

Political and Legal Framework for the Formation of Effective Strategies for Managing Sustainable Development in a Geographical Context

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Abstract

The ecological condition of the planet, issues of the rational use of resources, responsible and rational behaviour, and equal access to civilizational opportunities determine the relevance of the actual state of ensuring sustainable development and the level of implementation of green initiatives not only at the planning stage but also during implementation. The negative impacts on the environment pose an urgent need for policy solutions to stimulate and support the development of green technologies, essential for promoting sustainable lifestyles. We explored sustainable development in-depth, analysing its economic, social, environmental, and political challenges. The basis for conducting this study are climate change, air and water pollution, loss of biodiversity, and active and disproportionate use of natural resources. Additionally, disparities in access to education, healthcare services, resource utilization, economic crises, and global conflicts play a role. We utilised analytical research methods (analysis and synthesis, induction and deduction), summarised information, and examined previous publications in this field (reviewing literature from recent years). The results revealed the importance of ensuring fair access to resources and opportunities for everyone and developing effective management and regulatory strategies to ensure sustainable development in all areas of life. The study suggests that the involvement of the public in discussions on sustainable development is essential in addressing challenges and achieving sustainable development goals successfully. Forming forums, networks, and communities where the public can exchange experiences, ideas, and best practices regarding sustainable development to promote the development of shared responsibility and cooperation is also encouraged.

Keywords

Sustainable development; Geographical factors; Political will; Legal challenges

Introduction

Studying the legal and political challenges of sustainable development is vital for political and governmental leadership, research, and scientific endeavours, as well as advocating for changes in policies and programmes aimed at sustainable development. Norway is one of the leaders in implementing policies that support sustainable development, particularly in energy and environmental protection. In 2016, Norway introduced the ambitious "Norwegian Strategy for Sustainable Development." The Norwegian government supports projects for developing renewable energy sources, such as hydropower plants and wind farms. It is actively working to reduce carbon emissions by promoting eco-friendly transport solutions. Since 2020, Norway has had the world's highest per capita sales of electric vehicles (Horbach, Ruban and Humeniuk, 2024). Sweden has incorporated the "Sustainable Development Goals" (SDGs) into its national strategy. It became the first country to introduce carbon taxes and support green investments in scientific research and technologies for environmental conservation (Vasylytsiv, Sarahman and Mahas, 2024). This topic is pertinent for guaranteeing legality and stability. Identifying legal norms and political decisions that define societal and economic rules is crucial. Legal aspects of sustainable development help establish frameworks for ecological stability, considering different social groups' interests and representing each benefit. Political influence on decision-making plays a significant role, and without comprehensive legal regulation, it is usually decisive (Stoliarchuk, Ilnytskyi and Rudkovskyy, 2023). Political processes determine which interest groups gain advantages in decision-making and resource allocation. For example, political instability or corruption can result in natural resources being used inefficiently or distributed unfairly, ultimately harming both the economy and the environment. In Nigeria, for instance, despite significant oil resources, a large portion of the country's revenue ends up in the hands of a small elite (Kasyan, 2024). In contrast, local communities near oil fields often face environmental pollution and related social and economic challenges. Political decisions also influence land resource allocation. In India, political processes sometimes favour large agribusinesses over small-scale farmers, contributing to social inequality and environmental issues like declining soil fertility and water scarcity (Kasyan, 2024). In many countries, political processes influence water resource distribution among agriculture, industry, and domestic use, leading to inefficient or inequitable usage.

Studying political challenges helps understand group interactions, identify conflict points, and seek compromise solutions within resource limits (Trushkina, 2023). Effective resource management requires legislative frameworks and political will. Understanding natural resource management's legal and political aspects and reducing environmental impact are crucial for global cooperation, as many issues transcend national borders. For example, rivers such as the Nile, Indus, Mekong, and others flow through multiple countries, and the nations within their basins often have differing interests regarding using these resources. One of the most significant disputes arises between Egypt and Ethiopia over the construction of the Grand Ethiopian Renaissance Dam (GERD) on the Nile River (Horbulin and Mosov, 2023). Ethiopia sees the dam as vital for energy development, while Egypt fears it will reduce water flow, impacting agriculture and water access. Studying political challenges helps understand international cooperation and develop conflict resolution mechanisms. Legal and policy

aspects of sustainable development are crucial for a stable, equitable socio-economic system. Observations in this field highlight policy issues, including the short-term priorities of governments and politicians, which often conflict with the long-term goals of sustainable development requiring significant investments and time (Kudinov, 2023). For instance, in 2020, a temporary ban on the export of roundwood was introduced in Ukraine, aimed at stopping illegal logging and preserving forest resources. According to the State Ecological Inspectorate of Ukraine, the moratorium has reduced illegal deforestation and improved conditions for reforestation. However, the ban was not adhered to due to political pressure and economic interests, and illegal logging continued. This undermines efforts to protect the environment and manage forest resources sustainably (Budiachenko, 2020).

Another problem is the lack of a unified political direction for the country's development. The absence of a unified political direction for a country's development, particularly in sustainable development, stems from various factors, including political fragmentation, competing priorities among different political forces, and more. In Ukraine, as in many other countries with unstable political situations, various political parties and groups have programmes, interests, and goals that often do not align. Governments change, and with them, priorities and policies shift, making it challenging to establish and maintain a unified, stable development plan, especially in complex and long-term matters such as sustainable development (Shkvarylyuk, 2024). Political forces often have differing priorities. Conservative parties typically support economic growth through traditional industries like oil, gas, and mining, with less emphasis on environmental standards and sustainable development. In contrast, Green parties in Europe, such as Die Grünen in Germany, promote renewable energy, CO₂ reduction, and biodiversity. However, their initiatives often face resistance from businesses reliant on traditional energy sources and high-carbon industries (Tkachuk, 2024).

Changes in political course, government shifts, and party agendas create instability in sustainable development policies. Constantly changing political contexts make planning research and recommendations difficult for scientists. Polarized views among government structures and politicians, particularly on environmental issues, add to this instability. For instance, the 2014 Revolution of Dignity in Ukraine shifted political priorities, delaying environmental reforms and affecting international agreements and EU cooperation (Korniievskyi, 2023). Additionally, business lobbies significantly influence policy implementation. Powerful corporate interests, especially in industries dependent on traditional resources (e.g., mining, fossil fuels), often significantly influence politicians and can hinder the implementation of environmental initiatives. A major conflict between economic interests and environmental policy is the use of fossil fuels. During Donald Trump's presidency, the U.S. supported policies reducing environmental regulations for oil and gas companies, under pressure from these industries. This included rolling back measures regulating methane emissions and permitting extraction on federal lands. In Nigeria, oil extraction, though economically vital, causes significant environmental problems like water, soil, and air pollution. Companies are often accused of unauthorized oil spills, causing extensive damage. Despite this, the Nigerian government continues to support the oil industry, leading to conflicts with international environmental organizations and local communities (Savytska, 2021). This can create a conflict between economic interests and scientific

recommendations. For example, coal mines receive state funding despite being economically unviable, due to lobbying (Sheka, 2024). This political protection hinders green energy development. Additionally, sustainable development research is often underfunded, especially in resource-limited countries, hindering large-scale research and innovation. For example, in Ukraine, the issue of waste management is acute due to a lack of funding to create modern infrastructure for recycling and waste disposal. Many projects in this area remain unrealised due to limited state funding, and investments from the private sector allow for implementing only small-scale initiatives from a sustainable development perspective (Sahaidak-Nikitiuk, Nikitiuk, and Zhurenko, 2024).

During economic instability or crises, governments often cut funding for environmental programmes to support more urgent economic needs. This can slow down progress in achieving sustainable development goals. After the annexation of Crimea and the conflict in eastern Ukraine, along with the full-scale war waged by Russia on Ukrainian territory, the economic crisis forced the government to focus on economic and security issues. During this period, many environmental projects were postponed or reduced due to a lack of funds and the need to allocate resources to more urgent needs, such as defence and social support for the population (Martyniuk, 2024).

Geography is crucial in shaping management strategies due to factors like natural resources, climate, ecology, infrastructure, transportation, and socio-cultural features. Each component's detailed examination is vital. Geographic location and territorial characteristics determine resource use, such as water, soil, and minerals, guiding their rational use and conservation. Climate conditions influence opportunities in agriculture, tourism, and renewable energy, aiding in climate adaptation and risk minimisation. Ecological characteristics, like biodiversity and ecosystems, must be considered in resource management to preserve the environment. Geographic features impact infrastructure and transportation development, requiring practical planning. Additionally, geographic factors affect demographic and socio-cultural aspects, informing strategies for social stability and local interaction. Therefore, geography plays a crucial role in shaping effective management strategies by helping comprehending the region's natural, ecological, infrastructural, demographic, and socio-cultural conditions while incorporating them into decision-making processes (Makarenko *et al.*, 2024).

This study examines sustainable development's critical legal and political aspects, particularly the role of national and international legislative initiatives, political structures, and strategies in ensuring resource sustainability and ecological balance. Additionally, it will analyse how geographical factors—such as the distribution of natural resources, climatic conditions, and urbanisation — affect effective policies to achieve sustainable development across different regions. The research will focus on the interaction between legal, political, and geographical aspects in the context of ensuring economic and environmental stability. This article seeks to identify the main challenges legal and political systems face in ensuring sustainable development. It discusses how geography can help to address these challenges by analyzing the impact of geographical factors on governance decisions and strategies.

Methodology

In this study, the key question is the identification of legal and political challenges to sustainable development and the impact of geographical factors on the formulation and implementation of sustainable development strategies. The research question at the core of this review is to determine how legal, political, and geographical aspects influence the achievement of sustainable development and what main problems arise in this context.

The first stage of the research involved determining the inclusion and exclusion criteria for studies. This included selecting works published in peer-reviewed journals from 2000 to 2024, focusing on legal, political, and geographical aspects of sustainable development. Articles that focused solely on economic or purely scientific issues without detailed analysis of legal and political aspects were excluded. Several databases, such as Scopus, Web of Science, Google Scholar, JSTOR, and SSRN, were used to search for relevant articles. The search queries covered topics related to legal challenges of sustainable development, political barriers, global cooperation on climate change, and other key aspects important for understanding the challenges of sustainable development.

The next step was the selection process for studies that met the established criteria. Initially, selection was carried out based on titles and abstracts to assess the relevance of the articles to the research question. Subsequently, the full text of each article was reviewed for final inclusion in the review. Following the selection of relevant articles, a data extraction method was developed, which involved collecting key information from each article. For each study, data such as the type of research (empirical, review, or theoretical), geographical focus, main legal and political challenges, policy recommendations, and research methods were collected. This enabled the creation of a unified database for further analysis.

To assess the quality of the included studies, various tools were used to evaluate the methodological rigour of the articles. For empirical studies, the CASP checklist (Critical Appraisal Skills Programme) was used, while for review and theoretical articles, the AMSTAR tool (A Measurement Tool to Assess Systematic Reviews) was applied. Additionally, to ensure transparency and systematic approaches, the PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) were employed for overall quality assessment of the studies.

Furthermore, after data collection, synthesis was carried out. In this study, a qualitative approach was used for synthesising results, allowing thematic analysis to highlight key themes, patterns, and gaps identified in studies on legal, political, and geographical challenges to sustainable development. Overall, this methodological approach enables a comprehensive assessment of legal and political challenges to sustainable development, revealing not only theoretical aspects but also practical issues faced by countries and international organisations in the process of formulating and implementing sustainable development policies. The techniques employed in this study can be applied in future systematic reviews, enabling the replication of this process and achieving high accuracy and reliability of results.

Results and Discussion

Modern approaches to the study of legal and political challenges to sustainable development

Many scholars have researched sustainable development over time. Key figures in this field include Gro Harlem Brundtland, Robert W. Sachs, Angela Merkel, and Nicholas Stern (Malenko, Voroshylova and Pozdnii, 2024; Ziuba, 2024). Literature reviews on sustainable development's legal and political challenges typically cover works from various disciplines, such as law, political science, economics, sociology, and geography. In 1987, the Brundtland Commission Report, also known as "*Our Common Future*", defined the concept of sustainable development and emphasized its significance for the future of humanity (Dryzek, 1997; Kazarian, 2024). John S. Dryzek's "*The Politics of the Earth: Environmental Discourses*" analyses the political aspects of environmental discourses and explores their influence on forming sustainable development policy. Additionally, "*Global Environmental Governance: Options and Opportunities*" by John J. Kirton and Michael J. Trebilcock is another crucial work in this field (Kirton *et al.*, 1998). It investigates the possibilities of global environmental governance and the role of international institutions in advancing sustainable development. "*The Geography of Thought: How Asians and Westerners Think Differently...and Why*" by Richard Nisbett is a book that presents research on cultural and geographical differences in thinking and their impact on decision-making regarding sustainable development (Nisbett, 2003). The book "*Environmental Policy: New Directions for the Twenty-First Century*" by Norman J. Vig, Michael E. Kraft and Barry G. Rabe proposes novel political mechanisms to address environmental issues and promote sustainable development (Vig, Kraft, and Rabe, 2015). The sources offer varied perspectives and research on the legal and political aspects of sustainable development, as well as the influence of geography on management strategies. The global debate on climate change is a significant issue (Timmons and Parks, 2007).

Theoretical and methodological foundations to formulate effective strategies for managing sustainable development based on a geographical approach

Sustainable development is a critical concept in the modern world. It involves achieving economic efficiency, financial stability, economic growth, and the development of social and environmental subsystems while considering the needs of the present generation and the opportunities of future generations. It requires balancing the interests of individuals, society, and the state while accounting for limitations related to national security and external environmental factors (Fedorov, 2024). However, achieving sustainable development faces numerous challenges, with legal and political aspects playing a significant role. In this context, geography is a critical factor in shaping effective management strategies for sustainable development, as geographical conditions—such as climate, geological structure, water resources, and natural disasters—significantly influence the development of regions and countries. Understanding these factors allows for better forecasting of problems and the development of management strategies that consider geographical characteristics (Lelechenko, 2017).

One of the most significant legal challenges to sustainable development is the lack of clear international legislation that regulates sustainable development principles on a global scale. Many countries' environmental protection and sustainable development laws are fragmented or outdated, making it challenging to coordinate international efforts and effectively achieve common sustainable development goals (Sumets *et al.*, 2022). Furthermore, a lack of political will often acts as a barrier to adopting and implementing adequate laws, which can result in inadequate legal support for national and international initiatives in this area. These issues require resolution, as they have a significant impact on achieving sustainable development and ensuring its effective implementation at all levels — from national to international (Dobrovolsky *et al.*, 2021). Existing agreements and treaties often lack explicit norms and mechanisms for enforcement, which can complicate their implementation and effectiveness. Therefore, there is an urgent need to create international legal instruments that promote sustainable development.

Additionally, political challenges arise due to insufficient political will and consensus among countries to take necessary actions. Addressing complex environmental, economic, and social problems often encounters opposition from certain political groups or countries pursuing their short-term interests. Political will and stakeholder cooperation are necessary for significant progress in sustainable development. Furthermore, existing political systems and structures may not always align with the requirements of sustainable development. Political processes are frequently lacking in transparency, and mechanisms of power and influence are not aimed at achieving sustainable development goals. Reforming political systems to be more democratic, open, and accountable can aid in resolving sustainable development issues effectively.

Historical aspect of forming the political and legal basis for sustainable development strategies

The movement towards sustainable development as a global issue began in the early 1990s. Globalization has positively influenced sustainability, but it also has negative aspects. These negative aspects are particularly noticeable in developing countries and pose significant obstacles to achieving global sustainable development. According to Brzezinski (2004) and Young (2001), monopolistic globalization results in a new system of exploitation. The benefits and opportunities of globalization are concentrated in the hands of a small group of countries. However, globalization poses significant challenges, threats, and uncertainty for many, particularly in the economic and social spheres. Globalization can lead to economic constraints, social isolation, and detachment from complex social and environmental issues. It is essential to ensure that people in developing countries feel the positive impact of globalization. For globalization to truly become a global process, it must benefit all people and contribute to the welfare of humanity (Bilorus, 2005). In summary, it is critical to note that legal and political challenges pose severe obstacles to sustainable development. Overcoming these challenges requires joint efforts from the international community, including developing clear international legal standards and creating a conducive political environment for implementing sustainable development strategies. According to some authors, it is necessary to reduce anthropogenic influences on climate change (Rockström *et al.*, 2009; Patel, 2020).

Concepts of the research issues in the context of individual regions and countries

The problem of sustainable development is not new, but it remains unresolved. Many conflicts in this field are caused not only by political aspects and personal interests of individual politicians but also by contradictions with large corporations (Horbata, 2024). In their pursuit of profits, the latter seek increased revenues and higher stock values, and under the guise of development and production expansion, overlook the global impact on the planet, adherence to sustainable development strategy, responsible resource use, and adequate waste disposal. Certain legal "loopholes" also aid these corporations, notably, the imperfections in the legal framework. This can be an objective factor (an outdated and inadequate legislative framework, poorly thought-out mechanisms for implementing government recommendations) or a subjective one (planned sabotage of specific bills by interested parties). Environmental protection and sustainable development legislation is fragmented or outdated in many countries, including Ukraine. For instance, the legislative framework in Ukraine regarding waste management or the use of natural resources is often insufficiently detailed or outdated, making it challenging to implement effective environmental practices. This issue particularly applies to the law on environmental protection, which requires updating and adaptation to modern conditions and requirements (Stoliarchuk, Ilnytskyi and Rudkovskyy, 2023).

Moreover, Ukraine is not the only country in such a situation. Let's take a closer look at India. India's legislative framework on environmental protection and sustainable development is outdated and ineffective in addressing modern environmental challenges. For instance, the 1986 Environmental Protection Act was created as a general law to regulate environmental issues, but it contains many gaps and shortcomings. For example, it does not provide adequate regulation of waste management issues, which have significantly increased since the law was passed. India also faces problems with implementing its laws at the local level, leading to a low level of enforcement (Kornilovych, Spasonova and Veselska, 2021). For example, the 2016 Solid Waste Management Bill aimed to modernise waste management approaches, but its implementation faced numerous difficulties due to bureaucratic obstacles and a lack of infrastructure. As a result, the issue of waste disposal remains acute (Maksymchuk, 2022). Brazil is also in a similar situation. In Brazil, legislation in the field of environmental protection often conflicts with economic interests, leading to conflicts and imperfect regulation. The 1965 Brazilian Forest Code was significantly updated in 2012 to regulate land use in the Amazon. However, despite this update, new amendments caused a severe controversy, allowing for expanding land use previously protected for agricultural activities. This has led to a significant increase in deforestation, which negatively impacts global climate change. Nevertheless, the 2012 Amnesty Bill on land use granted amnesty to farmers who had previously illegally cut down forests. Environmental organizations sharply criticized this bill for encouraging further illegal logging (Gazarian, 2024). Kenya faces the problem of insufficiently detailed legislation on water resources and waste management. For example, the 2002 Water Resources Management Act was one of the first steps towards regulating water use in the country. However, it did not provide adequate control over the use of water resources, leading to the degradation of rivers and lakes. The lack of proper enforcement mechanisms has also caused severe water shortage problems in many regions. In 2016, the Kenyan government passed a new Water Resources Management Act, but effective enforcement

remains a significant challenge even after its adoption. The lack of proper funding and infrastructure to implement this law continues to hinder achieving sustainable development goals in water resources (Tomozov, 2024). Despite progressive legislation, the United States also faces significant discrepancies between federal and local laws, which can complicate the implementation of sustainable development policies. For example, the 1972 Clean Water Act is the primary federal law regulating water quality in the United States. However, its implementation faces challenges due to discrepancies between federal standards and local regulations and lobbying by large industrial groups, which influences the decision-making process. In the progressive year 2020, the US administration changed the rules regarding water resource protection, narrowing the scope of the Clean Water Act. Environmentalists criticized this decision as it weakened the protection of wetlands and small waterways, which could negatively impact ecosystems and water quality (Yemeljanov and Pedko, 2024). These examples demonstrate that problems with the imperfection of the legislative framework in sustainable development are widespread in various countries worldwide and can have serious environmental consequences. Addressing these issues requires legislative reform, improved enforcement, and closer cooperation between government, scientists, and the public (Serdiuk, 2023).

The role of geography in sustainable development

Geography plays a crucial role in shaping management strategies aimed at achieving sustainable development. A region's natural resources, climatic conditions, topography, and geological structure significantly impact its economic, environmental, and socio-cultural development. Understanding these geographical peculiarities enables the development of more effective strategies that consider each region's potential and limitations.

Geographical conditions play a crucial role in determining the availability and utilization of resources. Different regions have varying potentials for developing renewable energy sources, agriculture, tourism, and other sectors based on their natural conditions (Bayev *et al.*, 2022; Niziaieva *et al.*, 2022). For example, regions with abundant sunshine are favourable for solar energy production, while regions with limited water resources require efficient management of water reserves. Secondly, the vulnerability of regions to natural disasters and climate change is influenced by geographical conditions (Goldberg, Gustafson and Wang, 2020). Risk management associated with these factors requires a strong understanding of geographical peculiarities and using scientific data to develop risk mitigation plans. Furthermore, the geographical location of regions defines their role in global economic and environmental processes (Chen *et al.*, 2020; Rosenzweig and Hillel, 2015). Regions located on international borders or with a high concentration of economic resources can play a significant role in international communities and organizations. Therefore, understanding geographical factors is essential for developing and implementing management strategies to achieve sustainable development. Geography offers valuable context and information for making informed decisions and developing effective strategies that promote sustainable development at different levels, from local to global (see Figure 1).

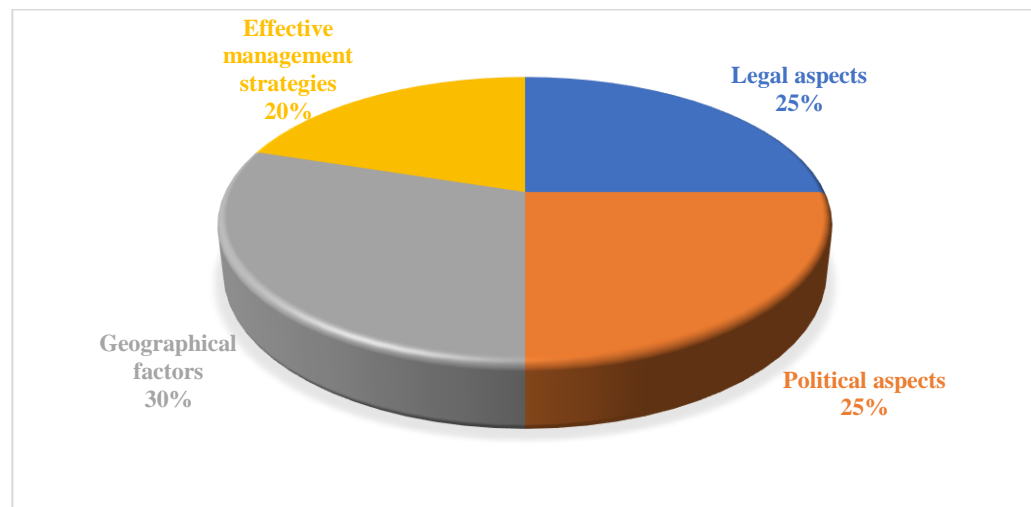


Figure 1: Aspects of sustainable development strategy implementation

Sustainable development can only be achieved by developing and implementing effective management strategies that consider the geographic peculiarities and meet the needs of specific regions or countries. Firstly, geographic conditions such as climate, geological structure, topography, and natural resources significantly influence economic, social, and environmental development. Therefore, management strategies should consider these characteristics and leverage them as advantages. For instance, renewable energy sources can be particularly effective and increasingly significant in many regions worldwide, mainly where conducive conditions exist (Kalair *et al.*, 2020). Specifically, Europe is at the forefront of green energy development, with significant investments in wind, solar, and hydro energy (Merzliak, 2002). Germany, Denmark, and Sweden have made significant strides in transitioning to renewable energy sources. In the USA and Canada, wind and solar energy are gaining popularity, especially in states and provinces with great potential for these energy sources, such as California and Alberta. Countries in Southeast and South Asia, such as India and China, are actively developing wind and solar energy to meet rapidly growing electricity demand and reduce greenhouse gas emissions. Brazil relies primarily on hydroelectric power for electricity and wind and solar energy development. Similarly, Chile and Mexico are making significant strides in renewable energy. In Africa, countries such as South Africa and Morocco are investing in wind and solar energy due to their abundant solar radiation and wind resources. These regions are crucial in the global transition to green energy, contributing to carbon reduction and sustainable development.

Secondly, management strategies should be integrated and cross-sectoral, ensuring interaction between different sectors and levels of governance. It is essential to consider the interconnections between economic, social, and environmental development and to develop strategies that balance these aspects. For instance, green technology programmes can contribute to economic growth, improve quality of life, and reduce negative environmental impact. In addition to climate change, there is a growing trend towards sustainable natural resource management and developing the market for environmental goods and services. Furthermore, there is an increase in the production of equipment and eco-technologies to support the green economy. In developed countries,

the increasing level of prosperity leads to a greater focus on quality of life. This results in an increased demand for environmental goods and services and the expansion of companies' activities in green technology. Identifying the aim to liberalize trade in environmental goods and services within the Doha Round of trade negotiations as a critical aspect in the OECD's Interim Report on the 'green' growth strategy is necessary (OECD, 2010).

In addition, management strategies must be adaptable to changes in the geopolitical, economic, and environmental landscape. The fast pace of technological change and growing instability in global politics necessitates constant updating and adjustment of management strategies to address new challenges and opportunities. In conclusion, developing effective management strategies for sustainable development requires a comprehensive approach that considers geographical peculiarities and ensures integration and adaptability. This is the only way to ensure long-term stability and success in development.

Development stability is an increasingly pressing necessity in the modern world, where economic, environmental, and social challenges are becoming ever more complex. Legal, political, and geographical aspects are crucial in shaping effective management strategies for sustainable development. To address legal challenges, it is necessary to establish a clear international legal standard that regulates and defines the principles of sustainable development on a global scale (Ribun *et al.*, 2024). Additionally, mechanisms for monitoring compliance with agreements and treaties related to sustainable development should be established to ensure their effectiveness. Political challenges in achieving sustainable development goals include a lack of political will and consensus among countries regarding necessary measures. Disputes and differences in political interests often complicate the implementation of sustainable development strategies, hindering the achievement of common goals. The role of geography is to consider the geographical characteristics of regions when developing management strategies. Natural conditions, such as climate, topography and water resources, determine the opportunities and constraints for economic development in the regions (Hessen, Kryvoruchko and Sidorenko, 2016). The topic of sustainable development is relevant and prominent, but it is complex and requires an understanding of several critical issues to consider practical solutions and improve the environment.

These questions represent the essence and meaning of sustainable development, highlighting its importance for modern society and future generations. Addressing such vital issues makes it possible to forecast the ecological crisis as such, along with the likelihood of its occurrence, progression, and the consequences it may bring. The impact of human activity on the environment and its effect on our quality of life, as well as strategies for conserving natural resources, environmental innovations, and the global dimension, are all essential to consider when addressing this issue. What international communities and organizations are working towards achieving sustainable development, and what role do we each play in this process? Answers to these and other questions can be easily found in the age of free access to the World Wide Web. Notably, publications such as Nature provide valuable research on various aspects of nature, including sustainable development and natural resource conservation. Science is a scientific journal that covers contemporary research in biology, ecology, and other scientific fields

related to ecology. The Guardian Environment Section is a section of The Guardian's online publication dedicated to news and analysis on environmental protection and sustainable development. Environmental Research Letters is a scientific journal specializing in publishing ecology and environmental research, including works on sustainable development (Radchenko, 2024). World Resources Institute (WRI) Insights is an online platform that provides analytical materials, research, and articles on ecology, climate change, and sustainable development (Leiserowitz *et al.*, 2019). It is a valuable source for obtaining updated and authoritative information on sustainable development and ecology.

However, there are still questions related to the legal and political challenges of sustainable development and the role of geography in forming effective management strategies, which require further research and description. The geopolitical aspects of sustainable development pertain to the influence of geopolitical relations and international conflicts on implementing sustainable development strategies. Geopolitical factors, such as conflicts between countries or groups, the geostrategic location of resources, and geopolitical interests, can affect efforts to create a more sustainable and environmentally secure society (Bondarenko *et al.*, 2022; Sych, 2012). Conflicts and instability in the region can create obstacles to implementing sustainable development programmes. This is due to the destruction of infrastructure, diversion of resources, and damage to natural environments. Furthermore, conflicts can cause environmental disasters, such as pollution or depletion of natural resources, which worsen environmental problems and complicate the resolution of sustainable development issues. Secondly, the geostrategic significance of certain regions can result in competition between countries for control over resources, such as energy and water. This can cause tension and conflicts, as well as complicate cooperation in the field of sustainable development.

Legal framework for sustainable development

The legal frameworks for sustainable development refer to the need to define legal mechanisms and international agreements that ensure the implementation and adherence to the principles of sustainable development. These frameworks encompass various legislation and international agreements regulating resource use, environmental protection, social justice, and economic development. Legal frameworks may include constitutional provisions, environmental protection laws, international conventions, treaties, regulatory standards, and norms. The principles of sustainable development are an essential component of the global legal framework. They encompass ecological integrity, social justice, economic efficiency, public participation, and comprehensive decision-making. However, effective control mechanisms must be thoughtfully formulated. Such verification mechanisms are necessary to properly implement and adhere to legal frameworks that support compliance with the sustainable development plan. This requires the development of appropriate institutional structures, access to justice to safeguard individuals' and communities' rights, and monitoring and evaluation of decisions' impact on sustainable development.

Managing and regulating ecological crises involves developing effective mechanisms and strategies to handle situations where severe threats to the environment and society

arise. Ecological crises, such as natural disasters, environmental pollution, or ecological accidents, can severely affect ecosystems, human health, and the economy. Swift and effective action is necessary to minimize damage and restore stability. The issue of political strategies for sustainable development involves identifying practical approaches and governance strategies that contribute to achieving sustainable development goals. These strategies encompass a wide range of actions and measures to balance economic, social, and environmental growth, conserve natural resources, and improve the quality of life. Critical aspects of political strategies for sustainable development include creating legal and regulatory mechanisms, stimulating innovation and creativity, ensuring public participation, providing financial support and investment, promoting international cooperation, and employing diplomacy (Kuybida *et al.*, 2023). The management of territorial resources is a global issue that requires analysis of various aspects affecting the process and identifying potential ways to achieve sustainability in all spheres of life. Economic aspects are fundamental, as achieving sustainable development requires balanced economic growth that meets the needs of the present without compromising future generations. This involves creating innovative economic models that promote poverty eradication and the equitable distribution of resources (Borowski, 2021). Social factors are crucial for sustainable development to enhance the quality of life for all individuals, including access to education, healthcare, housing, and other social services. Achieving this requires implementing social programmes and policies that reduce inequalities and ensure the inclusion of all groups (Bilinchuk, 2024). Environmental aspects are a crucial element of sustainable development, encompassing the conservation of natural resources and the protection of the environment. This requires enforcing strategies and technologies to reduce emissions, promote renewable energy sources, and preserve biodiversity (Maksymova, Ishchuk and Slobodian, 2024). Successful sustainable development requires the active involvement of government and international organizations in addressing environmental, economic, and social challenges. This involves creating political programmes and mechanisms to support sustainable development policies and promote cooperation between countries (Sai *et al.*, 2024). Sustainable development necessitates collective efforts and cooperation from all countries and public organizations at the international level. This requires developing international agreements, exchanging knowledge and technology, and financial support for developing countries. These aspects are interconnected and crucial for achieving sustainable development globally.

Scientific Novelty and Recommendations for Optimization

The analysis of scientific literature on the legal and political challenges of sustainable development has raised more questions than answers. This indicates that the issue requires further research and analysis of its details. Although these details may seem insignificant individually, they collectively impact the sustainable development strategy and its outcomes (Bogolyubov *et al.*, 2012; Heiets *et al.*, 2020). Therefore, it is crucial to understand geopolitical realities and consider their impact on implementing sustainable development strategies. This awareness is necessary to formulate effective political and managerial decisions to ensure stability, peace, and sustainable development at regional and global levels. Legal frameworks are crucial in promoting sustainable development, and it is the responsibility of national and international governments, civil society organizations, and the private sector to ensure compliance

and improvement. Managing environmental crises is a complex task that requires coordination, cooperation, scientific data and expert knowledge to ensure society's safety and sustainable development. Political strategies for sustainable development are imperative for achieving global sustainable development goals and ensuring a viable future for everyone (Broun, 2008). A comprehensive approach and joint efforts of all stakeholders are necessary to ensure a resilient, fair, and environmentally safe future.

Irreversible and progressive climate changes, increased anthropogenic pressure on the environment, and the depletion and limitation of natural resources necessitate prioritizing an ecological approach to new scientific and technical solutions. A particularly relevant issue today is the conflict between spatial planning and sustainable urban development, alongside the unavoidable reality of the threat of ecological disaster (Serhiienko, 2023). It is essential to rethink the approach to legislative and regulatory frameworks in the sector, which should spark interest in modern, innovative urban planning opportunities to achieve an effective symbiosis of energy efficiency and environmental sustainability.

Analysis and discussion in the thematic research field

Despite the numerous scientific studies in an interdisciplinary context, the understanding of the problem of forming geopolitical sustainable development strategies, in terms of defining its essence and components, as well as the political and legislative paths to their formation and development, has been researched only fragmentarily. In particular, the studies by Biermann *et al.* (2022) highlight the issue of forming an ecological worldview as the foundation for the sustainable development of society, which requires the creation of a synergistic space for the interaction of legislative, political, and societal initiatives, where stakeholders collaborate to address prolonged environmental problems.

Ruggerio (2021) and De Sadeleer (2020) see the reorientation of politicians' and managers' traditional anthropocentric worldviews towards an ecocentric one as one of the main conditions for the effectiveness of sustainable development strategies. According to these scholars, it is primarily about forming an ecologically oriented worldview as the central, motivational, and meaningful component of society's ecological consciousness. Scholars, such as Sikora (2021), have studied the problem of geopolitical differentiation of sustainable progress strategies in the context of their connection with the societal advancement of ecological thinking. A systematic review provides a better understanding of how the concepts and mechanisms of legislative transformation theory are implemented in the study of sustainable development. At the same time, researchers argue that the link between government, society, and business is strengthened through the co-creation of knowledge. The issue under study has been thoroughly developed in the field of jurisprudence in the foreign academic field, particularly within the framework of ecological law (Ahmed *et al.*, 2022), which focuses on the interaction of strategic and situational development factors. The subject of research by Ahmed *et al.* (2022) is the ecological worldview component of legislators' consciousness. Furthermore, contemporary scholars explore methods of forming ecological knowledge and practical skills of ethical interaction between society and the environment, particularly in specially organized ecologically oriented activities.

The vectors for addressing the legal and political challenges of sustainable development in a geopolitical context have been studied by authors (Qin *et al.*, 2023; Nguyen *et al.*, 2023), who position it in the context of understanding the integrity of the natural environment, its aesthetic and socio-economic significance. In particular, the researchers have developed and experimentally tested legislative initiatives for transforming ecological responsibility to achieve sustainable development goals and to increase public understanding of climate change through developing projects to mitigate environmental problems caused by human activities. Some researchers' position forming the political and legal basis for ecological sustainability as mastering a system of ecological values in a practice-oriented legal environment. In this case, the system's main component is the values and beliefs regarding society's responsibility to preserve the natural potential and promote a sustainable way of life.

Conclusion

This study has identified the global challenges that legal and political systems face to ensure sustainable development. By analysing critical literature and events worldwide, we found that sustainable development requires coordinating national and international efforts, involving all stakeholders, and effectively utilising available resources. One of the key factors determining success in this area is the political aspect. Political decisions can drive innovation by fostering the development of new technologies that reduce emissions, minimise environmental pollution, and improve resource efficiency.

In particular, government funding in support programmes, subsidies, and incentives can aid in developing and implementing green technologies, making them more accessible to businesses and consumers. Furthermore, appropriate legislation and regulation can create a stable and transparent environment for developing such technologies, reduce risks for investors, and encourage innovation (Sytnyk, Zubchuk and Orel, 2022). Promoting market competition is also crucial, as green technologies can only remain competitive in an open and competitive market, which is also influenced by political decisions. International cooperation plays a crucial role in achieving these objectives, as political decisions at the international level can facilitate the exchange of technological knowledge and resources between countries, accelerating and enhancing the global adoption of green technologies. In addition, an important aspect is the analysis of specific positive initiatives and their presentation to society. In fact, our further research is planned to focus on analysing the successes and failures of specific strategies. The importance of presenting positive experiences will help to promote the importance of adhering to sustainable development strategies globally. In our view, public support for a particular strategy is only possible through the popularisation of its results. If it is possible to gain the approval of a large portion of the planet's population, the obstacles to its implementation will disappear on their own.

Therefore, political decisions are necessary for stimulating and supporting the development of green technologies, which are essential in reducing negative environmental impact and promoting sustainable lifestyles. The decision-making process in politics is complex and involves various actors. These include political parties and their leaders, government structures (such as parliaments, government agencies, and committees), corporations, industrial associations, non-governmental organisations, and

international institutions such as the United Nations, the World Trade Organization, and the International Monetary Fund. Only by consolidating all of these social institutions and coordinating their interests can we create a stable and prosperous future for everyone and preserve our planet for future generations.

References

- Bayev, V.V., Bakhov, I.S., Mirzodaieva, T.V., Rozmetova, O. and Boretskaya, N. (2022). Theoretical and methodological fundamentals of the modern paradigm of quality management in the field of tourism. *Journal of Environmental Management and Tourism*, 13(2): 338–345. DOI: [https://doi.org/10.14505/jemt.v13.2\(58\).04](https://doi.org/10.14505/jemt.v13.2(58).04).
- Bilorus, O. (2005). Global perspective and sustainable development: (Systemic Market Research). Kyiv: MAUP. Available at: <https://maup.com.ua/assets/files/lib/book/nw07.pdf> [Accessed on 19 August 2024].
- Bilinchuk, O. (2024). ESG approaches in the formation of the strategy of sustainable economic growth. *Scientific Perspectives*, 11(53). DOI: [https://doi.org/10.52058/2708-7530-2024-11\(53\)-498-510](https://doi.org/10.52058/2708-7530-2024-11(53)-498-510).
- Bogolyubov, V.M., Klymenko, M.O., Melnyk, L.G., Prylypko, V.A. and Klymenko, L.V. (2012). *Strategy of sustainable development: Textbook*. Kherson: “OLDI-PLUS”.
- Bondarenko, S., Bratko, A., Antonov, V., Kolisnichenko, R., Hubanov, O. and Mysyk, A. (2022). Improving the state system of strategic planning of national security in the context of informatisation of society. *Journal of Information Technology Management*, 14: 1–24. DOI: <https://doi.org/10.22059/jitm.2022.88861>.
- Borowski, P.F. (2021). Innovative Processes in Managing an Enterprise from the Energy and Food Sector in the Era of Industry 4.0. *Processes*, 9. DOI: <https://doi.org/10.3390/pr9020381>.
- Broun, L. (2008). Plan B: Rescuing a Planet under Stress and a Civilisation in Trouble. *The Environmentalist*, 28(3): 337–338. DOI: <https://doi.org/10.1007/s10669-007-9158-9>.
- Brundtland Report (1987). Our Common Future. Report of the World Commission on Environment and Development. Available at: <https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html> [Accessed on 19 August 2024].
- Brzezinski, Z. (2004). *The Choise: Domination or Liedership*. Basic Books.
- Budiachenko, O.M. (2020). *Criminal liability for illegal logging or illegal transportation, storage, sale of forest* (Doctoral dissertation, Odesa: Odesa State University of Internal Affairs). Available online at: <https://jarch.donnu.edu.ua/article/view/9501> [Accessed on 19 August 2024].
- Byrkovych, T., Humenchuk, A., Kobyzcha, N., Akimova, L., Grinberg, L. and Akimov, O. (2023). The economic effectiveness of state policy in reforming higher library and information education in Ukraine. *Economic Affairs (New Delhi)*, 68(1): 599–616. DOI: <https://doi.org/10.46852/0424-2513.1.2023.28>.
- Chen, T.L., Kim, H., Pan, S.Y., Tseng, P.C., Lin, Y. P. and Chiang, P.C. (2020). Implementation of green chemistry principles in the circular economy system towards sustainable development goals: Challenges and perspectives. *Science of*

- the Total Environment*, 716. DOI: <https://doi.org/10.1016/j.scitotenv.2020.136998>.
- Dobrovolsky, V.V., Bezsonov, E.M., Nepeina, G.V., Krysinska, D.O. and Serbulova, N.A. (2021). *Strategies of sustainable development: teaching. Manual*. Mykolaiv: Publishing House of the ChNU named after Peter's Tomb.
- Dryzek, J. (1997). *The Politics of the Earth: Environmental Discourses*. Oxford: OUP. Available online at: <https://shorturl.at/Chzk0> [Accessed on 19 August 2024].
- Fedorov, O.P. (2024). On the results of the targeted research program of the National Academy of Sciences of Ukraine, "Aerospace environmental surveillance for sustainable development and security" in 2021-2023: According to the materials of scientific report at the meeting of the Presidium of the NAS of Ukraine, 3 April 2024. *Visnik Nacional Noi Akademii Nauk Ukrai Ni*, 6: 69–74. DOI: <https://doi.org/10.15407/visn2024.06.069>.
- Gazarian, S. (2024). Empowering public service to promote sustainable human development through implementation of foreign innovations. *International Science Journal of Jurisprudence and Philosophy*, 3(4): 15–40. DOI: <https://doi.org/10.46299/j.isjpp.20240304.02>.
- Goldberg, M., Gustafson, A. and Wang, X. (2020). Climate Change in the American Mind: April 2020. Yale University and George Mason University. New Haven, CT: Yale Program on Climate Change Communication.
- Horbata, L. (2024). Regulatory and legal support for sustainable development of territorial communities. *Successes and Achievements in Science*, 9(9). DOI: [https://doi.org/10.52058/3041-1254-2024-9\(9\)-468-478](https://doi.org/10.52058/3041-1254-2024-9(9)-468-478).
- Heiets, V., Kyrylenko, O., Basok, B. and Bazieiev, Y. (2020). Energy strategy: forecasts and realities (review). *Nauka ta Innovatsii*, 16(1): 3–15. DOI: <https://doi.org/10.15407/scin16.01.003>.
- Hessen, A., Kryvoruchko, E. and Sidorenko, I. (2016). Directions of strategic placement foreign investment for sustainable economic development Ukraine. *Investments: Practice and Experience*, 22. Available online at: http://www.investplan.com.ua/pdf/22_2016/9.pdf [Accessed on 19 August 2024].
- Horbach, L., Ruban, O. and Humeniuk, Y. (2024). Green economy and sustainable production in globalization. *Economy and Society*, 59. DOI: <https://doi.org/10.32782/2524-0072/2024-59-8>.
- Horbulin, V.P. and Mosov, S.P. (2023). Water conflicts as an indicator of the aggravation of the global fresh water crisis. *Visnyk of the National Academy of Sciences of Ukraine*, 2: 3–11. DOI: <https://doi.org/10.15407/visn2023.02.003>.
- Kalair, A., Abas, N., Saleem, M., Kalair, A. and Khan, N. (2020). Role of energy storage systems in energy transition from fossil fuels to renewables. *Energy Storage*, 3(1). DOI: <https://doi.org/10.1002/est2.135>.
- Kasyan, D. (2024). Bibliometric analysis of the relationship between the development of renewable energy sources and the shadow economy sector. *Modeling the Development of the Economic Systems*, 3: 302–308. DOI: <https://doi.org/10.31891/mdes/2024-13-42>.
- Kazarian, Y.R. (2024). *Directions for improving the development of a sustainable development strategy for territorial communities in the context of post-war transformations*: Master's qualification thesis: specialty 281 "Public Administration and Management" OPP "Public Administration and Management" (N.S. Pitel,

- Scientific Advisor). Central Ukrainian National Technical University. Available at: <https://dspace.kntu.kr.ua/handle/123456789/14227> [Accessed on 19 August 2024].
- Kirton, J. and Trebilcock M.J. (1998). *Global Environmental Governance: Options and Opportunities*. Routledge Book Series. Available online at: <https://shorturl.at/oc1xO> [Accessed on 19 August 2024].
- Korniievskiy, S. (2024). Modern Trends in Scientific Research on Public Administration of Regional Development. *Public Administration Aspects*, 12(1): 135-141. DOI: <https://doi.org/10.15421/152418>.
- Kornilovych, B., Spasonova, L. and Veselska, O. (2021). International research projects. Kyiv: National Technical University of Ukraine.
- Kovalchuk, V. (2023). Analysis of trends in innovative development of the national economy. *Economy and Society*, 58. DOI: <https://doi.org/10.32782/2524-0072/2023-58-33>.
- Kudinov, O. (2023). Factor analysis of the impact of the implementation of the goals of the sustainable development strategy on local budgets. *Scientific Bulletin of International Association of Scientists. Series: Economy, Management, Security, Technologies*, 2(1). DOI: <https://doi.org/10.56197/2786-5827/2023-2-1-6>.
- Kuybida, V., Savitska, S., Shkoda, M., Akhromkin, I., Pron, L. and Kolomiets, Y. (2023). Methodology of development of social investment projects for the economy: legal aspects. *Journal of Law and Sustainable Development*, 11(4): e0902. DOI: <https://doi.org/10.55908/sdgs.v11i4.902>.
- Leiserowitz, A., Maibach, E., Rosenthal, S., Kotcher, J., Bergquist, P., Ballew, M., Goldberg, M. and Gustafson, A. (2019). Climate Change in the American Mind: April 2019. Climate Change Communication. DOI: <https://doi.org/10.31219/osf.io/3bwj8>.
- Lelechenko, A. (2017). Phenomenon of the “Sustainable development”. *Public Administration: Improvement and Development*, 12. Available online at: <http://www.dy.nayka.com.ua/?op=1andz=1649> [Accessed on 19 August 2024].
- Maksymchuk, S. (2022). *Harmonisation of ecology and economy in the context of globalization*. Kyiv: National Aviation University.
- Maksymova, I., Ishchuk, O. and Slobodian, N. (2024). Green energy as a key element of the green economy: development strategies and impact on energy security. *Scientific Perspectives*, 8(50). DOI: [https://doi.org/10.52058/2708-7530-2024-8\(50\)-480-492](https://doi.org/10.52058/2708-7530-2024-8(50)-480-492).
- Malenko, Y., Voroshylova, N. and Pozdny, Y. (2024). *Globalisation and environmental issues*. Kryvyi Rih: Kryvyi Rih State Pedagogical University. Available online at: <https://elibrary.kdpu.edu.ua/xmlui/handle/123456789/10704> [Accessed on 19 August 2024].
- Martyniuk, A.V. (2024). On the issue of implementation of foreign experience in ensuring territorial defence into Ukrainian legal realities. *European Perspectives*, 1: 225-229. DOI: <https://doi.org/10.32782/ep.2024.1.33>.
- Makarenko, I.O., Serpeninova, Y.S., Fominov, R.M. and Makarenko, S.M. (2024). Reporting on the sustainable development of banks as public interest entities: a comparative analysis of the EU-Ukraine. *Acta Academiae Beregsasiensis. Economics*, 5: 342-356. Available online at: <https://essuir.sumdu.edu.ua/handle/123456789/95905> [Accessed on 19 August 2024].
- Merzliak, A. (2002). The mechanisms of public administration of foreign investments: regional aspect. UADU.

- Mitchell, D., Heaviside, C., Vardoulakis, S., Huntingford, C., Masato, G., Guillod, B.P., Frumhoff, P., Bowery, A., Wallom, D. and Allen, M. (2016). Attributing human mortality during extreme heat waves to anthropogenic climate change. *Environmental Research Letters*, 11(7): 074006. DOI: <https://doi.org/10.1088/1748-9326/11/7/074006>.
- Nisbett, R. (2003). *The Geography of Thought: How Asians and Westerners Think Differently ... and why*. Available online at: https://www.goodreads.com/book/show/226630.The_Geography_of_Thought [Accessed on 19 August 2024].
- Niziaieva, V., Liganenko, M., Muntyan, I., Ohiienko, M., Goncharenko, M. and Nazarenko, O. (2022). Balancing interests in the field of tourism based on digital marketing tools. *Journal of Information Technology Management*, 14: 59–77. DOI: <https://doi.org/10.22059/jitm.2022.88875>.
- OECD (2010). Meeting of the OECD Council at Ministerial Level, 27–28 May 2010. Available online at: <https://www.oecd.org/greengrowth/45312720.pdf> [Accessed on 19 August 2024].
- Patel, R. (2020). *Legal Strategies for Addressing Environmental Challenges in Sustainable Development*.
- Radchenko, A.I. (2024). Why we are not Springer: Experience of the “Academic periodic” publishing house of the National Academy of Sciences of Ukraine. *Science and Science Studies*, 1(123): 76-91. DOI: <https://doi.org/10.15407/sofs2024.01.076>.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S.III, Lambin, E., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., and Foley, J. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society*, 14(2). DOI: <https://doi.org/10.5751/ES-03180-140232>.
- Rosenzweig, C. and Hillel, D. (2015). Climate change and the global harvest: Potential impacts of the greenhouse effect on agriculture. *ICP Series on Climate Change Impacts, Adaptation, and Mitigation*, 3. DOI: <https://doi.org/10.1142/p970>.
- Ribun, V.V., Kolych, I.M., Kokhan, A.S., Kuzma, Y.V., Olefir, R.V. and Krysa, L.M. (2024). International legal standards for the protection of citizens’ environmental rights. *Scientific Notes of Lviv University of Business and Law*, 41: 365-370. DOI: <https://doi.org/10.5281/zenodo.13823769>.
- Sachs, J.D. (2015). *The age of sustainable development*. Chichester, West Sussex: Columbia University Press. DOI: <https://doi.org/10.7312/sach17314>.
- Shkvarylyuk, M.V. (2024). The main vectors of green energy development in Ukraine: Tariff policy. *Problemy Ekonomiky*, 1: 38-43. DOI: <https://doi.org/10.32983/2222-0712-2024-1-38-43>.
- Sahaidak-Nikitiuk, R., Nikitiuk, V. and Zhurenko, V. (2024). Systematic review of scientific publications on waste management. *Topical Issues in Modern Science*, 11(29): 173-185. DOI: [https://doi.org/10.52058/2786-6300-2024-11\(29\)-173-185](https://doi.org/10.52058/2786-6300-2024-11(29)-173-185).
- Serhiienko, I.H. (2023). *Public management of sustainable development of an inclusive city*. Zhytomyr: State University “Zhytomyr Polytechnic”.

- Serdiuk, D. and Volok, A. (2023). Conceptual-categorical apparatus research in the sphere of financing of sustainable development. *Scientific Bulletin of Polissia*, (2(27): 317–337. DOI: [https://doi.org/10.25140/2410-9576-2023-2\(27\)-317-337](https://doi.org/10.25140/2410-9576-2023-2(27)-317-337).
- Sokur M. (2023). Eco-innovations for sustainable development: current status, financing mechanisms and project activities. *Modelling the Development of the Economic Systems*, 4: 84–91. DOI: <https://doi.org/10.31891/mdes/2023-10-11>.
- Solodovnik, O. (2023). Financial support for the sustainable development of enterprises. *Economy and Society*, 49. DOI: <https://doi.org/10.32782/2524-0072/2023-49-17>.
- Stoliarchuk, Y., Ilnytskyy, D. and Rudkovskyy, S. (2023). Green investments as a mechanism of global sustainable development. *Herald of Khmelnytskyi National University. Economic Sciences*, 316(2): 241-246. DOI: <https://doi.org/10.31891/2307-5740-2023-316-2-39>.
- Sheka, I.V. (2024). *Substantiation of rational parameters of support made of composite materials for mine workings of coal mines located at depths of more than 1000 metres*, Dnipro: National Technical University “Dnipro Polytechnic”. Available online at: <http://ir.nmu.org.ua/handle/123456789/167967> [Accessed on 19 August 2024].
- Sai, R.V., Zaluzhnyi, H.V., Kizin, H., Hatyshak, Y.V. and Chorny, V.S. (2024). Globalisation and sustainable development in the framework of state economic policy. *Scientific notes of Lviv University of Business and Law*, 40: 673-679. DOI: <https://doi.org/10.5281/zenodo.10441307>.
- Sumets, A., Tyrkalo, Y., Popovych, N., Poliakova, J. and Krupin, V. (2022). Modelling of the environmental risk management system of agriholdings considering the sustainable development values. *Agricultural and Resource Economics*, 8(4): 244–265. DOI: <https://doi.org/10.51599/are.2022.08.04.11>.
- Sych, E. (2012). Financial Services Market. TSUL. Available online at: <https://www.legislation.gov.uk/ukpga/2012/21/contents> [Accessed on 19 August 2024].
- Sytnyk, H.P., Zubchuk, O.A. and Orel, M.H. (2022). Conceptual understanding of the peculiarities of managing innovation-driven development of the state in the current conditions. *Science and Innovation*, 18(2): 3–15. DOI: <https://doi.org/10.15407/scine18.02.003>.
- Tomozov, A. (2024). Regional cooperation of African countries to combat environmental challenges and regulate environmental migration. *Scientific Perspectives*, 11(53). DOI: [https://doi.org/10.52058/2708-7530-2024-11\(53\)-1118-1129](https://doi.org/10.52058/2708-7530-2024-11(53)-1118-1129).
- Timmons, R. and Parks, B.C. (2007). *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy*. Cambridge, MA: The MIT Press.
- Tkachuk, S. and Kravchenko, K. (2024). Strategy for promoting sustainable development goals: a challenge for universities in Ukraine and Germany. *Pedagogical Academy: Scientific Notes*, (8). DOI: <https://doi.org/10.5281/zenodo.12635988>.
- Trushkina, H. and Boiarko, I. (2024). Green finance in the context of the concept of sustainable development: bibliometric and trend analysis. *Society. Economy. Digitalisation*, 1(1): 13–28. DOI: <https://doi.org/10.31379/sed.1.1.2024.7>.
- Vasylytsiv, T.H., Sarakhman, V.M. and Mahas, D.O. (2024). Policy instruments for the development of small businesses in the field of green energy in rural areas.

- Academic Visions*, (27). Available online at: <https://dspace.kntu.kr.ua/handle/123456789/14227> [Accessed on 19 August 2024].
- Vig, N.J., Kraft, M.E. and Rabe, B.G. (2015). *Environmental Policy: New Directions for the Twenty-First Century*. SAGE. Available online at: https://books.google.com.ua/books/about/Environmental_Policy.html?id=CkL8DwAAQBAJandredir_esc=y [Accessed on 19 August 2024].
- Vorobiyenko, P. (2023). The role of education in achieving the United Nations sustainable development goals. *Herald of the National Academy of Educational Sciences of Ukraine*, 5(1): 1-8. DOI: <https://doi.org/10.37472/v.naes.2023.5113>.
- Young, O.R. (2001). *The effectiveness of international environmental regimes: Causal connections and behavioral mechanisms*. The MIT Press.
- Ziuba, P.V. (2024). Germany's foreign policy at the present stage. [Bachelor dissertation]. Mariupol State University, Ukraine.
- Yemelianov, O. and Pedko, A. (2024). Decentralized water supply and water treatment systems: Expansion of the conceptual apparatus. *Scientific Innovations and Advanced Technologies*, 9(37): 630-640. DOI: [https://doi.org/10.52058/2786-5274-2024-9\(37\)-630-640](https://doi.org/10.52058/2786-5274-2024-9(37)-630-640).

Authors' Declarations and Essential Ethical Compliances

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	Author 1	Author 2	Author 3	Author 4	Author 5
Conceived and designed the research or analysis	Yes	No	Yes	Yes	Yes
Collected the data	Yes	Yes	Yes	No	No
Contributed to data analysis and interpretation	Yes	Yes	Yes	Yes	Yes
Wrote the article/paper	Yes	Yes	Yes	Yes	Yes
Critical revision of the article/paper	No	Yes	Yes	Yes	Yes
Editing of the article/paper	Yes	Yes	Yes	Yes	Yes
Supervision	No	No	No	Yes	Yes
Project Administration	Yes	Yes	No	No	No
Funding Acquisition	No	No	No	No	No
Overall Contribution Proportion (%)	20	20	20	20	20

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Research involving human bodies or organs or tissues (Helsinki Declaration)

The author(s) solemnly declare(s) that this research has not involved any human subject (body or organs) for experimentation. It was not a clinical research. The contexts of human population/participation were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of Helsinki Declaration does not apply in cases of this study or written work.

Research involving animals (ARRIVE Checklist)

The author(s) solemnly declare(s) that this research has not involved any animal subject (body or organs) for experimentation. The research was not based on laboratory experiment involving any kind animal. The contexts of animals were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of ARRIVE does not apply in cases of this study or written work.

Research on Indigenous Peoples and/or Traditional Knowledge

The author(s) solemnly declare(s) that this research has not involved Indigenous Peoples as participants or respondents. The contexts of Indigenous Peoples or Indigenous Knowledge were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or prior informed consent (PIC) of the respondents or Self-Declaration in this regard does not apply in cases of this study or written work.

Research involving Plants

The author(s) solemnly declare(s) that this research has not involved the plants for experiment and field studies. Some contexts of plants are also indirectly covered through literature review. Thus, during this research the author(s) obeyed the principles of

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Research Involving Local Community Participants (Non-Indigenous) or Children

The author(s) solemnly declare(s) that this research has not directly involved any local community participants or respondents belonging to non-Indigenous peoples. Neither this study involved any child in any form directly. The contexts of different humans, people, populations, men/women/children and ethnic people were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or prior informed consent (PIC) of the respondents or Self-Declaration in this regard does not apply in cases of this study or written work.

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)

The author(s) has/have NOT complied with PRISMA standards. It is not relevant in case of this study or written work.

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