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Submetido em: 03/09/23
Aprovado em: 17/11/2023
Avaliação: *Double Blind Reviewe-*
ISSN: **2316-2880**

FORMING A SYSTEM OF SUSTAINABLE DEVELOPMENT INDICATORS TO IMPROVE THE EFFICIENCY OF LEGAL REGULATION OF ENVIRONMENTAL PROTECTION

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ABSTRACT

For the implementation of circular economy projects and environmental conservation concepts, it is relevant to develop a system of sustainable development indicators to assess the effectiveness of actions taken to conserve nature and protect the environment. The study aims to propose a system of indicators for sustainable development. Within the framework of this thematic qualitative research, the main methods included the analysis of documents and sources selected according to special parameters. Based on the study results, it was concluded that to develop a system of environmental indicators for sustainable development, the theory of biotic regulation should be taken as a basis for determining priorities in ecology. According to this theory, biota is the main factor in ecology and the main mechanism for ensuring environmental sustainability. Its preservation will help maintain environmental standards at the proper level and ensure environmental safety for future generations. The study allows creating a system of sustainable development indicators, within which it is proposed to divide sustainable development indicators into three main groups: indicators of social factors of sustainable development, economic factors of sustainable development, and environmental factors of sustainable development.

Keywords: Sustainable development; Ecology; Concept of sustainable development; Circular economy; Liability of the parties; Environmental sustainability.

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FORMAR UM SISTEMA DE INDICADORES DE DESENVOLVIMENTO SUSTENTÁVEL PARA MELHORAR A EFICIÊNCIA DA REGULAMENTAÇÃO LEGAL DA PROTEÇÃO AMBIENTAL

RESUMO

Para a implementação de projetos de economia circular e conceitos de conservação ambiental, é relevante desenvolver um sistema de indicadores de desenvolvimento sustentável para avaliar a eficácia das ações tomadas para conservar a natureza e proteger o meio ambiente. O estudo tem como objetivo propor um sistema de indicadores para o desenvolvimento sustentável. Dentro da estrutura dessa pesquisa qualitativa temática, os principais métodos incluíram a análise de documentos e fontes selecionados de acordo com parâmetros especiais. Com base nos resultados do estudo, concluiu-se que, para desenvolver um sistema de indicadores ambientais para o desenvolvimento sustentável, a teoria da regulação biótica deve ser tomada como base para determinar as prioridades em ecologia. De acordo com essa teoria, a biota é o principal fator na ecologia e o principal mecanismo para garantir a sustentabilidade ambiental. Sua preservação ajudará a manter os padrões ambientais no nível adequado e garantirá a segurança ambiental para as gerações futuras. O estudo permite criar um sistema de indicadores de desenvolvimento sustentável, dentro do qual se propõe dividir os indicadores de desenvolvimento sustentável em três grupos principais: indicadores de fatores sociais de desenvolvimento sustentável, fatores econômicos de desenvolvimento sustentável e fatores ambientais de desenvolvimento sustentável.

Palavras-chave: Desenvolvimento sustentável; Ecologia; Conceito de desenvolvimento sustentável; Economia circular; Responsabilidade das partes; Sustentabilidade ambiental.

1 INTRODUCTION

The concept of sustainable development is a set of principles aimed at ensuring long-term and well-balanced economic, social, and environmental development (Yumashev et al., 2020).

The main idea of the concept is that human development should not cause any harm to future generations (Barral, 2012). This means considering the needs of the present generation, while not forgetting to preserve natural resources and the environment for future generations (Grigorieva, 2017; Seilkassymova et al., 2022).

Here are the basic principles of sustainable development:

- Environmental sustainability: conserving and restoring ecosystems, reducing environmental pollution, and using natural resources rationally.
- Social justice and equality: overcoming poverty, protecting human rights, and improving the quality of life of all social strata.
- Economic development: ensuring economic growth that does not harm the environment, creating jobs, and improving living standards.

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The implementation of this concept requires joint efforts of all countries, international organizations, and civil society (Mayboroda et al., 2023). It is important to understand that sustainable development is not just a green idea but a necessity for all countries and peoples (Fedchenko et al., 2023).

Legal support for the concept of sustainable development includes many national and international documents regulating various aspects of sustainable development (Egorov et al., 2021; Tynybekov et al., 2014).

At the national level, each country develops its own strategies and laws aimed at implementing the principles of sustainable development (Ydyrys et al., 2023). In Russia, there is the Federal Law “On Environmental Protection” that establishes the legal basis for state policy in the field of environmental protection and environmental safety (State Duma of the Federal Assembly of the Russian Federation, 2002).

The key issue in the implementation of the concept is the development and legal consolidation of sustainable development indicators (Khoruzhy et al., 2023). In practice, the development of such indicators is crucial for the international community since the proposed systems of indicators are often incomplete and some indicators are undefined, lack specifics, and require special scientific knowledge (Mayboroda et al., 2023). In the future, standards for sustainable development indicators should be consistent with national standards.

The study aims to define the concept of sustainable development and propose a system of indicators for sustainable development.

2 LITERATURE REVIEW

In various definitions, experts highlight the following aspects of sustainable development: conservation of biodiversity (Parkin, 2000); conservation of natural resources (Lélé, 1991; Rzabay et al., 2018); balance between economic activity and the environment (Hopwood et al., 2005; Shaimerdenova et al., 2023; Yumashev et al., 2020), sustainable economic growth (Ahmad et al., 2023); quality of life and social and cultural values (Chen et al., 2023). However, many definitions of sustainable development cannot solve the main task, i.e., to develop a system of measures that can ensure environmental safety today and in the future (Bagratuni et al., 2023; Bekezhanov et al., 2022). This task can be partially solved using indicators that define sustainable development, which will determine measures and actions that lead to a

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positive result (Rybak et al., 2023).

At the UN Conference on Environment and Development in Rio de Janeiro in 1992, it was proposed to develop a system of sustainable development indicators that would serve as a guide in determining sustainability in various areas. Recently, attempts to develop a system of sustainable development indicators have intensified; new approaches and expert opinions have emerged. Such international organizations as the UN, OECD, and EU offer various systems of indicators. On the one hand, the number of indicators is growing exponentially. On the other hand, attempts are being made to identify integral indicators or a single indicator.

It is worth mentioning the contribution of scientists who, within the framework of economic cooperation, develop a conceptual approach to identifying the main indicators of sustainable development. Under this approach, the following three main indicators are highlighted:

– ***Environmental impact*** (Barral, 2012; Bednarska-Olejniczak et al., 2020; Choguill, 2007; Marong, 2003; Schwarz, 2005);

– ***State of the environment*** (Adamowicz, 2022; Ambusaidi & Al Washahi, 2016; Bechtel et al., 2013; Ellis, 2008; Emas, 2015; McNeill, 2004; Paul, 2008; Sands, 2012; Semenzin et al., 2019);

– ***Perception of ongoing changes by the ecosystem*** (Ciegis et al., 2009; Klarin, 2018; Mitcham, 1995; Pearce & Atkinson, 1998; Robèrt, 2000; Ruggerio, 2021; Sinakou et al., 2019).

Considering the changes that inevitably occur in various spheres, experts propose to divide sustainable development indicators into the following three categories:

– ***Indicators of dynamics*** characterizing development, for example, the growth of green spaces (Barrow, 1995; Du Pisani, 2006; Duran et al., 2015; Marten, 2001; Pezzey, 1992; Salas-Zapata & Ortiz-Muñoz, 2019);

– ***Status indicators*** determining the nature of sustainable development, for example, reserves of non-ferrous metals and minerals (Baker, 2015; Diesendorf, 2000; Elliott, 2012; Harris, 2003; Redclift, 2005; Ross, 2009);

– ***Management indicators*** helping make a choice and response to the current situation, these are standardization or regulation, for example, the costs of reducing harmful emissions into the environment during the production of plastic products (Ahmad et al., 2023; Chen et al., 2023; Cheng et al., 2023; Hopwood et al. 2005).

These indicators are of scientific interest and can serve as the basis for creating a

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system of indicators that determine the effectiveness of measures taken to preserve the environment.

3 METHODS

To develop a framework of sustainable development indicators, we selected the works of experts from different countries whose research, in our opinion, has a long-term impact on the corresponding trends. This study used a desk review and comparative analysis.

We selected scientific works on the following topics: sustainable development, the concept of sustainable development, sustainable development indicators, and circular economy. References were retrieved from Scopus, Web of Science, Google Scholar, and official websites where the main international legal acts and cases of judicial practice are posted. In total, we collected 232 publications in several categories.

Step 1. We filtered the data using selection criteria.

Studies were selected according to the following criteria:

1. The authors have at least three publications on sustainable development over the past 10 years;

2. More than 50% of research on legal topics in the total number of publications by the authors;

3. The authors' profiles indicate that their publications are thematically related to legal sciences;

4. The work was written between 2003 and 2023.

Using this approach, 232 publications were initially selected.

Step 2. We filtered the data by reading the full texts.

We read the full text of articles, whose titles and abstracts made it difficult to determine the relevance of the topic. After careful sampling, 51 papers were selected.

This methodology allowed us to develop a system of sustainable development indicators that can be used as the basis for a unified system of indicators for sustainable development.

4 RESULTS

There are problems in the formation and implementation of the concept of sustainable development, including its definition (Bednarska-Olejniczak et al., 2020)

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and the identification of typical features (Choguill, 2007) or enabling mechanisms (Sands, 2012). The analysis of this concept has doctrinal significance for the world community and should be based on scientific approaches (Ellis, 2008), whose application is impossible outside the scope of law.

The concept of sustainable development causes a heated discussion among experts (Adamowicz, 2022; Ambusaidi & Al Washahi, 2016; Bechtel et al., 2013; Semenzin et al., 2019), but all of them emphasize the importance of observing behavioral patterns to preserve the environment (Emas, 2015; McNeill, 2004; Paul, 2008). The Brundtland Commission defines sustainable development as meeting the needs of the present without compromising the ability of future generations.

Sustainable development is regarded as a strategy during a transition to a state of nature and society that guarantees a minimum of consumption for the population and a minimum of pollution for the environment (Ciegis et al., 2009; Klarin, 2018; Ruggerio, 2021). The results of sustainable development are defined both as the era of the Noosphere (Sinakou et al., 2019) and as eco-evolution (Pearce & Atkinson, 1998).

In a broad sense, sustainable development is interpreted as a humanitarian mission that ensures the rights and interests of humanity (Giampietro, 1994; Mitcham, 1995; Munda, 1997). Some experts proposed replacing the term “sustainable development” with “eco-sustainable development” (Duran et al., 2015; Robèrt, 2000). We cannot agree with this approach because development should not be limited only to ecology. It occurs in various spheres, for example, economy, society, or state.

Based on the definitions of sustainable development, we can identify the typical features of sustainable development, including:

• Economic growth that does not lead to the depletion of natural resources and environmental pollution;

• Equal distribution of wealth and opportunity among people;

• Environmental protection and biodiversity conservation;

• Participation of all social strata in decision-making related to sustainable development;

• Respect for human rights and fight against discrimination.

When trying to define sustainable development, many experts highlight that sustainable development cannot exist in principle (Du Pisani, 2006; Marten, 2001; Salas-Zapata & Ortiz-Muñoz, 2019) since development is an unsustainable process associated with various risks. Renowned scientists emphasize that supporters of the

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concept of sustainable development miss the fact that modern trends of instability and conflict are intensifying (Filipova, 2023; Lee et al., 2023; Ni et al., 2023). The COVID-19 pandemic has jeopardized sustainable development in the context of quarantine, isolation, closure of production, and the transition to online events. Supporters of sustainable development ignore the intensifying trends of conflicts, wars, and pandemics, indicating instability.

Due to the inequality of countries and populations, it is very difficult to implement the concept of sustainable development. There are problems of unequal access to land and water resources, therefore it is necessary to develop the fundamental provisions of the concept of sustainable development with due regard to the need to establish a new system of values aimed at overcoming general inequality. It is required to develop and implement eco-friendly closed-cycle technologies and to green production activities and consumption.

The idea of sustainable development represents a conscious attempt to overcome the current destruction of the environment by revising the foundations of civilization (Parkin, 2000). Humanity has reached the stage of development when the issues of the impact of production activities on anthropogenic and natural processes have come to the fore, and the role of science, technological projects, and green solutions cannot be neglected.

5 DISCUSSION

Theoretical conclusions

Many experts have attempted to develop a system of sustainable development indicators. Thus, we identified an approach in which scholars focus on the following main indicators: 1) an environmental impact, 2) a state of the environment, and 3) a perception of ongoing changes by the ecosystem.

This approach is appropriate and justified but is aimed at measuring only environmental indicators, and the indicators of sustainable development require an integrated approach. Thus, it is necessary to consider not only the environmental impact but also the impact on economic and social factors. Indeed, environmental indicators have the highest priority, which has been mentioned in many international legal documents on sustainable development (Barrow, 1995; Pezzey, 1992). When considering the indicators of sustainable development that were developed by the UN

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Commission on Sustainable Development, it turned out that more than half of 134 indicators relate to environmental factors, and the rest are related to economic and social aspects (Baker, 2015). Therefore, we can conclude that environmental indicators have priority in the system of sustainable development indicators proposed by the UN Commission on Sustainable Development. Experts agree with this approach and note that the main idea of sustainable development is based on indicators related to the state of the environment and it is vital to limit human activity to natural environmental opportunities (Diesendorf, 2000; Elliott, 2012; Harris, 2003; Redclift, 2005; Ross, 2009).

According to this approach, the main priority in the system of environmental indicators is given to indicators that characterize the state of natural ecosystems. To develop a system of environmental indicators for sustainable development, we can take the theory of biotic regulation as a basis (Gorshkov et al., 2001), which will set priority indicators in ecology. In conformity with this theory, biota is the main factor in ecology and the main mechanism for ensuring environmental sustainability; its preservation in the required condition will help maintain environmental standards at the proper level.

Natural biota is one of the key indicators of sustainable development as it reflects the state of the environment and the degree of its preservation.

Biota is the totality of all organisms living in a certain area. Its condition depends on many factors, such as environmental pollution, climate change, habitat destruction, and other anthropogenic impacts.

The more sustainable the social development, the less the negative impact on biota. In turn, the conservation of biota contributes to sustainable development since a healthy ecosystem provides many environmental services, such as water and air purification, climate regulation, and soil fertility maintenance.

Thus, natural biota serves as an indicator of sustainable development, showing the state of the environment and the ability of ecosystems to cope with human impacts. The higher the level of sustainability, the better the condition of the biota and the lower the risk of environmental disasters.

Practical conclusions

Considering scientific and technological progress, an ecological niche for sustainable development is possible only if natural biota is preserved over a large area of the planet.

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The system of sustainable development indicators proposed by experts is also of scientific interest, in which the following main categories of indicators are defined: 1) dynamics indicators, 2) condition indicators, and 3) management indicators.

The proposed system of indicators is general and does not consider the approach based on the dilemma that sustainable development is a socio-economic model aimed at preserving the environment and reasonable consumption (Ahmad et al., 2023; Chen et al., 2023; Cheng et al., 2023; Hopwood et al., 2005; Lélé, 1991). For development to become sustainable, it is necessary to consider various aspects. Therefore, sustainable development indicators should reflect the triad of factors in ecology, economy, and society.

Thus, indicators should be divided into three main groups:

– Indicators of social factors of sustainable development;

– Indicators of economic factors of sustainable development;

– Indicators of environmental factors of sustainable development.

In each group of indicators, subgroups of indicators should be identified.

Social:

– Main indicators of quality of life;

– Human life expectancy (expected at birth and actual) (Zuo et al., 2023);

– Health status;

– Level of knowledge or educational skills, income (measured by gross domestic product per capita) (Azam et al., 2023);

– Level of employment, degree of realization of human rights.

Environmental:

– Deviation of the state of the environment from standards;

– Level of consumption of natural resources and disturbance of ecosystems as a result of economic activities (per unit of final product) (Meng et al., 2023);

– Relationship between the needs for natural resources and their availability (reserves);

– State of natural ecosystems (the share of the area occupied by them in the total territory of the region, as well as in the territory that they must occupy to ensure full regulation of the environment and its stability; the rate of restoration or decline of natural ecosystems) (Ju et al., 2023).

Economic:

– Physical wear and tear of industrial fixed assets (Bagratuni et al., 2023;

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Dzhancharova et al., 2023);

– Loss of raw materials along with waste, which leads to increased costs of treatment facilities and environmental pollution (Kosmina & Chichekli, 2023);

– Loss of recreational value of water, land, and air basins.

Additional indicators should be included in a separate category of indicators, which are divided into the following subcategories:

– ***Descriptive indicators*** that should assess an impact on the environment depending on the measures taken. It can be presented in the form of a graph and changing variables over time;

– ***Performance indicators*** that define whether the measures taken were significant and what result they had. They use the same variables but are linked to target values. For example, one can track the impact of compliance with WHO standards on sustainable development and the environment;

– ***Indicators of environmental efficiency*** that determine whether the efficiency of economic processes has increased. These indicators show how changes in the economy affect the environment, economic development should increase, and the burden on the environment should decrease. Energy intensity and productivity help reduce the burden on the environment. On a graph, it will look like parallel lines that diverge over time;

– ***Indicators of policy effectiveness*** that clearly distinguish the impact of structural changes in the production process;

– ***Well-being indicators*** that show whether the well-being of the population improves. To evaluate it, it is necessary to consider economic, social, and environmental indicators: green GDP, savings growth, environmentally adjusted GDP, etc.

Thus, the indicators of sustainable development can reflect ongoing changes and results of human activity in various areas. They consider an impact on the environment, which will help predict trends in the development of ecosystems with due regard to various influencing factors.

6 CONCLUSIONS

Based on the study results, it was concluded that to develop a system of environmental indicators for sustainable development, the theory of biotic regulation

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should be taken as a basis for determining priorities in ecology.

The scope of the study is limited by the size of the source sampling.

Further research on sustainable development should focus on specific ways that will help preserve the environment and consider the problems of a circular economy.

REFERENCES

Adamowicz, M. (2022). Green deal, green growth and green economy as a means of support for attaining the sustainable development goals. *Sustainability, 14*(10), 5901. http://dx.doi.org/10.3390/su14105901

Ahmad, M., Peng, T., Awan, A., & Ahmed, Z. (2023). Policy framework considering resource curse, renewable energy transition, and institutional issues: Fostering sustainable development and sustainable natural resource consumption practices. *Resources Policy, 86*(B), 104173. http://dx.doi.org/10.1016/j.resourpol.2023.104173

Ambusaidi, A., & Al Washahi, M. (2016). Prospective teachers' perceptions about the concept of sustainable development and related issues in Oman. *Journal of Education for Sustainable Development, 10*(1), 3-19. http://dx.doi.org/10.1177/0973408215625528

Azam, M., Hunjra, A.I., Taskin, D., & Al-Faryan, M.A.S. (2023). Role of ethnic conflicts, regularization and natural resource abundance in sustainable development. *Resources Policy, 85*(B), 103936. http://dx.doi.org/10.1016/j.resourpol.2023.103936

Bagratuni, K., Kashina, E., Kletskova, E., Kapustina, D., Ivashkin, M., Sinyukov, V., Karshalova, A., Hajiyev, H., & Hajiyev, E. (2023). Impact of socially responsible business behavior on implementing the principles of sustainable development (experience of large business). *International Journal of Sustainable Development and Planning, 18*(8), 2481-2488. https://doi.org/10.18280/ijsdp.180819

Baker, S. (2015). *Sustainable development*. London: Routledge.

Barral, V. (2012). Sustainable development in international law: Nature and operation of an evolutive legal norm. *European Journal of International Law, 23*(2), 377-400. http://dx.doi.org/10.1093/ejil/chs016

Barrow, C.J. (1995). Sustainable development: Concept, value and practice. *Third World Planning Review, 17*(4), 369-386. http://dx.doi.org/10.3828/twpr.17.4.u4470v20r8246665

Bechtel, N., Bojko, R., & Völkel, R. (2013). *Be in the loop: Circular economy & strategic sustainable development*: Master's Degree Thesis. School of Engineering, Blekinge Institute of Technology, Karlskrona.

Bednarska-Olejniczak, D., Olejniczak, J., & Svobodová, L. (2020). How a participatory budget can support sustainable rural development - Lessons from Poland. *Sustainability, 12*(7), 2620. http://dx.doi.org/10.3390/su12072620

Bekezhanov, D., Rzabay, A., Nesipbaev, O., Kopbassarova, F., & Halibiyati, H. (2022). Legal significance of digitalization of environmental information in ensuring environmental

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unicuritiba
Submetido em: 03/09/23
Aprovado em: 17/11/2023
Avaliação: *Double Blind Reviewe*-
ISSN: **2316-2880**

safety. *Journal of Environmental Management and Tourism, 13*(3), 656-664. https://doi.org/10.14505/jemt.v13.3(59).06

Chen, F., Jiang, Y., Liu, Z., Lin, R., & Yang, W. (2023) Framework system of marine sustainable development assessment based on systematic review. *Marine Policy, 154*, 105689. https://doi.org/10.1016/j.marpol.2023.105689

Cheng, Y., Ru, Sh., & Kader, G. (2023). Optimal capital investment structure and sustainable development: Evidence from China. *Finance Research Letters, 58*(B), 104464. http://dx.doi.org/10.1016/j.frl.2023.104464

Choguill, C.L. (2007). The search for policies to support sustainable housing. *Habitat International, 31*(1), 143-149. http://dx.doi.org/10.1016/j.habitatint.2006.12.001

Ciegis, R., Ramanauskiene, J., & Martinkus, B. (2009). The concept of sustainable development and its use for sustainability scenarios. *Engineering Economics, 62*(2), 28-37.

Diesendorf, M. (2000). Sustainability and sustainable development. In D. Dunphy, J. Benveniste, A. Griffiths, and P. Sutton (Eds.) *Sustainability: The corporate challenge of the 21st century* (pp. 19-37). Sydney: Allen & Unwin.

Du Pisani, J.A. (2006). Sustainable development - Historical roots of the concept. *Environmental Sciences, 3*(2), 83-96. http://dx.doi.org/10.1080/15693430600688831

Duran, D.C., Gogan, L.M., Artene, A., & Duran, V. (2015). The components of sustainable development-a possible approach. *Procedia Economics and Finance, 26*, 806-811. http://dx.doi.org/10.1016/S2212-5671(15)00849-7

Dzhancharova, G., Kosheleva, A., Drobysheva, N., Pasternak, S., Shelygov, A., & Lebedev, K. (2023). Economic and legal aspects of foreign economic risks within the framework of sustainable development of Russian Enterprises. *Journal of Law and Sustainable Development*, *11*(3), e317. https://doi.org/10.55908/sdgs.v11i3.317

Egorov, A., Sadvokassov, A., Shestak, V., & Yerezhepkyzy, R. (2021). Implementing the Aarhus convention. *European Energy and Environmental Law Review, 30*(4), 120-127. https://doi.org/10.54648/eelr2021014

Elliott, J. (2012). *An introduction to sustainable development*. London; New York: Routledge.

Ellis, J. (2008). Sustainable development as a legal principle: A rhetorical analysis. Retrieved from https://ssrn.com/abstract=1319360

Emas, R. (2015). The concept of sustainable development: Definition and defining principles. Brief for GSDR 2015. http://dx.doi.org/10.13140/RG.2.2.34980.22404

Fedchenko, E.A., Gusarova, L.V., Lysenko, A.A., Vankovich, I.M., Chaykovskaya, L.A., & Savina, N.V. (2023). Audit of national projects as a factor in achieving sustainable development goals. *International Journal of Sustainable Development and Planning, 18*(5), 1319-1328. https://doi.org/10.18280/ijsdp.180502

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unicuritiba
Submetido em: 03/09/23
Aprovado em: 17/11/2023
Avaliação: *Double Blind Reviewe*-
ISSN: **2316-2880**

Filipova, I.A. (2023). Creating the metaverse: Consequences for economy, society, and law. *Journal of Digital Technologies and Law, 1*(1), 7-32. https://doi.org/10.21202/jdtl.2023.1

Giampietro, M. (1994). Using hierarchy theory to explore the concept of sustainable development. *Futures, 26*(6), 616-625. https://doi.org/10.1016/0016-3287%2894%2990033-7

Gorshkov, V., Makarieva, A., Mackey, B., & Gorshkov, V. (2001). Biological theory and global change science. *Global Change Newsletter, 48*, 11-14.

Grigorieva, O. (2017). Constitutional basis for international cooperation of the Soviet Union. *Giornale di Storia Costituzionale, 33*(1), 109-120.

Harris, J.M. (2003). Sustainability and sustainable development. *International Society for Ecological Economics, 1*(1), 1-12.

Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable development: Mapping different approaches. *Sustainable Development, 13*(1), 38-52. http://dx.doi.org/10.1002/sd.244

Ju, C., Liu, H., Xu, A., & Zhang, J. (2023). Green logistics of fossil fuels and E-commerce: Implications for sustainable economic development. *Resources Policy, 85*(B), 103991. http://dx.doi.org/10.1016/j.resourpol.2023.103991

Khoruzhy, L., Katkov, Y., Katkova, E., Romanova, A., & Dzhikiya, K. (2023). Formation of an environmentally-oriented system for sustainable economic security in the context of inter-organizational agricultural cooperation. *Journal of Law and Sustainable Development*, *11*(8), e973. https://doi.org/10.55908/sdgs.v11i8.973

Klarin, T. (2018). The concept of sustainable development: From its beginning to the contemporary issues. *Zagreb International Review of Economics & Business, 21*(1), 67-94. http://dx.doi.org/10.2478/zireb-2018-0005

Kosmina, R.V., & Chichekli, M. (2021). Ekonomicheskaya otsenka ushcherba ot zagryazneniya okruzhayushchei sredy [Economic assessment of damage from environmental pollution]. *Aktualnye issledovaniya, 1*(78), 90-94.

Lee, C.-C., Zhong, Q., Wen, H., & Song, Q. (2023). Blessing or curse: How does sustainable development policy affect total factor productivity of energy-intensive enterprises? Socio-Economic *Planning Sciences, 89*, 101709. https://doi.org/10.1016/j.seps.2023.101709

Lélé, S.M. (1991). Sustainable development: A critical review. *World Development, 19*(6), 607-621. http://dx.doi.org/10.1016/0305-750X(91)90197-P

Marong, A. (2003). From Rio to Johannesburg: Reflections on the role of international legal norms in sustainable development. *Georgetown International Environmental Law Review, 16*, 21-76.

Marten, G.G. (2001). *Human ecology: Basic concepts for sustainable development*. London; Sterling, VA: Earthscan Publications.

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unicuritiba
Submetido em: 03/09/23
Aprovado em: 17/11/2023
Avaliação: *Double Blind Reviewe*-
ISSN: **2316-2880**

Mayboroda, V., Mayboroda, E., & Spirin, P. (2023). Formation and legal regulation of urban agglomerations in the Russian Federation: Ensuring sustainable development of territories. *Revista Jurídica, 4*(76), 1-15.

McNeill, D. (2004). The concept of sustainable development. *Development Studies and Political Ecology in a North South Perspective, 5*, 26-46.

Meng, K., Zhong, K., Abbas, S., Sofuoğlu, E., Kaosarat Olawunmi, I., & Sinha, A. (2023). To import or not to import: A global comparative study of energy and natural resource policies for sustainable development. *Journal of Cleaner Production, 421*, 138490. http://dx.doi.org/10.1016/j.jclepro.2023.138490

Mitcham, C. (1995). The concept of sustainable development: its origins and ambivalence. *Technology in Society, 17*(3), 311-326. http://dx.doi.org/10.1016/0160-791X(95)00008-F

Munda, G. (1997). Environmental economics, ecological economics, and the concept of sustainable development. *Environmental Values, 6*(2), 213-233. http://dx.doi.org/10.3197/096327197776679158

Ni, L., Ahmad, S.F., Alshammari, T.O., Liang, H., Alsanie, G., Irshad, M., Alyafi-AlZahri, R., BinSaeed, R.H., Al-Abyadh, M.H.A., Abu Bakir, S.M.M., & Ayassrah, A.Y.A.B.A. (2023). The role of environmental regulation and green human capital towards sustainable development: The mediating role of green innovation and industry upgradation. *Journal of Cleaner Production, 421*, 138497. https://doi.org/10.1016/j.jclepro.2023.138497

Parkin, S. (2000). Sustainable development: The concept and the practical challenge. *Proceedings of the Institution of Civil Engineers-Civil Engineering, 138*(6), 3-8. http://dx.doi.org/10.1680/cien.2000.138.6.3

Paul, B.D. (2008). A history of the concept of sustainable development: Literature review. *The Annals of the University of Oradea, Economic Sciences Series, 17*(2), 576-580.

Pearce, D., & Atkinson, G. (1998). The concept of sustainable development: An evaluation of its usefulness ten years after Brundtland. *Swiss Journal of Economics and Statistics, 134*(3), 251-270.

Pezzey, J. (1992). Sustainable development concepts. *World, 1*(1), 45.

Redclift, M. (2005). Sustainable development (1987-2005): An oxymoron comes of age. *Sustainable Development, 13*(4), 212-227. http://dx.doi.org/10.1002/sd.281

Robèrt, K.H. (2000). Tools and concepts for sustainable development, how do they relate to a general framework for sustainable development, and to each other? *Journal of Cleaner Production, 8*(3), 243-254. http://dx.doi.org/10.1016/S0959-6526(00)00011-1

Ross, A. (2009). Modern interpretations of sustainable development. *Journal of Law and Society, 36*(1), 32-54. http://dx.doi.org/10.1111/j.1467-6478.2009.00455.x

Ruggerio, C.A. (2021). Sustainability and sustainable development: A review of principles and definitions. *Science of the Total Environment, 786*, 147481. http://dx.doi.org/10.1016/j.scitotenv.2021.147481

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Submetido em: 03/09/23
Aprovado em: 17/11/2023
Avaliação: *Double Blind Reviewe*-
ISSN: **2316-2880**

Rybak, V., Kryanev, Y., Shichkin, I., & Livson, M. (2023). State regulation as a comprehensive mechanism for the sustainable development of territories. *Revista Juridica, 1*(73), 831-844. http://dx.doi.org/10.26668/revistajur.2316-753X.v1i73.6282

Rzabay, A., Teleuyev, G., Abdukarimova, Z., Nurmanbetov, K., Nessipbayeva, I., & Adylgazy, S. (2018). Some theoretical issues on the sources of environmental law in the Republic of Kazakhstan. *Journal of Environmental Management and Tourism, 9*(7), 1421-1427. https://doi.org/10.14505//jemt.v9.7(31).07

Salas-Zapata, W.A., & Ortiz-Muñoz, S.M. (2019). Analysis of meanings of the concept of sustainability. *Sustainable Development, 27*(1), 153-161. http://dx.doi.org/10.1002/sd.1885

Sands, P. (2012). International courts and the application of the concept of 'sustainable development'. In *Law and Development* (pp. 147-157). London: Routledge-Cavendish.

Schwarz, P. (2005). Sustainable development in international law. *Non-State Actors and International Law, 5*(2), 127-152. http://dx.doi.org/10.1163/1571807054764203

Seilkassymova, R., Nurmukhankyzy, D., Rzabay, A., Baktykhozhayev, Z., & Nessipbayeva, I. (2022). Environmental safety and legal regulation of medical waste management: International experience. *Journal of Environmental Management and Tourism, 13*(7), 1817-1824. https://doi.org/10.14505/jemt.v13.7(63).01

Semenzin, E., Giubilato, E., Badetti, E., Picone, M., Volpi Ghirardini, A., Hristozov, D., Brunelli, A., & Marcomini, A. (2019). Guiding the development of sustainable nano-enabled products for the conservation of works of art: proposal for a framework implementing the Safe by Design concept. *Environmental Science and Pollution Research, 26*, 26146-26158. https://doi.org/10.1007/s11356-019-05819-2

Shaimerdenova, A., Agapitova, L.G., Bobrova, A.V., Akhmetov, Y., Sinyukov, V.A., Sharonin, P.N., Dobrovolsky, A.G., Ryakhovsky, D.I., Krasnovskiy, E.E., & Ten, A.D. (2023). Development of optimal crop production model considering existing natural-climatic risks increasing crop yields. *SABRAO Journal of Breeding and Genetics, 55*(3), 778-795. http://doi.org/10.54910/sabrao2023.55.3.15

Sinakou, E., Boeve-de Pauw, J., & Van Petegem, P. (2019). Exploring the concept of sustainable development within education for sustainable development: Implications for ESD research and practice. *Environment, Development and Sustainability, 21*(1), 1-10. https://doi.org/10.1007/s10668-017-0032-8

State Duma of the Federal Assembly of the Russian Federation. (2002). Federal Law of January 10, 2002 No. 7-FZ "On environmental protection" (latest edition). Retrieved from http://pravo.gov.ru/proxy/ips/?docbody=&nd=102074303&ysclid=loriiwyp2818668280

Tynybekov, S., Yerezhepkyzy, R., Berdibayeva, A.K., Esekeeva, A.A., Mynbatyrova, N.K., & Akopova, E. (2014). Access to environmental information in legislation of the Republic of Kazakhstan. *Life Science Journal, 11*(5), 231-238.

Ydyrys, S., Ibrayeva, N., Abugaliyeva, F., Zhaskairat, M., & Uvaliyeva, A. (2023). Regulatory and legal support for the development of digital infrastructure in rural areas as a factor in improving the level of sustainable development and quality of life of the rural

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unicuritiba
Submetido em: 03/09/23
Aprovado em: 17/11/2023
Avaliação: *Double Blind Reviewe*-
ISSN: **2316-2880**

population. *Journal of Environmental Management and Tourism, 14*(5), 2271-2280. https://doi.org/10.14505/jemt.v14.5(69).08

Yumashev, A., Ślusarczyk, B., Kondrashev, S., & Mikhaylov, A. (2020). Global indicators of sustainable development: Evaluation of the influence of the human development index on consumption and quality of energy. *Energies, 13*(11), 2768. http://doi.org/10.3390/en13112768

Zuo, J., Zhang, L., Chen, B., Liao, J., Hashim, M., Sutrisno, D., Hasan, M.E., Mahmood, R., & Sani, D.A. (2023). Assessment of coastal sustainable development along the maritime silk road using an integrated natural-economic-social (NES) ecosystem. *Heliyon, 9*(6), e17440. https://doi.org/10.1016/j.heliyon.2023.e17440

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