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ADMINISTRATIVE LIABILITY FOR ENVIRONMENTAL OFFENCES: PROBLEMS AND PROSPECTS FOR LEGISLATIVE CHANGES

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Abstract

Environmental problems have increased in the context of economic globalization and consumer behavior. This has led to the emergence of the green economy paradigm, which requires the creation of legislative initiatives to achieve the stated environmental goals. The purpose of the study was to identify the weaknesses and strengths of environmental legislation in the leading countries of the world in achieving the goals of the green economy. The study used the following methods of induction, deduction, analysis, synthesis, systematization, logical comparison and statistical analysis. Authors identified trends in the dynamics of carbon dioxide emissions and plastic waste in the United States, China, and the EU for the period 1990-2022. Authors determined the probability of further changes based on the trend line equations for carbon dioxide and plastic waste emissions. Among the problems is the lack of strict and binding legal regulation of environmental issues, which demonstrates the low effectiveness of environmental initiatives even in the United States and China. The author demonstrated the feasibility of creating administrative responsibility for end users and distributors to improve waste management efficiency and increase demand for green products.

Keywords

Green economy, environmental pollution, legal regulation, waste management, harmful emissions.

Resumo

Os problemas ambientais têm aumentado no contexto da globalização económica e do comportamento do consumidor. Isso levou ao surgimento do paradigma da economia verde, que exige a criação de iniciativas legislativas para alcançar as metas ambientais estabelecidas. O objetivo do estudo foi identificar os pontos fracos e fortes da legislação ambiental nos principais países do mundo no que diz respeito ao cumprimento das metas da economia verde. O estudo utilizou os seguintes métodos de indução, dedução, análise, síntese, sistematização, comparação lógica e análise estatística. Os autores identificaram tendências na dinâmica das emissões de dióxido de carbono e resíduos plásticos nos Estados Unidos, China e UE para o período de 1990 a 2022. Os autores determinaram a probabilidade de novas mudanças com base nas equações da linha de tendência para as emissões de dióxido de carbono e resíduos plásticos. Entre os problemas está a falta de regulamentação legal rigorosa e vinculativa das questões ambientais, o que demonstra a baixa eficácia das iniciativas ambientais, mesmo nos Estados Unidos e na China. O autor demonstrou a viabilidade de criar responsabilidade administrativa para os utilizadores finais e distribuidores, a fim de melhorar a eficiência da gestão de resíduos e aumentar a procura por produtos verdes.

Palavras-chave

Economia verde, poluição ambiental, regulamentação legal, gestão de resíduos, emissões nocivas.

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Introduction

In the modern world, there is a constant negative impact of humans on the environment, which is caused by the consumer model of their behavior. This results in the depletion of natural resources and environmental pollution, which requires an immediate search for ways to protect the environment. After all, the negative impact on the environment is manifested by changes in climate, air, water, and soil conditions, which in turn affects the health and quality of life of the population. Therefore, the issue of environmental protection is at the heart of political and legal discourse, given the scale of the cascade of environmental problems and their consequences for society (Mikhno et al., 2021).

The issue of combating environmental pollution is being discussed at the global level, through the creation of international communities and institutions to develop mechanisms for protecting nature. Moreover, economic development is planned with due regard for environmental impact. However, despite the obviousness of environmental problems, a large percentage of entrepreneurs and consumers avoid the adopted environmental protection rules due to the increased financial costs associated with them (Merino-Saum et al., 2020). That is why educational and incentive-based conservation initiatives have proven ineffective, leading to the need to engage legal mechanisms to counteract environmental violations by citizens and entrepreneurs, which are expected to be effective in the long run, but there is uncertainty about their actual effectiveness.

Literature Review

Growing environmental problems associated with the development of production have led to the emergence of the terms green economy and sustainable development, which include strategic planning of economic processes in terms of their impact on the environment and human well-being. The United Nations Environment Program, the Global Green Growth Institute, the Green Economy Initiative, the Green Growth Declaration, the Sustainable Development Strategy, and other documents that provide for steps to preserve the environment were created to help countries cooperate in addressing environmental issues (Merino-Saum et al., 2020; Sumets et al., 2022). These programs include combating global warming by reducing greenhouse gas emissions by 42% to 52% by 2030, reducing fossil fuel production, reducing nitrogen oxide emissions that deplete the ozone layer, preserving biodiversity and wildlife, combating land degradation, plastic pollution, preserving freshwater ecosystems, and dealing with the effects of natural disasters and armed conflicts (Abbasi et al., 2024).

In addition to economic cooperation, international associations of large enterprises also have environmental goals, namely, they act within the framework of accepted recommendations for conserving resources and reducing greenhouse gas emissions, and create a competitive environment based on environmental friendliness. The effectiveness of such market relations is explained by their scale, as according to the Organization for Economic Cooperation and Development (OECD), 39% of greenhouse gas emissions are produced by its members. Since the recommendations are mostly voluntary and focus on the integrity of entrepreneurs and reputational risks, their effectiveness is limited, and regulation is carried out in accordance with the laws of the country of origin (Tam et al., 2021).

Although the modern paradigm of economic development has changed the vector from financial prosperity to creating favorable natural and social conditions, conserving resources, energy, and combating climate change, the problems of legal regulation of environmental impacts are becoming an obstacle to achieving the stated goals (Tomaselli et al., 2021). Fostering an environmentally friendly society involves many factors, but the most effective are environmental projects that are adequately funded and accompanied by effective regulation, governance, energy-saving technologies, and pro-environmental policies (Huang et al., 2021).

Despite the creation of joint international environmental initiatives, researchers believe that their success in practice varies significantly from country to country, depending on economic capacity, financial and technological capabilities, as well as national characteristics of population behavior (Wang et al., 2021). That is why these environmental directives are rather a guideline that is implemented in different countries in different ways. Moreover, even within the same country, the same initiative can have different consequences, depending on the location, size, and ownership of the company. For example, the introduction of green finance in China, although it helps to reduce environmental pollution, has a different impact on the investment capacity of companies. Namely, it has a negative impact on the investment behavior of privately owned medium and small businesses, but a positive impact on state-owned large enterprises in the western and eastern regions of the country (Zhang et al., 2021).

Another equally favorable legal system for environmental protection is that of the European Union, which actively implements environmental legislation in member states where more than 50% of laws are based on EU law. Moreover, the EU has an Environmental Enforcement Commission that has access to companies and can file a complaint against violations of environmental rules with the European Court of Justice. In this way, the Commission can bring to administrative responsibility enterprises that violate environmental legislation bypassing national courts (Oncioiu & Neacsu, 2023). Thanks to strict regulation, the EU plans to reduce greenhouse gas emissions by 20%, increase the use of renewable energy by 20%, and increase energy efficiency by 20% by 2030.

However, environmental legislation has faced new challenges due to the change in economic models of businesses from local transactional markets to open international relations involving e-commerce and social media to launch and promote products (Kyriakopoulos, 2021). Thus, the globalization of the economy has led to a decrease in the effectiveness of administrative regulation of environmental offenses due to changes in logistics chains, expansion of production geography, and the use of digital technologies. This is due to the lack of unified environmental standards that differ from country to country in relation to different industries, which creates problems for both regulators and businesses, as well as the rapid development of technologies that, in the context of globalized market relations, cannot be effectively regulated by environmental laws without constant changes. On the one hand, technologies can be favorable for the development of a green economy by optimizing production and logistics routes, but they have a number of problems, including high energy consumption, cybersecurity, and significant financial costs, which requires consideration of the feasibility of using certain types of technologies (Luo, 2022; Castro et al., 2021; Bielai et al., 2024).

On the other hand, the requirements for the economic model have changed from a linear to a circular one, which allows reducing the use of resources and energy for waste disposal in order to ensure the reuse or recycling of products. At the same time, the classification of waste is also constantly changing, and in addition to administrative liability for violating waste disposal rules, a tax on landfills and packaging is being introduced (Pouikli, 2020). The problem of waste is of great importance, as the consumer model of the economy has led to a large amount of waste that requires energy-intensive disposal processes and leads to environmental pollution.

No less important is climate change due to increased greenhouse gas emissions. Although 195 countries have agreed to act within the stated goals of reducing greenhouse gas emissions, these changes are not noticeable in the short term and there is a risk that this initiative will not produce the stated results in the long term as well (Oncioiu & Neacsu, 2023). Moreover, economic legislation is national, and adopted international recommendations are often ignored due to the high costs of achieving green economy goals and the peculiarities of changes in the legal framework in different regions (Abbasi et al., 2024). That is why it is important to study administrative liability for violation of environmental norms and identify the weaknesses and strengths of environmental legislation in the world's leading countries.

Aim. The purpose of the study was to identify the weaknesses and strengths of the environmental legislation of the leading countries of the world in achieving the goals of the green economy.

Materials and Methods

The study used the methods of induction, deduction, analysis, synthesis, systematization, logical comparison and statistical analysis. The author analyzed legislative initiatives from around the world, including the EU, the US, and China. The weaknesses and strengths of the EU environmental directives and responsible entities are identified, and promising areas for legislative change on the way to achieving the stated environmental goals are identified. Authors analyze the peculiarities of environmental legislation in the world, in particular in the leading economies of the United States, China, and the EU, and determine their effectiveness by comparing the levels of harmful carbon dioxide emissions and plastic waste for the period 1990-2022. Authors identified trends in the dynamics of carbon dioxide emissions and plastic waste based on the identification of trend lines with the probability of further changes. Based on the analysis, authors proposed ways to overcome the weaknesses of environmental legislation.

Results

To determine the effectiveness of legislative initiatives to protect nature, authors analyzed the main EU directives, since the environment plays a significant role in the political, legal, social and economic activities of the community. There were systematized existing legislative documents according to environmental areas and principles for achieving environmental goals in Table 1. Also there were identified the entities that monitor and manage environmental issues and the entities that bear administrative and civil liability for violations of environmental requirements. Based on the analysis, authors identified the weaknesses and strengths of the existing EU environmental legislation and suggested possible ways to address the problematic issues.

Table 1. Legal regulation of environmental issues in the EU

Environmental area	**Principle**	**Legal regulation**	**Objects, subjects and types of liability**
Environmental pollution	Control over the company's impact on the environ-ment and the possibility of air, water, soil pollution.	Directive 96/61 - provides for control over production technology, technical characteristics of equipment at the stage of design, use, maintenance and decommissioning Directive 85/337; 2001/42; 2014/52 - control over possible negative impact on the environment before the start of business activities.	It provides for obtaining a permit to conduct economic activity at the stage of production design. Regulation is entrusted to national authorities, which are responsible for issuing permits and monitoring ongoing activities for environmental pollution.

Waste	Disposal, reuse or recycling of the product produced	Article 14, Article 8 of the 2008 EU Framework Directive – the costs associated with the disposal, recycling or determination of the product's suitability for reuse are borne by the manufacturer and partially by the distributor of the product.	Administrative responsibility lies with the manufacturer, while waste management is carried out by local municipalities; the manufacturer has the right to choose the type of responsibility: partial operational responsibility (the manufacturer is partially involved in the processes of waste collection, processing and disposal) and full operational responsibility (the producer has full control over the processes of waste collection, processing and disposal).
	Disposal, reuse or recycling of packaging	EU Directive 94/62 provides for collection from end users or reuse of packaging by users.	
	Disposal of end-of-life vehicles	EU Directive 2000/53 provides for the transfer of the costs of vehicle disposal to the manufacturer rather than the last owner, in order to reduce the use of hazardous substances and to provide for simple recycling at the design stage of the vehicle by the manufacturer.	
	Disposal of waste electrical and electronic equipment	EU Directive 2012/19 encourages producers to use alternative technologies to facilitate the dismantling, reuse and recovery of electrical and electronic equipment.	
	Recycling of batteries and accumula-tors	EU Directive 2006/66 obliges Member States to establish collection points for batteries and accumulators for consumers in accessible locations without charge and without the obligation to purchase a new battery or accumulator. Manufacturers must ensure safe conditions for the recycling of this waste.	
Plastic	Ensuring the availability and sustainable manage-ment of water and sanitation	EU Regulation 1907/2006, which provides for the improvement of the quality of plastic products in order to extend their service life, reuse and reduce plastic waste.	The manufacturer compensates for the cost of plastic utilization and recycling.
Protection of water resources	Manage-ment of surface and deep water resources, natural and artificial water bodies	Water Framework Directive 2000/60, Article 13, Annex VII provides for the control of water quality in 5 categories, determination of physical, chemical, hydrological and morphological characteristics, protection of aquatic ecosystems. Article 14 provides for informing and involving the public and users in the balanced use of water.	Quality control is carried out by national authorities. The responsibility is collective and applies to both entrepreneurs and consumers who compensate for the costs of water supply services on an ongoing basis.

Clean air	Air quality manage-ment.	The Clean Air Directive for Europe (CAFE) 2008/50 provides for the reduction of harmful substances in the air: acidifying substances (SO(2), NO(x), NH(3)), emissions that deplete the ozone layer, dust precursors (PM(10), PM(23)), emissions that affect airquality in urban agglomerations. Directive 2001/81 on the reduction of national emission ceilings. The Convention on Long-Range Transboundary Air Pollution (LRTAP) obliges countries to control emissions from their own enterprises. Directive 2010/75 provides for the control of industrial emissions. Directive 2001/80 controls emissions from large combustion plants.	Member states control emissions from industrial facilities and cities and notify the EU Commission of the permissible levels and an action plan for their possible reduction. Producers are required to comply with emission limits and use technologies that reduce emissions. In case of violations, industrial facilities are subject to administrative sanctions, as well as possible closure of the facility. The public's responsibility is to restrict the use of certain types of vehicles in urban areas with high levels of air pollution.
Preventing climate change	Reducing global warming to $2^{(0)\,C}$	The Paris Agreement was adopted by 195 states at the UN Convention and provides for the reduction of greenhouse gas emissions, creation of a green economy, creation of adaptive mechanisms to climate change, measures to combat climate change-related emergencies, counteracting deforestation and forest degradation, creation of giant biomass plants that absorb carbon dioxide, reduction of fossil fuel use in favor of renewable energy sources, and development of energy efficiency.	Signatories to the agreement are obliged to monitor climate change and submit reports on the state of the environment. Economically developed countries are obliged to provide financial and technological assistance to developing countries in achieving the goals of the Paris Agreement.

Source:created by the author on the basis of (Pouikli, 2020; Oncioiu & Neacsu, 2023; Council Directive 96/61/EC; Directive 2000/60/EC; Directive 2008/1/EC; Directive 2010/75/EU; Directive 2012/19/EU)

As can be seen from Table 1, achieving the goals of environmental legislation is not an easy task and requires the efforts of central authorities to constantly improve legislative mechanisms in line with changes in the economic model. Nevertheless, administrative liability for violations of environmental initiatives mainly falls on the manufacturer, with distributors and third parties representing the product sharing this role. The EU is committed to preventive actions in its environmental initiatives, so the specially created Commission for the Protection of Nature monitors production processes at the planning stage of business activities. That is, without the Commission's approval, a company cannot obtain a permit to start production in the EU member states in accordance with EU Directive 85/337. Another effective mechanism of influence of EU legislation is the ability of the Commission to monitor the environmental impact of member states' enterprises without the approval of national central authorities and in accordance with Article 169 of the EU Treaty. The Commission has the power to take legal action against an individual company or a Member State for violating environmental rules. Another important achievement is the ability of the public to participate in the detection of environmental violations. Citizens have the right to freely receive information about the

type of activity of enterprises and the environmental risks associated with them. Citizens can also file a complaint against companies if they detect actions that harm the environment or request an inspection of companies whose activities are suspicious.

Environmental legislation in the EU is constantly monitored and changed to simplify regulatory mechanisms. This approach implies a more flexible regulatory principle that encourages businesses to comply with the law and protect nature. Thus, on the way to change, new directives change the previous ones, creating simpler and clearer rules that are easy to follow. An example of such changes is the repeal of Directives 91/689 on hazardous waste and its disposal, as well as 75/439 on the disposal of used oils.

Directive 2004/35 on environmental liability was adopted to determine the type of liability that applies to environmental pollution, which contains both preventive measures and legal mechanisms for civil and administrative liability (Directive 2000/60/EC). Producers and consumers can be held liable by public authorities for damage to protected species, their natural habitats, water bodies, and soils. The Directive provides for liability for significant damage, but does not define criteria for assessing damage and thresholds for the significance of violations. Moreover, Annex III of the Directive establishes administrative liability for high-risk enterprises without the need to prove guilt. Moreover, administrative fines are not fixed, but fully cover ecosystem restoration measures and compensation for damages. Instead, offenses not listed in Annex III and committed by a citizen or low-risk enterprises, including those engaged in agricultural activities, require proof of guilt and may be subject to administrative liability for negligent conduct of activities or intentional damage to the biodiversity of natural resources.

Although the EU environmental legislation has made significant progress in recent years and is constantly being improved, and the Commission's powers to protect nature are being expanded, the effectiveness of these measures is controversial, as actual pollution rates change only slightly. In addition, the global trend is also not positive, which encourages us to identify the advantages and disadvantages of the environmental protection measures implemented and to find effective solutions. Table 2 analyzes and systematizes the main global environmental initiatives, identifying weaknesses and strengths that can be used to improve the national legal framework in the field of environment. Figure 1 demonstrates the dynamics of carbon dioxide emissions in the United States, China and the EU over the period from 1990-2022 and identifies trends and forecasts for the next 4 years. Figure 2 shows the trends in plastic waste dynamics in the United States and forecasts trends for the next 5 years.

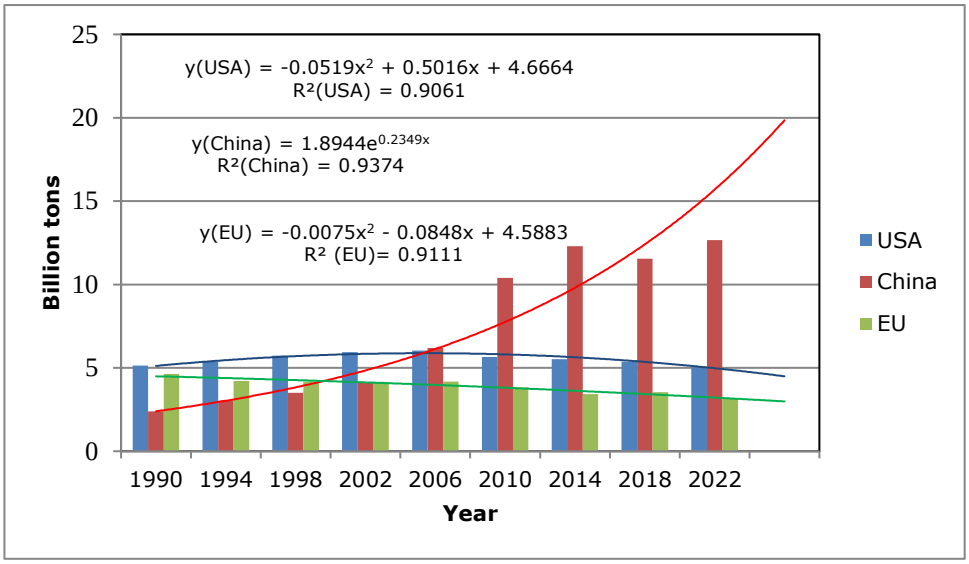
Table 2. Strengths and weaknesses of major global environmental legislative initiatives

Environmental issue	**Legislative initiatives (strengths)**	**Weaknesses**
Plastic pollution	EU Regulation 1907/2006; Conducting audits on plastic pollution (more than 1500 events in more than	Difficulty in monitoring to bring the manufacturer to administrative responsibility, as more than 50% of the detected plastic is unbranded, which causes a shortfall of 50% of the funds for plastic waste disposal.

	100 countries in 6 years), imposing a tax on the use of plastic bags, banning the use of plastic bags, China's ban on imports of plastic waste.	The low efficiency is confirmed by the increase in plastic production from 200 million tons in 2000 to more than 400 million tons in 2019. The lack of mandatory audits for all countries, as a result of which the United States and Indonesia have conducted more than 100 audits in 6 years, while 84 countries have conducted only 1. The problem of corruption in some countries, which causes unreliable audit results and thus a lack of funds for plastic recycling. Lack of effective mechanisms to encourage end-users to reduce the use of plastic and to dispose of used plastic at special collection points. Low awareness of the environmental damage caused by plastic and lack of information about plastic collection points in developing countries.
Reducing greenhouse gas emissions	The Paris Convention, Sustainable Development Goals for 2030 and 2050, Article 7 of the Sustainable Development Goals on the use of clean energy, Article 13 on urgent measures to combat climate change, national initiatives under international agreements	Despite the adopted goals, even such successful countries as the United States do not demonstrate a stable positive result, so in 2020 the level of carbon dioxide emissions in the United States amounted to 4.7 billion cubic meters, and in 2022 5.6 billion, which exceeds even the level of 2016 (5.01 billion). And China, which ranks first in the world in terms of greenhouse gas emissions, despite its stated goal of reaching a zero carbon footprint in 2060 at the 26th Conference of the Parties in Glasgow, has retreated from the goal of phasing out coal to gradually reducing coal consumption. Although the Chinese authorities hope to improve their forecasts by developing renewable energy and digital technologies. Lack of mandatory unified legislative initiatives, resulting in different national and regional legislative acts and low efficiency. High cost of implementing energy efficient technologies. Poor quality of reports on greenhouse gas emissions and fossil fuel use. Low rates of forest restoration and continued deforestation in developing countries. Increasing number of armed conflicts that increase greenhouse gas emissions and contradict the goals of sustainable development.
Waste management and recycling	EU Regulation 1907/2006, Initiating the establishment of waste management organizations in organizations, governments and academia. Administrative responsibility of producers for the disposal and recycling of various types of waste. Use of technologies to predict customer behavior and optimize wholesale purchases.	Lack of collective responsibility for violating waste disposal rules, especially among end users. Low effectiveness of educational work on the overuse of goods and, as a result, excessive waste production. The reasons for failures in food waste management are low consumer culture regarding the use of food products and low optimization of bulk purchases of food products with limited shelf life, especially in developing countries. Corruption in some countries, which leads to producers avoiding administrative responsibility for environmental pollution. Due to lack of funding, developing countries have a low number of waste recycling plants and waste sorting facilities, which leads to the creation of natural dumps. As a result, about 40% of waste ends up in landfills, which leads to methane emissions into the atmosphere.

Source: created by the author on the basis of Cowger et al., 2024; Regulation (EC) No 1907/2006; Geyer et al., 2020; Wang et al. 2019; Zavidna et al., 2025; Bistline et al., 2022; Ma et al., 2022; Anuardo et al. 2022; Voronina et al., 2024).

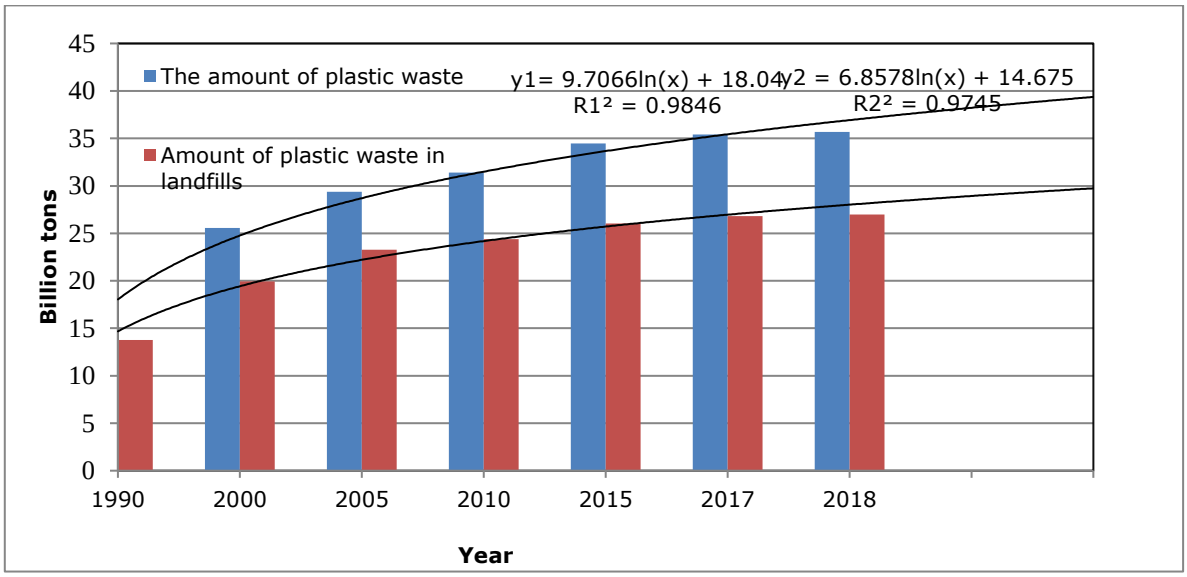
Figure 1. Trends in carbon dioxide emissions in the US, China, and the EU



Source: created by the author based on (Tiseo, 2025; Worldometer, 2025; EEA greenhouse gases – data viewer, 2025)

As can be seen from the table, the effectiveness of these environmental initiatives at the global level is extremely low, due to a number of factors. Namely, the lack of unified environmental rules with mandatory enforcement. After all, developing countries cannot quickly switch to renewable energy, abandon the use of polluting equipment, or develop technologies that promote waste management and optimize resource use, as this requires large financial outlays. Moreover, our research has shown that even the economic giants of the United States and China cannot achieve their stated environmental goals in practice. Namely, the determination of the trend line of carbon dioxide emissions in China showed a tendency to increase carbon dioxide emissions according to an exponential relationship with a probability R(2)=0.8566 for further growth (Figure 1). Also, the determination of the trend line for the dynamics of plastic waste in the United States showed an upward trend in both the total amount of plastic waste with a probability of R(2)=0.9846 and the amount of plastic waste in landfills with a probability of R(2)=0.9745 (Fig. 2). This trend indicates the need for more stringent methods. The EU countries are more successful in strictly regulating environmental issues, as they plan to reduce greenhouse gas emissions by 20%, increase the use of renewable energy sources and improve energy efficiency by 20% in 2030. The tendency to reduce carbon dioxide emissions with a probability of further reduction R(2)=0.9111 is in favor of achieving the above stated EU goals. The positive dynamics of carbon dioxide emissions reduction was also demonstrated by the analysis of the trend line in the United States with the projected probability of further reduction of carbon dioxide emissions R(2)= 0.9061.

Figure 2. Dynamics of plastic waste and the amount of plastic in landfills in the United States



Source: created by the author based on (EPA, 2024)

Y1, R1 – trends in the total amount of plastic waste. Y2, R2 – trends in the amount of plastic waste in landfills

Instead, to increase the efficiency of waste management, it is advisable to create mechanisms for administrative liability of the end user for excessive use of plastic, improper waste disposal, use of vehicles with a high carbon footprint, etc. Responsibility for the negative impact should be shared between distributors, manufacturers, and end users, which would encourage manufacturers to produce goods in an environmentally friendly manner with a long service life and recyclability. With administrative responsibility shared, distributors would be able to choose more environmentally friendly products and avoid excessive bulk purchases. Consumers, on the other hand, would be more interested in choosing environmentally friendly products due to the lower price of the goods. In practice, however, consumers are less likely to choose green goods because their price is usually higher, which is explained by the financial burden on the producer alone and the low level of adoption of green technologies.

Discussion

Our research has revealed the limitations of international environmental laws that give states the right to choose whether to introduce certain norms and impose penalties in relation to them. The globalization of the economy, financial transactions, and the absence of borders in environmental pollution are the reasons for the transition from recommended environmental legislation to mandatory compliance with basic requirements. In this regard, the EU is the most effective, acting within its member states with the possibility of bringing producers or distributors of goods to administrative responsibility for violating environmental legislation directly in EU courts, bypassing

national courts (Oncioiu & Neacsu, 2023). The importance of transnational environmental standards is demonstrated by the transboundary release of polluted water that flows from one country to another, causing environmental damage, while the lack of clear regulatory mechanisms for one country to influence another does not allow to overcome this problem (Li & Lu, 2022). Thus, as can be seen from the study, individual national laws are adopted primarily based on economic indicators and political vectors, which explains the regression in the development of the green economy in China and the United States, which are leaders in terms of negative environmental impact. That is why the creation of unified laws would avoid speculation in environmental legislation, the possibility of substituting concepts, environmental reports, and the use of corruption schemes to avoid environmental production.

In our opinion, stricter regulation would have contributed to better results in the development of a green and circular economy. Instead, Lee et al. (2022) emphasized that strict regulation combined with low financial support has a negative impact on achieving green economy goals, while more flexible regulation combined with technology development allows achieving environmental well-being goals. Rainisio et al. (2022) argued that individuality, long-term planning, uncertainty avoidance, national culture, and local customs also have a positive impact on the effectiveness of environmental management. This study demonstrates that an individual approach to the formation of effective environmental models can be applied at both the family and community levels. Ul Haq et al. (2020) emphasized the development of production efficiency on the example of optimizing fertilizer use, which leads to a significant reduction in greenhouse gas emissions without compromising yields. That is why production efficiency should be encouraged at the level of government agencies, which ultimately receive less harmful waste from the excessive use of non-environmentally friendly fertilizers, which determines the financial efficiency of such a step.

As can be seen from the results of our study, administrative liability for violations of environmental rules is mostly imposed on producers and partially on distributors of goods, while mechanisms of administrative liability of the end user are mostly not applied and are of an educational nature. This leads to the lack of effectiveness of environmental initiatives at the national and international levels, as the consumer is the last link in the use of products before disposal or recycling, and their participation is key to scaling up waste management. Kyriakopoulos' (2021) study also demonstrated the need for collective responsibility of producers, consumers, and central governments for the environmental impact of products and identified the low effectiveness of legislative initiatives in facilitating or encouraging consumers to choose green products. Poor regulation of consumer environmental behavior was also described by Mak and Terryn (2020) and Ballardini et al. (2021).

Conclusions

Having analyzed the legal regulation of environmental offenses, auhtors have determined that EU countries pay much attention to the environmental friendliness of the economy, and the main administrative burden is placed on producers. This approach has proven effective in terms of reducing waste at the stage of planning the production of goods.

However, the existing mechanisms do not effectively regulate the behavior of the end user, which offsets the mechanisms implemented by the manufacturer and the local municipality. An analysis of the effectiveness of global environmental pollution indicators has revealed a mismatch with the stated goals of sustainable development, which calls into question the effectiveness of environmental legislative initiatives in the long run. Therefore, it is advisable to place administrative responsibility also on the consumer and, to a greater extent, on distributors, which will encourage distributors and users to choose green products and control their quantity according to demand. Another aspect is the transition from individual and recommendatory legislative initiatives to mandatory and more stringent ones, which will encourage countries to avoid speculation and comply with environmental regulations.

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