



Digitalization of Environmental Education as One of the Directions of Socio-economic Development of the State

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Abstract: The aim of the article is to consider the problem of implementation of digital technologies in the system of environmental education in the Russian Federation. To achieve the stated goal, the authors set a number of tasks, in particular, to analyze the provisions of the Russian Constitution and the norms of the current legislation in the environmental sphere, to consider issues of state environmental policy of the Russian Federation in relation to the digitalization of environmental education in the framework of socio-economic development. There are judgments that there is a problem associated with the lack of special laws (at the federal level), regulating the state policy in the field of environmental education in the context of implementation of sustainable development goals, and the authors note that the presence of a large number of declarative norms of universality of environmental education has a negative impact on the process of its formation. Analyzing existing technologies and digital solutions, the authors conclude that they allow creating high-quality educational content (educational courses, programs, modules, etc.), which can be used for the formation of continuous environmental education and awareness in the Russian Federation as part of both government and non-government programs.


1 INTRODUCTION


Socio-economic development of the country is currently impossible without achieving the strategic goals of environmental security and rational use of natural resources, which are carried out, among other things, through raising the level of environmental education and environmental culture of citizens. These goals and tasks are reflected in the Constitution of Russia and strategic planning documents. Provision in Constitution of Russian Federation about ecological education and upbringing, ecological culture of citizens (point «f» 6 part 1 article 114 of Constitution of Russia) gives a clear demonstration of


state ecological policy direction which follows the SDGs.


According to a number of authors, the place of environmental education is clearly defined in the system of legal education. Ecological-legal education should solve the general task - formation of ecological culture of citizens, active civil ecological position and as a result - ecologization of legal education. (Karakash. 2007).

The Law of the USSR «On Nature Protection» dated October 27, 1960, played an important role in the formation and development of environmental education and enlightenment, thus, in accordance with Article 18 of the law, it was stipulated to teach the basics of nature protection in educational

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institutions. Later the USSR Law «On Environmental Protection» of 1991, the Federal Law «On Environmental Protection» of 2002, the Ecological Doctrine of the Russia «continued the work» and provided the creation of state and non-state systems of continuous environmental education and awareness, the inclusion of environmental issues, environmental protection and sustainable development of the Russian Federation in curricula at all levels of the educational process, the development of a training system in environmental protection for managers of various industries, e. g., the development of a system of environmental education in the Russian Federation. These norms sometimes remain declarative and not always realized in practice. Mukhlynina M. and Vedyshva N. address the issues of the need for changes in environmental policy, both at the level of the regulatory framework and at the organizational and managerial level (Mukhlynina, Vedyshva. 2020).

Current issues of legal regulation of the goals of sustainable development and digitalization of environmental education as one of the areas of socio-economic policy in the Russian Federation are reflected in the works Karakash I.I. (Karakash, 2007), Mukhlynina M., Vedyshva N. (Mukhlynina, 2020), Allen I.E. (Kozyreva, 2020), Gate N.A., Minyaev A.O. (Grand-Clement, 2019) Pushkareva E.F. (Allen, 2011), Chalykh I.S. (Terentiev, 2021), Burkova L.N. (Vedyshva, 2020), Misnik G.A. (Vershilo, 2008), Fomenko V.L., Fitsai D.A. and others. However, a number of issues relating to the judicial protection of environmental rights remain underdeveloped.

2 MATERIALS AND METHODS

The methodological basis of this study has traditionally been general scientific methods: synthesis, analysis, induction and deduction. The method of factor analysis was used to determine the influence of various factors on the implementation of digitalization of environmental education in the Russian Federation.

The information basis of the study included normative legal acts, documents of public authorities and their officials, scientific works of Russian scientists on the problems of digitalization of environmental education.

3 RESULTS AND DISCUSSION

The federal state educational standard of basic general education, approved by Order № 1897 of the Ministry of Education and Science of the Russian Federation on December 17, 2000, was clearly aimed at the establishment and development of an environmentally aware way of life of the student, including the formation of the basics of environmental culture, the development of experience of environmentally oriented reflexive and evaluative and practical activities. A great contribution to the scientific component of this process was made by the Russian Academy of Education, which in 2017-2018 conducted research aimed at updating the content of school environmental education. It also developed new approaches to the formation of environmental culture of schoolchildren, which was embodied in the model work program for basic and secondary general education developed by it, on the integrated course «Ecology», the methodological support of interdisciplinary research in education. The orders of the Ministry of Education and Science of Russia from 07.08.2020 № 894 and № 897 were approved by the FSES of higher education - undergraduate and graduate respectively in the direction of training «Ecology and environmental management».

In Russia in recent years, especially in the thematic years of ecology and environmental protection (2013, 2017) one can observe active development of environmental education and public education. Thus, 72 subjects of the Russian Federation carried out activities to develop the system of professional retraining and advanced training of civil servants in the field of environmental protection, which is reflected in the State Report on the condition and protection of the environment of Russia in 2018.

In the Kirov region in 2018 The Ministry of Natural Resources of Russia together with the Federal State Budgetary Educational Institution of Higher Professional Education «Vyatka State University» developed an additional professional training program «Professional retraining and advanced training of public civil servants in the field of environmental protection, resource conservation and environmental safety», which is planned to adopt in order to implement paragraph 77 of the Action Plan to implement the Basic State Policy in the field of environmental development of the Russian Federation. In Novgorod Oblast in 2018 the regional budget allocated funds for professional retraining and advanced training of civil servants of the Ministry of Natural Resources, Forestry and Environment of

Novgorod Oblast. In the Moscow region in 2018 for the purpose of professional retraining and advanced training of civil servants and technical personnel the Government of the Moscow region developed a number of educational programs, including in the field of environmental protection, resource conservation and environmental safety.

In our opinion the legal gap is the lack of special laws at the federal level regulating the state policy in the field of environmental education in the context of the implementation of sustainable development goals, the presence of a large number of declarative norms on the universality of environmental education and improving environmental culture. The law-making of the subjects of the Russian Federation is developing, for example, the Law of Kamchatka Krai dated June 21, 2010 № 473 «On environmental education and enlightenment in Kamchatka Krai», the Regional Law of Leningrad region dated July 18, 2016 № 62-OZ «On environmental education, enlightenment and forming environmental culture in Leningrad region», the Law of Yaroslavl region dated April 12, 2017. № 12-Z «On environmental education, enlightenment and formation of ecological culture in the Yaroslavl region» and the Law of the Republic of Altai of July 6, 2017 № 38-RZ «On environmental education, enlightenment and formation of ecological culture in the Republic of Altai».

These laws establish economic-legal and organizational foundations of environmental education. An important feature of these laws is the development of basic concepts for our study, such as: environmental education, culture, education. The laws stipulate the powers of legislative and executive authorities of this or that constituent entity of Russia, determine the procedure for financing environmental education activities, etc. The laws of the subjects of the Russian Federation differently understand eco-education and its system: for example, in the law of Krasnodar Krai «On environmental education, education and formation of environmental culture of the population of Krasnodar Krai» environmental education is understood as a continuous and purposeful process of knowledge, self-education, accumulating experience and personal development aimed at forming values and standards of behavior, skills and abilities in the field of environmental protection and rational use of nature, in order to meet the needs of the population.

Environmental education is provided at four levels: preschool, school, higher and postgraduate. In the law of Voronezh region «On environmental education, education and formation of environmental culture of the population of Voronezh region»

environmental education is understood as a continuous process of education, training, self-education, accumulation of experience and personal development aimed at the formation of a system of value orientations, behavioral standards, receiving special knowledge on environmental protection, nature management and environmental safety, implemented in environmentally literate activities.

Here the system of eco-education does not include the preschool level, but provides for the education of students of general educational organizations and organizations of additional education, training of specialists with the levels of secondary and higher education, environmental training of specialists in various professions, advanced training and retraining of officials, including in industry and agriculture, teaching staff, training of highly qualified personnel and specialists in the field of environmental education.

In the law of the same name of the Kostroma region under environmental education is understood a broader concept: a purposeful process of education and training, which is a socially significant benefit for the intellectual, spiritual, moral, physical and (or) professional development, which is carried out in the interests of the individual, family, society and the state, as well as the set of acquired knowledge, abilities, skills, values, activity experience and competence in environmental protection, environmental management and ecological safety. Unfortunately, in many subjects of the Russian Federation there is no purposeful and consistent regional policy on environmental education; no special laws, policy documents providing a system of management, coordination, funding of environmental education at the regional and local levels have been adopted.

It should be noted that existing technologies and ready-made digital solutions allow the creation of high-quality educational content (educational courses, programs, modules, etc.), which can be used for the formation of continuous environmental education and awareness in the Russian Federation as part of both government and non-government programs. In this case, the created educational content to be human-oriented and aimed at creating new educational material in accordance with the needs of the economy and society, as well as meeting the interests of the harmonious development of the individual, the disclosure of his creative potential. In this regard, when forming educational programs in the field of environmental education, it is necessary to recommend teachers to transform lecture material

into a video streaming series, create digital texts and interactive modules.

International publications and research on the use of digital technology show that its role in the process of learning, efficiency in terms of time and perception of the received knowledge, motivation to learn and concentration is essential (Sarah Grand-Clement, Axelle Devaux, Julie Belanger, Catriona Manville. 2019). A separate place is occupied by the development of online courses and attempts to answer the question of what courses really count as taking place in an online format. According to experts, online courses, with all the variety of terminology (internationally used terms such as e-learning, digital learning, online learning, distance learning) courses where the proportion of content provided for the benefit of the learner is more than 70-80% (I.E. Allen, J. Seaman, Babson Survey Research Group. 2011).

In the COVID-19 pandemic, the education system is faced with the serious challenge of ensuring the legal rights of citizens, namely the right to education that is universally accessible and free of charge, while ensuring that the quality of teaching is not compromised (Kozyreva, Nadtocka. 2020). In a situation where educational institutions of all levels, from preschool to higher education, were forced to virtually close their doors and transfer the educational process to a distance learning format, teachers were actively engaged in testing various methods and practices of teaching in a digital environment. The results of a large-scale nationwide survey of teachers indicate that universities have survived and demonstrated a high degree of preparedness for an emergency situation (Terentiev. 2021). The situation is similar in the segment of secondary education.

In accordance with Presidential Decree № 474 of July 21, 2020 «On the National Development Goals of the Russian Federation for the period until 2030» digital transformation is defined as one of the goals, the realization of which requires achieving «digital maturity» including in education. Digitalization of environmental education will activate and improve the continuous environmental education in the Russian Federation and its subjects, thereby implementing one of the directions of the state environmental policy at the present stage. The development of environmental education in the Russian Federation contributes to the Sustainable Development Goals adopted by all member states of the United Nations in 2015, which are aimed at protecting our planet, improving the quality of life, and improving the prospects for all people around the world (Vedysheva, Mukhlynina 2020). As N.A. Vershilo rightly points out, «...in the light of the

Concept of Sustainable Development the ideal of educational systems becomes the formation of a personality with a certain inner freedom, which builds its relations with the environment on the basis of understanding its integrity. Society is called to set these qualities through educational systems» (Vershilo. 2008).

4 CONCLUSIONS

To summarize, we note that education is a continuous process that is constantly being modernized. The country's transition to a modern level of development is impossible without new technologies in education as well. Recent events related to the pandemic have shown the "pluses" of digital education (with "minuses" at first of a technical nature, lack of skills in working with information bases, relevant programs, etc.), providing the opportunity to obtain the necessary theoretical knowledge in various fields, including environmental protection, environmental safety, implementation of the UN SDGs, namely through digital technology provides equal access to education in the Russian Federation, regardless of social and other factors during the life time. First of all, they are aimed at training specialists in the field of environmental protection with higher professional education, as well as advanced training and retraining of officials, specialists of organizations, regardless of the areas of activity in the system of postgraduate education. Specialists working for state and municipal authorities must be able to develop targeted environmental programs, prepare draft regulations in the field of environmental protection and environmental safety; specialists in organizations associated with the impact on the environment and human health must know the natural resource and environmental legislation of Russia, use BAT reference books, monitor trends in international and European law in terms of adaptation to climate change, etc. Ecological education of such persons will help to ensure the implementation of the rights of citizens to a favorable environment, and the activities of the relevant bodies and organizations - to implement the principle of science-based combination of environmental, economic and social interests of man, society and the state.

SDG 4 provides for «Ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all» we consider it advisable to propose concluding a joint agreement between the Ministry of Science and Higher Education of the Russia, the Ministry of Digital

Development of the Russia, and the Ministry of Natural Resources and Environment of the Russia, providing for:

1. creation of methodological centers at universities, where officials and specialists of organizations related to activities that have a negative impact on the environment and human health, as well as teachers who implement programs in the field of environmental protection and environmental safety will receive advanced training;

2. development of a platform to improve the qualifications of civil servants of the Russian Federation engaged in environmental protection and environmental safety (envisaged by the Action Plan to Implement the Environmental Security Strategy of the Russian Federation for the period up to 2025;

3. In the state information system «Modern Digital Educational Environment» (Decree of the Government of the Russian Federation № 1836 of November 16, 2020), we believe it is advisable to provide for the need to take environmental courses for all users and all categories of students.

Vershilo, N. A., 2008. Ecological-legal bases of sustainable development. MOSCOW.

Kozyreva, A., Nadtoka, R., 2020. Using digital technologies to create equal opportunities in higher education in the Russian Federation: COVID-2019 lessons. *In E3S Web of Conferences*.

REFERENCES

Karakash, I., 2007. Significance of ecological-legal education for formation of ecological-legal consciousness and ecological-legal culture. *In Problems of improvement of teaching methodology of ecological-legal disciplines in Russian law schools: Materials of All-Russian scientific-methodological seminar*.

Mukhlynina, M., Vedysheva, N., 2020. Legal aspect of the implementation of the UN sustainable development goals in the field of environmental management in Russia. *In E3S Web of Conferences. Actual Problems of Ecology and Environmental Management: Cooperation for Sustainable Development and Environmental Safety, APEEM 2020*.

Grand-Clement, S., Devaux, A., Belanger, J., Manville, C., 2019. RAND Report: Digital learning Education and skills in the digital age, 9-14. <https://www.rand.org>.

Allen, I. E., 2011. Going the Distance. Online education in the United States. BABSON COLLEGE.

Terentiev, E. A., 2021. Transition to Distance Learning and Remote Work in the Assessments of University Teachers. *In Information and Analytical Materials on the Results of Statistical and Sociological Surveys "Monitoring of the Economics of Education"*. 4. <https://memo.hse.ru>.

Vedysheva, N. O., Mukhlynina, M. M., 2020. Legal regulation of the implementation of certain UN Sustainable Development Goals in Russia as counteraction to contemporary threats to environmental security and nature management. *In Law and State: Theory and Practice*.