до впровадження екологічно чистих технологій. Особливу увагу

приділено організаційно-економічному інструменту впровадження GPP, такому як – державні закупівлі екологічної продукції. Визначено, що даний інструмент є дієвим способом впливу держави на розвиток екологічного бізнесу та скорочення негативного впливу на довкілля.

Було досліджено роль цифрових технологій у реалізації «зеленої» публічної політики, зокрема використання супутникового моніторингу, Big Data та штучного інтелекту для аналізу екологічної ситуації. Визначено, що розвиток таких технологій сприяє ефективному контролю за дотриманням екологічних стандартів та прогнозуванню кризових ситуацій.

Разом із цим було сформовано основні бар'єри, що стримують ефективне впровадження GPP в Україні. До них віднесено недостатню підтримку з боку держави та бізнесу, низьку обізнаність населення, недосконале регулювання екологічних стандартів, слабку інтеграцію екологічної політики на місцевому рівні та негативний вплив військових дій. Проаналізовано можливі шляхи подолання цих бар'єрів, серед яких посилення фінансової та правової підтримки, стимулювання інновацій у сфері екологічних технологій, проведення інформаційних кампаній та зміцнення екологічного контролю.

У результаті проведеного дослідження зроблено висновок, що для ефективного впровадження зеленої публічної політики в Україні необхідний комплексний підхід, який поєднує правові, економічні та технологічні рішення. Подальший розвиток екологічного регулювання, розширення цифрових можливостей моніторингу довкілля та стимулювання екологічної свідомості населення сприятимуть сталому розвитку країни.

Ключові слова: «зелена» публічна політика, сталий розвиток, екологічне оподаткування, державні закупівлі, цифрові технології, екологічне законодавство, екологічний контроль, екологічна трансформація.

Introduction. In today's world, environmental protection and sustainable development issues are becoming increasingly important. The impact of economic activities on the environment forces governments to develop and implement policies aimed at reducing the negative effects of production, transportation, energy, and other industries. One of the key instruments of ecological transformation is Green Public Policy (GPP), which involves the comprehensive use of legal, economic, and organizational mechanisms to ensure sustainable development.

As part of the global community, Ukraine is actively developing GPP by integrating environmental requirements into economic activities. This is reflected in the improvement of the legislative framework, the introduction of environmental taxation, the promotion of environmentally friendly production, and the use of digital technologies to monitor the ecological situation. Public procurement of environmentally friendly products and initiatives to raise public environmental awareness also play a crucial role.

However, despite the positive dynamics of GPP development in Ukraine, there are significant barriers that hinder its effective implementation. These include insufficient support from the government and businesses, a low level of environmental awareness, challenges in regulating and enforcing environmental standards, as well as difficulties related to military actions.

Formulation the main objectives of the article. The main goal of the article is to analyze the organizational and economic instruments for implementing green public policy in Ukraine, assess their effectiveness, and outline possible ways for improvement.

Analysis of recent research and publications. Research on Green Public Policy (GPP) is an important area within ecological economics and public administration. A number of scholars focus on the implementation of environmental policy tools, their effectiveness, and their impact on the economy.

In particular, Porter and van der Linde in their work «Toward a New Conception of the Environment-Competitiveness Relationship» note that environmental regulation can become a stimulus for innovation and economic growth if implemented effectively.

This statement is key to understanding the impact of GPP on the development of green business [1].

Stern, in «The Economics of Climate Change: The Stern Review», analyzes the economic consequences of climate change and the need for government intervention through taxation mechanisms and investments in renewable energy sources. His research highlights the importance of tax instruments used in GPP [2].

York and Rosa in their article «The Ecological Footprint Intensity of National Economies» emphasize the impact of government policies on pollution levels and resource efficiency. The authors point out the need for a comprehensive approach to environmental regulation that includes both legislative mechanisms and digital monitoring technologies [3].

In the Ukrainian context, significant contributions to the study of GPP have been made by Perga T.Yu. and Knyazeva T.Yu. The researchers focus on the barriers to the implementation of environmental reforms, particularly the lack of clear mechanisms for the implementation of legislation and the low level of environmental culture [4, 5].

Public procurement of eco-friendly products, as a key tool of GPP, has been examined by V. Malolitneva. The author emphasizes that the public procurement system in Ukraine still does not fully meet European standards, which hinders the effective implementation of environmental policy [6].

Thus, the analysis of scientific sources indicates that GPP is an interdisciplinary field encompassing environmental law, economics, and public administration. Further research should focus on improving legislative mechanisms, enhancing the effectiveness of environmental taxation, and digitalizing the monitoring of environmental processes.

Presentation of the main material. Green Public Policy (GPP) is a set of measures, strategies, and regulations implemented by government authorities to reduce the negative impact of economic activity on the environment and promote sustainable development. GPP covers various sectors, including energy, industry, transport, agriculture, and urban planning. The main goals of GPP are: reducing environmental pollution and greenhouse gas emissions; promoting energy production using renewable energy sources; efficient use of natural resources; and developing a circular economy, which involves minimizing waste and reusing materials.

GPP is based on the principles of sustainable development, which were first systematically outlined in the Rio de Janeiro Declaration on Environment and Development and later reinforced in the UN Sustainable Development Goals for 2030 [7]. The key principles of GPP are:

- «Polluter pays» principle – companies that harm the environment must cover the costs of its restoration;
- Preventive principle – environmental risks must be assessed in advance to prevent negative consequences;
- Integration principle – environmental aspects must be considered in all areas of public policy (economic, social, industrial, etc.);
- Public participation principle – environmental policy formation should involve businesses, scientists, and civil society organizations [7].

For the effective implementation of GPP, governments use various organizational and economic instruments to influence the economy and society. These may include both direct legislative regulation and market incentives for businesses and citizens. The main instruments include tax incentives, environmental legislation, public procurement of green products, and digital technologies for environmental monitoring:

Table 1

Organizational and Economic Instruments for Impacting the Economy and Society in the Implementation of GPP

№	Name	Characteristics
1.	Environmental Legislation and its Impact on Industry and Business	<ul style="list-style-type: none"> – Regulation of harmful emissions – establishing maximum allowable emission levels for enterprises; – Restrictions on the use of certain materials – banning single-use plastics, toxic substances, or implementing waste recycling standards; – Environmental responsibility of businesses – requiring companies to restore the environment after utilizing natural resources.
2.	Tax Incentives and Subsidies for Eco-friendly Businesses	<ul style="list-style-type: none"> – “Green” tax benefits – tax reductions for companies implementing eco-friendly technologies or using renewable energy sources; – Environmental taxation – increasing taxes for businesses that pollute the environment; – Subsidies and grants – financial support for businesses implementing ecological initiatives.
3.	Public Procurement as One of the Most Powerful Mechanisms for Stimulating Green Business	<ul style="list-style-type: none"> – Purchase of eco-friendly products by public institutions, including electric transport, energy-efficient equipment, and construction materials made from recycled materials; – Introduction of environmental criteria for government tenders; – Stimulating innovative “green” startups through government funding and support.
4.	The using Digital Technologies for Monitoring the Environmental Situation	<ul style="list-style-type: none"> – Satellite monitoring systems – to track air pollution levels, deforestation, and climate change; – Big Data and AI – analyzing large data sets to predict environmental crises and manage resources; – Electronic platforms for the public – mobile apps and online services allowing citizens to report environmental issues.
5.	Moral Incentives for Raising Environmental Awareness	<ul style="list-style-type: none"> – Informing the population about the consequences of environmental pollution; – Promoting responsible consumption; – Relevant educational activities and programs.

Systematized by the author using sources [8, 9, 10, 11, 12, 13]

GPP (Green Public Procurement) utilizes a wide range of instruments (Table 1) that assist governments in ensuring the ecological transformation of the economy. A combination of tax incentives, environmental legislation, public procurement, and digital technologies enables effective control over the impact of human activities on the environment. However, the successful implementation of these measures is only possible through a comprehensive approach and active interaction between the government, businesses, and citizens [6].

Analysis of the Use of GPP Development Incentives in Ukraine:

GPP in Ukraine is actively developing in the context of ecological transformation and sustainable development. Ukrainian legislation in this area aims to regulate economic

activities in a way that reduces negative environmental impacts, promotes the introduction of renewable energy sources, and ensures the efficient use of natural resources.

1. Key Legislative Acts in the Field of GPP in Ukraine:

– The Law of Ukraine «On Environmental Protection» [8]. This law is the foundation of Ukraine’s environmental legislation and defines the key principles of environmental protection. It establishes rules for the use of natural resources, environmental pollution, and control mechanisms for ecological violations. The law includes important provisions on measures that businesses must take to reduce their environmental impact [8];

– The Law of Ukraine «On Environmental Impact Assessment». This law provides a mechanism for assessing the environmental impact of enterprises and sets requirements for environmental audits. It serves as a crucial tool for implementing green public policy in industry and business by identifying shortcomings in corporate environmental management and adjusting activities in accordance with ecological standards [9];

– The Law of Ukraine «On Waste». This law regulates the relationships associated with waste generation, collection, processing, utilization, and disposal. It aims to develop a circular economy, which is an essential part of green public policy. The law outlines requirements for material reuse and waste reduction [10];

– The Law of Ukraine «On Energy Efficiency». This law establishes the key principles of Ukraine’s energy policy and sets requirements for reducing energy consumption and increasing the efficiency of energy resource use. A crucial aspect of this law is the development of renewable energy sources, which aligns with the principles of green public policy and contributes to reducing greenhouse gas emissions [11];

– The Law of Ukraine «On Alternative Energy Sources». This law aims to encourage the use of renewable energy sources (solar, wind, bioenergy) through tax incentives, government subsidies, and other economic support mechanisms. The law allows Ukraine to take a significant step toward reducing dependence on fossil fuels [12].

2. Environmental Taxation in Ukraine:

– CO₂ Emissions Tax. Ukraine has introduced an environmental taxation system, including a tax on carbon dioxide emissions. This tax serves as a key mechanism for reducing greenhouse gas emissions and incentivizing businesses to implement technologies that lower emissions. The legislation provides benefits for companies using environmentally friendly technologies or alternative energy sources [13];

– Tax Incentives for Green Businesses. To promote environmentally friendly businesses, Ukraine has introduced various tax benefits and subsidies, particularly for enterprises that utilize renewable energy sources or engage in eco-friendly production. One example is the provision of land tax benefits for businesses involved in renewable energy [12, 13].

3. Public Procurement of Environmentally Friendly Products:

Public procurement of eco-friendly products is an essential tool for implementing green public policy in Ukraine. According to the Law «On Public Procurement», state authorities must prioritize environmentally friendly products and services within tender procedures. This includes procuring eco-friendly transport, energy-efficient equipment, and construction materials made from recycled raw materials. In particular, Ukraine is actively developing support programs for “green” technologies in public procurement [6, 12].

4. Digital Technologies for Environmental Monitoring in Ukraine:

Ukraine is actively developing digital technologies for monitoring environmental conditions. Key initiatives include:

– Satellite monitoring systems – to track air pollution levels, deforestation, and climate change;

– Big Data and AI – for analyzing large environmental data sets, forecasting crises, and resource management.

One example is the creation of Ukraine's National Environmental Platform, which enables real-time monitoring of the environmental situation [14].

5. Moral Incentives for Environmental Protection:

In Ukraine, moral incentives for environmental protection are actively developing but require significant efforts to achieve substantial results. Important elements of these incentives include public awareness, changes in consumer habits, and support for educational initiatives:

– Raising public awareness about environmental pollution consequences.

Ukraine has an increasing need to enhance environmental awareness among citizens. Information campaigns aimed at highlighting the negative consequences of environmental pollution, such as waste accumulation, water resource contamination, and air pollution, often fall short due to a lack of clear and accessible information. However, key initiatives include government programs like national campaigns against illegal waste dumping and air pollution, actively supported through television, social media, and local initiatives. For example, city clean-up campaigns and «Clean Forest» events promote environmental consciousness [14];

– Fostering responsible consumption.

In Ukraine, demand for environmentally friendly products and services is growing. However, many Ukrainians still prefer cheap, inefficient goods that harm the environment. Shaping responsible consumption requires not only government initiatives but also business support. For example, Ukrainian companies producing eco-friendly goods receive state benefits. At the same time, consumers can also receive tax benefits for purchasing such products. Waste recycling programs and incentives for using reusable materials also play a key role in promoting responsible consumption;

– Educational initiatives and programs.

Education serves as a crucial tool for influencing citizen and business behavior. Numerous eco-forums, seminars, and training sessions are organized in Ukraine for entrepreneurs and the general public. In schools and universities, environmental topics are becoming increasingly relevant, fostering ecological awareness from an early age. However, there is a need to expand such programs for adult populations and government agencies to ensure the implementation of sustainable practices at all levels of society. One example is the «Eco-Friendly Cities» program, which provides training for local authorities and businesses on energy-saving measures and waste minimization [15].

Organizational and economic tools in Ukraine's green public policy are actively developing and form the foundation for the country's ecological transformation. The key instruments include environmental taxation, public procurement, and digital technologies for monitoring environmental conditions. Achieving sustainable development requires maintaining a comprehensive approach that combines legal, economic, and technological solutions at both the state and business levels.

Despite the significant development of GPP in Ukraine, several barriers exist, including: insufficient support from the government and businesses; low public awareness and lack of environmental culture; challenges in regulating and enforcing environmental standards; a lack of innovative solutions in green technologies; weak integration of green policies at the local level; the impact of military actions and their consequences in Ukraine.

Overcoming these barriers requires a comprehensive approach that includes strengthening financial and legal support mechanisms, developing innovations, conducting educational campaigns, and enhancing environmental monitoring.

Conclusions. The development of GPP in Ukraine is a crucial stage in the ecological transformation of the economy, aimed at minimizing the negative impact of economic activities on the environment. Organizational and economic instruments such as environmental legislation, tax incentives, public procurement, digital technologies, and moral incentives play a key role in GPP implementation.

Ukraine's legislative framework is actively evolving, introducing environmental taxation, supporting renewable energy sources, implementing environmental audits, and promoting green businesses. The adoption of public procurement for environmentally friendly products fosters the growth of the green economy and innovations in energy efficiency. The use of digital technologies, such as satellite monitoring and big data analysis (Big Data, AI), improves environmental control.

Despite these achievements, significant barriers remain, including insufficient government and business support, low public environmental awareness, regulatory challenges, weak integration of green policies at the local level, and the effects of military actions. Addressing these challenges requires a comprehensive approach that includes strengthening financial and legal mechanisms, fostering innovation, increasing public environmental consciousness, and implementing effective environmental control.

Thus, the successful implementation of green public policy in Ukraine is possible through a comprehensive approach that involves collaboration between the government, businesses, civil society, and international partners.

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