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Research Article

Digitalization of state environmental management: Legal aspects

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Abstract. This article discusses the features of the digital transformation of the following state functions: information support in the field of environmental protection, state accounting in the field of environmental protection, regulation in the field of environmental protection (in terms of the use of the best available technologies), state environmental supervision, and administration of fees for negative environmental impact (NVOS). It is proved that the data of the state register of objects of negative impact, formed as a result of the state accounting of objects that have a negative impact on the environment, the implementation of state environmental supervision, and the administration of fees for NWOS should become the basis for making environmentally significant decisions. To expand the scope of use of this information, it is proposed to ensure the interoperability of the state register data. In addition, the authors come to the conclusion that digitalization of technological rationing based on the best available technologies (hereinafter also BAT) is associated with the use of such technologies as data turnover regulation, experimental legal regimes (regulatory sandboxes) and assessment of the compliance of the applied technology with the best available technology. Moreover, when implementing state environmental supervision, inspections should be planned based on the hazard category of objects of negative impact and when conducting inspections, remote control methods should be used. It is also essential to introduce electronic test sheets for self-checking enterprises. Finally, the digitalization of calculating and collecting fees for NVOS should ensure the smooth functioning of calculating fees by the payer in digital format and control over the correctness of calculation and collection by the supervisory authority.

Key words: digitalization, government, environmental management, government accounting, data interoperability, environmental regulation, environmental supervision

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Научная статья

Цифровизация государственного экологического управления: правовые аспекты

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Аннотация. Рассмотрены особенности цифровой трансформации следующих государственных функций: информационное обеспечение в сфере охраны окружающей среды; государственный учет объектов негативного воздействия на окружающую среду; нормирование в сфере охраны окружающей среды (в части применения наилучших доступных технологий); государственный экологический надзор; администрирование платы за негативное воздействие на окружающую среду (НВОС). Обосновывается, что сведения государственного реестра объектов негативного воздействия, формируемые в результате государственного учета объектов, оказывающих негативное воздействие на окружающую среду, данные об осуществлении государственного экологического надзора и администрирования платы за НВОС, должны стать основой для принятия экологически значимых решений. Для расширения сфер использования этих сведений предлагается обеспечить интероперабельность данных государственного реестра. Кроме того, авторы приходят к выводу, что, во-первых, цифровизация технологического нормирования на основе наилучших доступных технологий (далее также НДТ) связана с применением таких технологий, как регулирование оборота данных, экспериментальные правовые режимы (регуляторные песочницы) и оценка соответствия применяемой технологии наилучшей доступной технологии, во-вторых, при осуществлении государственного экологического надзора планировать проверки следует исходя из категории опасности объектов негативного воздействия, при проведении проверок использовать по возможности дистанционные способы контроля, внедрить электронные проверочные листы для самопроверки предприятий. Наконец, цифровизация исчисления и взимания платы за НВОС должна обеспечить бесперебойное функционирование расчета платы плательщиком в цифровом формате и контроля за правильностью исчисления и взимания со стороны контролирующего органа.

Ключевые слова: цифровизация, государство, экологическое управление, государственный учет, интероперабельность данных, экологическое нормирование, экологический надзор

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Legal regulation of digitalization in the field of environmental protection

The digital economy as a system of economic relations in which data in digital form is a key factor of production in all its spheres (Vaipan, 2018:12), contributes to significant economic growth, and its influence now extends not only to information goods or services in other areas of the economy, but also to life standards in general (Belikova, 2018:26). In this regard, we agree with T.V. Shatkovskaya that "the institutions of digital law being formed today cannot be aimed exclusively at the priority of the market and economic laws, ensuring the right of the strongest winner in the competition... The value reference point of digitalization should be chosen in favor of welfare for a person, society and states... forming conditions for improving national legal cultures in the direction of achieving universal values that promote unity in diversity and the common good" (Shatkovskaya, 2019:30). The ultimate goal of digitalization in the provision of state and municipal services is to improve the quality of services, ensure transparent and effective interaction, and increase the level of public trust in public authority institutions (Alimova, 2020:250—255).

The term "digitalization" is actively used in scientific circulation, including in relation to public administration (Zubarev, 2020:23—32; Popova, 2020:48—53; Tikhomirov, Nanba, 2019) despite the fact that official regulatory sources do not define it. Only the Methodological Recommendations to the development of regional projects within the framework of federal projects of the national program Digital Economy of the Russian Federation suggest understanding *digitalization* as the process of organizing the performance of functions and activities (business processes) in a digital environment, which previously were performed by people and organizations without using digital products[1]. In broad terms, digitalization is comprehended as the current global trend of economic and social development based on transformation of information into digital form that result in improved economic efficiency and quality of life (Khalin, Chernova, 2018:47).

[1] The Order of the Ministry of Communications and Mass Media of Russia No. 428 of 01.08.2018 On approval of Methodological Recommendations for the development of regional projects within the framework of federal projects of the national program Digital economy of the Russian Federation. Consultant Plus Information system.

The national program Digital Economy of the Russian Federation was established in accordance with the Decree of the President of the Russian Federation No. 204 of May 7, 2018 On the National Goals and Strategic Objectives of the Development of the Russian Federation for the Period up to 2024.

The creation of a system of legal regulation of the digital economy, based on a flexible approach in each sphere, is indicated as one of the program's tasks. This task is implemented in accordance with the federal project Legal Regulation of the Digital Environment, which is managed by the Ministry of Economic Development of the Russian Federation.

Through the development of regulations, the federal project is intended to solve the following tasks: 1) removal of priority barriers that hinder the development of digital economy; 2) regulation of cross-cutting interdisciplinary issues in digital environment such as identification of subjects of legal relations, data turnover, and electronic document flow.

In addition, the objectives of legal transformation include:

— creating legal framework for collecting, storing and processing information, its protection from third-party encroachment, observance of the interests of participants involved in digital economy,

— implementing the results of intellectual developments,

— improving antitrust laws and innovation practices,

— adapting the mechanism of legal protection of consumer interests in accordance with the new business conditions,

— forming an updated system for collecting and processing statistical information,

— creating infrastructure for intensive development of digital component in the economy (Plotnikov, 2019:217—224).

Digital transformation affects all aspects of life in modern society, and the sphere of environmental protection, environmental safety and environmental management is no exception. One of the main features of digital technologies is that they are "cross-cutting" and universal for various spheres of society. In this regard, it seems fair to say that digital technologies do not offer ready-made solutions to environmental problems; they allow to significantly facilitate the processing of large amount of statistical information, facilitate carrying out a deep and comprehensive analysis in the shortest possible time, and qualitative change in management activity in a particular area in general (Sukhova, Abanina, 2020:17).

Certain directions of digitalization were enshrined in the Fundamentals of State Policy in the Field of Environmental Development of the Russian Federation for the Period until 2030[2] (hereinafter Fundamentals of the State Policy in the Field of Environmental Development) approved by the President of the Russian Federation on

[2] The Fundamentals of state policy in the field of environmental development of the Russian Federation for the period up to 2030. Information system "Consultant Plus".

April 30, 2012. The Foundations of the State Policy in the Field of Environmental Development list specific mechanisms aimed at automating the system of state environmental monitoring and forecasting of natural and man-made emergencies (equipping them with modern measuring, analytical instruments and information tools, instrumental (automated) systems, and developing the data processing programs — paragraph 18). The documents also indicate mechanisms to ensure effective participation of the interested public and business community in addressing issues related to environmental protection and environmental safety (ensuring openness and accessibility of information on the environment and measures to protect it, ensuring publicity of information contained in declarations and permits for environmental impact, increasing information transparency of industrial enterprises in terms of their negative impact on the environment and the measures taken to reduce such impact — paragraph 21 of the Fundamentals of the State Policy in the Field of Environmental Development).

The Presidential Decree No. 203 of 09.05.2017 On the Strategy for the Development of Information Society in the Russian Federation for 2017—2030[3] defines the goals, objectives and measures for implementation of domestic and foreign policy when applying information and communication technologies, and also indicates the priorities of information society development, including formation of information space taking into account the need to obtain high-quality and reliable information, creation and application of Russian information and communication technologies to ensure their international competitiveness.

It is appropriate to consider the features of digitalization in the field of environmental protection according to the main functions of environmental management. The following functions of state environmental management are currently most exposed to digital transformation: information support in the field of environmental protection (provision of environmental information), state accounting in the field of environmental protection, technological standardization based on the best available technologies, state environmental supervision and tax administration for NEI.

Information support in the sphere of environmental protection

Formation of electronic databases connected with implementation of environmental protection activity is the basis to provide completeness and accessibility of environmental information mentioned in the above Decrees of the Russian President. During formation of electronic databases (Big Data) it is necessary to establish such legal regime of state information resources that allows to expand the possibility of their

3 Presidential Decree No. 203 of 09.05.2017 On the Strategy for the Development of Information Society in the Russian Federation for 2017—2030 // The collection of legislative acts RF. 2017. No. 20, article 2901.

employment by various actors, including representatives of the concerned public with the purposes of public control.

These state information resources in the field of environmental protection include the State Register of Objects of Negative Impact on the environment. The legal regulation of the register is carried out by Articles 69, 69.2 of the Federal Law No. 7-FZ of 10.01.2002 On Environmental Protection[4] (hereinafter — the Federal Law On Environmental Protection), the Decree of the Government of the Russian Federation No. 572 of 23.06.2016 On approval of the rules of creation and maintenance of the State Register of Objects that have a negative impact on the environment (hereinafter — the Rules of Creation and Maintenance of the State Register)[5].

The State Register of Objects of Negative Impact (ONI) operates in electronic form, which helps to reduce the significant transaction costs of documentary preparation, execution, and archiving of registration documents for owners of objects of negative impact and the state represented by its competent authorities; it simplifies the procedures and time frames for performing the relevant registration actions. At the same time, some registration actions in the mentioned Register are duplicated in the documentary form (e.g., issuance of certificates on the state registration of the object, updating information and de-registration).

The rules for creating and maintaining the State Register provide for a paper or electronic form of submission of application documentation for the object's registration. The electronic application is submitted using the Federal State Information System — the Unified Portal of State and Municipal Services (gosuslugi.ru) — or the official website of the Federal Service for Supervision over Environmental Management in the Network (paragraph 36 of the Rules for Creation and Maintenance of the State Register of Objects of Negative Impact on the Environment, approved by the Decree of the Government of the Russian Federation No. 572 of 23.06.2016). Rosprirodnadzor Order No. 104 of 06.02.2020 On Approval of the Administrative Regulations of the State Service for the State Accounting of Facilities that have a Negative Impact on the Environment Subject to Federal State Environmental Supervision[6] also stipulates that application documents may be sent in paper by mail or electronically through a personal account in the information and telecommunications network “Internet” at: https://lk.fsrpn.ru (paragraph 20 of the Administrative Regulations).

[4] The Federal Law dated 10.01.2002 № 7-FZ “On Environmental Protection”. The Collection of legislative acts of the RF. 2002. No. 2, art. 133.

[5] The Decree of the Government of the Russian Federation of 23.06.2016 № 572 “On approval of the Rules for the creation and maintenance of The State Register of Objects of Negative Impact on the environment”. The Collection of legislative acts of the RF.2016. No. 27 (Part III), Art. 4474.

[6] Rosprirodnadzor Order No. 104 of 06.02.2020 On Approval of the Administrative Regulations of the State Service for the State Accounting of Facilities that Have a Negative Impact on the Environment Subject to Federal State Environmental OversightConsultant Plus Information system.

The procedure for using the Personal Account of the Environmental User (hereinafter also PAEU) is currently established in the form of instructions determining the sequence of actions in the PAEU for reporting in the field of environmental protection and obtaining permits in this area[7]. It should be stated that the legal nature of these instructions is not defined. In fact, the algorithm implemented in these computer programs is performed voluntarily by the PAEU subjects. There are no administrative regulations for their use, no orders of the Federal Service for Supervision of Natural Resources concerning description of mandatory XML formats[8].

There are no legal norms establishing the obligation of Rosprirodnadzor bodies to record the reception of appeals of natural resource users, protect them from involuntary interference by third parties and to respond to these appeals in electronic format. Technical instructions for operating computer programs and norms of automatic execution (norms executed without the state bodies' and officials' participation) must become an integral part of establishing digital law and order. The automatic mode has to ensure the reliability of transmitted information, requests for documents and information necessary to obtain public services, legality of implementation of administrative procedures in terms of automatic influence on the natural resource user, integrity of natural resource users, comparability of information systems and services of public authorities of all levels involved in public service, timeliness in exercising the functions of public authorities, availability and accessibility of electronic services applied in terms of automatic impact on natural resources users.

Thus, the subjects of economic activity are given the opportunity to choose the method of interaction with the state body in data formation from the state register. The rules of creating and maintaining the state register do not provide verification of reliability of the information specified in the application. Since during electronic interaction natural resource users independently form the data in the State Register, in order to ensure reliability of information and prevent its re-verification, it is important to provide adequate verification of the information they submit in digital format. Article 8.5. of the Code of Administrative Offences of the Russian

[7] In particular, the following public services can be obtained through the PAEU: licensing of activities for collecting, transporting, processing, recycling, neutralizing, disposing of wastes of hazard classes I—IV; approving standards for waste generation and limits on their disposal; issuing permits for emissions of harmful (polluting) substances into the air (except for radioactive substances); issuing permits for the discharge of substances (except for radioactive substances) and microorganisms into water bodies; conducting state environmental impact assessment.

[8] XML (eXtensible Markup Language) is an extensible markup language recommended by the World Wide Web Consortium (W3C). XML Specification describes XML documents and partially describes the behavior of XML processors (programs that read XML documents and access their content). XML was designed as a language with a simple formal syntax, easy to create and process documents by programs and at the same time easy to read and create documents by humans, with an emphasis on targeting Internet use. Available at: http://sibacademsoft.ru/xml [Accessed 02 February 2021].

Federation[9] ensures liability for intentional misrepresentation of environmental information submitted in application.

In accordance with Article 69, paragraph 4, of the Federal Law On Environmental Protection, the State Register of Facilities of Negative Impact on the environment includes a fairly wide range of information: on economic entity and its location, on type of economic and (or) other activities, on category of the facility, on volume of products (works, services) produced, on environmental expertise and expertise of project documentation, on stationary emission sources, on volume of negative impact (emissions, discharges, waste disposal), Environmental Impact Payment Declarations, Integrated Environmental Permits or Environmental Impact Declarations, Industrial Environmental Control Program (IECP) and its results, on measures to reduce the negative impact on the environment, on technologies used in Category One facilities and on their compliance with BAT, on results of State environmental supervision, on technical means and technologies for the removal of emissions, discharges of pollutants, wastes from production and consumption, etc.

The range of persons who have access to the State Register of Facilities of Negative Impact is determined depending on the status of the recipient of information. Information of the State Register of Facilities of Negative Impact is available in different volumes for three categories of users: for employees of the Federal Service for Supervision of Natural Resources, for legal entities and individual entrepreneurs who own facilities of negative impact, and for individuals.

By virtue of Article 69, paragraph 9, of the Federal Law On Environmental Protection information on the levels and (or) the volume or mass of emissions of pollutants, discharges of pollutants, disposal of waste production and consumption, except information of a state or trade secret, is available.

Referring to the Register data through the Unified Portal of State and Municipal Services (gosuslugi.ru), it can be seen that individuals have access to information about the state number of the facility, the name of the owner of the facility of negative impact, the level of state environmental supervision in relation to the facility (federal or regional), the facility category, risk category[10], The information on the quantity and composition of emissions, the actual mass of discharges into water bodies, the actual mass of wastes generated and disposed of, the technical means of measuring and accounting for the volume of discharges and emissions. It should be noted that this information is static and does not give an idea of the activities of a particular

[9] The Code of the Russian Federation on Administrative Offences No. 195-FZ of 30.12.2001 № 195-FZ. The Collection of legislative acts of the RF. 2002. No. 1 (part 1), art. 1.

[10] In accordance with The Resolution No. 806 of the Government of the Russian Federation of 17.08.2016 On the Application of a Risk-Oriented Approach in the Organization of Certain Types of State Control (Supervision) and the Introduction of Amendments to Certain Acts of the Government of the Russian Federation.

business entity in terms of its compliance with environmental legislation. We believe that access of individuals to the data of the system of automatic control of objects of category I in real time, access to information on the results of control and supervisory measures in relation to facilities of negative impact, access to report on implementation of action plans for environmental protection and environmental performance, improvement programs and other information about the environmental activities of enterprises will contribute to a more rapid response to environmental offenses by the public.

Important features of the State Register of Facilities of Negative Impact should be the principle of compatibility and data interchange with other state information systems and information and telecommunications networks, the principle of confidentiality and security of personal data contained therein and protection of state or commercial secrets. The State Register, based on these principles, has such an important property as data portability. Data portability is one of the main properties of open systems, aimed at creating conditions for free circulation of data in the development of digital economy and is achieved through the use of an agreed set of standards.

Interoperability in Russian regulations, similarly to the International Standard ISO/IEC 2382-1:1993 (Information Technology — Vocabulary — Part 1: Fundamental terms) means the ability of two or more information systems or components to exchange information and use information obtained from the exchange. The important semantic aspect of *data portability* is the ability of any information systems that communicate with each other to understand the meaning of the information that they exchange in the same way[11]. The Federal Service for Supervision over the Use of Natural Resources operates with the data from different sources: the State Register of ONI (software and technical support for the accounting of negative impact on the environment objects (https://onv.fsrpn.ru/#/login)), the State Registry of the Unified State Information System for Accounting of Waste from the Use of Goods (https://uoit.fsrpn.ru), Rosprirodnadzor Eco Map (https://maps.fsrpn.ru), personal account of the department employee (ksv.fsrpn.ru/#/), State Control Software and Technological Complex (https://ksv.rpn.gov.ru/login), personal Environment User account (https://lk.fsrpn.ru/#/unauthorized), Reporting Portal (https:/report.fsrpn.ru), State Control Web-module of production process control (PPC) (https://ptk.rprpn.ru/Account/Account/LogOn), PPC "State Control" federal state information system (https:////c.fsrpn.ru) and PPC "State Control" territorial bodies of the Rosprirodnadzor. These state information resources do not have the property of data portability, and many statistical data in different systems are presented in

[11] The Report on the provision of services on the topic: Development of the concept of comprehensive regulation (legal regulation) of relations arising in connection with the development of the digital economy. Available: http://www.economy.gov.ru/material/file/bf529854d122ecb01ea9a738cdf47eca/koncepcii_pravovogo_regulirovaniya.docx [Accessed 02 February 2021].

different electronic formats (Word, Excel, PDF) which does not allow to make a correct and timely analysis[12]. There is also a lack of methodological tools for the above-mentioned State Information Resources (SIR). The compatibility of all the above SIR and the ability to analyze them in a single resource in the same format will provide an account of the complex impact on the environment.

Thus, formation of a common Big Data in terms of the negative impact on the environment and the state of the environment will allow:

— to optimize interdepartmental electronic interaction between state authorities and local governments in terms of environmental management;

— to provide prompt access to necessary environmental information that does not require additional research on its reliability;

— to unify various information systems in state authorities in order to increase compatibility and sustainability of individual systems and further unify various databases for "one place" technology (which will avoid doubling of information resources);

— to provide remote access to the environmental activities of an economic entity, the state of the environment in a particular territory;

— to implement the possibility of applying for permits by filling in special forms on the websites of regulatory authorities and creation of an automatic system for checking incoming documents for their compliance with legal requirements;

— to eliminate traditional ways of exchanging information on the status of submitted documents by sending information to the personal account of the natural resource user provided that the traditional written form and possibility to abandon electronic means of communication and traditional methods of notification are retained;

— to detail the procedure for submission, storage and verification of submitted electronic documents and other electronic information;

— to use, where possible, tools of the digital economy, such as smart contracts (e.g., provision of information for a fee) and other digital objects, including those based on blockchain technology or similar distributed databases;

— to use digital technologies in decision-making (e.g., automating decisions on issuing complex environmental permits, processing environmental impact statements and declarations of payment for negative impacts, adverse impacts, etc.).

[12] For example, statistical reporting on the form 2-TP (waste) for 2017 located in the PPC "State Control" territorial bodies of Rosprirodnadzor uploaded in Excel, for 2018 on the Portal for Reporting uploaded in Word, for 2019 in Personal Office uploaded in PDF.

The system of technological standardization associated with application of the best available technology

A special area of digitalization is the system of technological standardization associated with application of the best available technology (hereinafter — BAT). Digitalization in the sphere of application of BAT should be developed in several directions: collecting, storing and managing data, assessing compliance of applied BAT presented in information and technical directories, applying experimental legal regimes (regulatory sandboxes).

Legal regulation of collecting, storing and managing data is connected with maintenance of information and BAT technical reference books and indicators, collection and storage of indicators of pollutant emissions and (or) pollutant discharges during implementation of automatic industrial environmental control at Category One facilities, other reporting information of subjects of economic and other activities, data of environmental monitoring and results of environmental control (supervision). BAT Digital directories, normative-technical and methodological documentation on BAT implementation are recognized as an effective way to ensure its preservation, rapid changes and additions and a possibility to get acquainted with them for a wide range of users. Collecting and storing indicators of the system of automatic control of subjects of economic activity, results and data of environmental control (supervision) were discussed above.

One of the problems associated with BAT implementation is the lack of a clear mechanism for assessing technologies used (and planned to be used) at enterprises in relation to BAT presented in BAT information and technical manuals (Zhukov, 2019).

According to Article 28.1, Paragraph 11 of the Federal Law On Environmental Protection, the compliance of technological processes, equipment, technological methods and techniques employed at a negatively impacting facility with BAT is determined when issuing a comprehensive environmental permit.

At present there is no legal regulation of conversion of the system of conformity assessment of BAT technologies in electronic format which allows conducting of conformity assessment procedures and receipt of documents on their results, interaction of subjects of relations in the sphere of conformity assessment, as well as mutual recognition of both documentary/paper and electronic form of documents on conformity assessment in real time.

We believe that assessment of compliance of in-service technology with BAT technological indicators in a number of cases can also be transferred to the digital plane. Such criteria of technology used at the enterprise, as technological indicators, volumes of emissions and discharges of pollutants, volume of production waste per unit of output (technological standards), volume of consumed resources, economic indicators of applied technology can serve as criteria for assessing their compliance

with the best available technology in digital format. Entering these indicators by means of calculation software should help business entities to verify the compliance of the technology they use with the indicators of the best available technology (at least for the purpose of self-checking). Digitization of conformity assessment even for a part of these criteria will allow to exclude subjectivism and corruption factor when determining the conformity of the BAT technology used at the enterprise in the course of issuing a comprehensive environmental permit (hereinafter — CEP).

Electronic assessment of conformity of technological indicators of BAT and technology of a particular enterprise should be a voluntary alternative, but at the same time its results should be accepted and taken into account on a mandatory basis by control and supervisory bodies when issuing CEP. Voluntary nature is explained by the presence of specifics in activity of different subjects of economic and other activities and impossibility due to objective reasons to transfer those or other activity data in electronic format. At electronic assessment of BAT conformity the following mechanisms of data transfer for evaluation, which are already practiced in administering control and supervisory measures, should also be used: remote means of control, means of photo, audio and video fixation, video-conference-communication[13].

Experimental legal regimes when updating (revising) BAT

At the stage of formation of the technological standardization system and its improvement, the so-called "regulatory sandboxes" will be useful. "Sandboxes" make it possible to abandon a number of regulatory requirements that hinder development of innovations. This allows companies that develop new products and services, as well as government representatives to test them without the risk of violating existing legislation, and then, if testing is successful, to market them[14]. We agree with M.V. Zaloilo that in the context of digitalization of lawmaking, creation of regulatory sandboxes has great potential for testing innovative lawmaking solutions and choosing the most promising variant of legal regulation, including testing of artificial intelligence regulation (Zaloilo, (ed.), 2021:62).

The recognition of innovative environmental technologies as possible future best available technologies may not always fit within the framework of the current legal regulation. There are few reasons for that. The first one is the requirements to

[13] The Decree of the Government of the Russian Federation No. 557 of 22.04.2020 On Amendments to some Acts of the Government of the Russian Federation in Terms of Establishing the Specifics of Control and Supervisory and Permissive Activities in 2020. The Collection of legislative acts of the RF. 2020. No. 17, Art. 2797.

[14] Ministry of Economic Development of the Russian Federation available at: https://economy.gov.ru/material/directions/gosudarstvennoe_upravlenie/normativnoe_regulirovanie_cifrovoy_sredy/regulyatornye_pesochnicy/ [Accessed 12 February 2021].

such technologies, for example, non-compliance with certain technical and (or) economic indicators, technological standards other than the existing BAT but more efficient in terms of resource consumption and total negative impact on the environment. The second is the procedure for its implementation (duration of implementation).

In this case, it is important to extend a special legal regime for the period of testing such technologies; this measure can prevent the risk of violating existing legislation (Kichigin, 2018:144—154). Application of such special legal regimes is stipulated by the Federal Law No. 258-FZ of 31.07.2020 On Experimental Legal Regimes in the Field of Digital Innovation in the Russian Federation[15]. Extension of such experimental regimes (possibly independent and focused only on environmental protection) to environmental protection activities of business entities associated with application and implementation of innovative environmental technologies will increase the total number of technologies in the revision of BAT in a particular area. Establishment of experimental legal regimes should simplify introduction of high-tech digital technologies in the field of environmental protection by taking them out of the restrictive norms of laws. At the same time, the most important condition for application of "sandboxes" in this sphere should be the requirement to present a justified assessment of the risks of environmental damage not exceeding the possible benefits of the new technology.

Digitalization of state environmental supervision

One of the directions of digitization in the sphere of environmental protection is automation of the planning measures system in the sphere of state environmental supervision.

Decree of the Government of the Russian Federation No. 489 of 30.06.2010 On Approval of the Rules for Preparation of Annual Plans for Conducting Scheduled Inspections of Legal Entities and Individual Entrepreneurs by State Control (Supervision) Bodies and Municipal Control Bodies[16] establishes the procedure for such measures (hereinafter — annual plans), their approval and submission to the prosecutor's office as well as their exclusion from the annual plan and approves a standard form of the annual plan of inspections. These Rules, along with the paper version of the annual plan, provide for the exchange of electronic documents in its formation.

[15] The Federal Law No. 258-FZ of 31.07.2020 On the Experimental Legal Regimes in the Field of Digital Innovation in the Russian Federation. The Collection of legislative acts of the RF. 2020. No. 31 (Part I), Art. 5017.

[16] The Resolution of the Government of the Russian Federation No. 489 of 30.06.2010 On Approval of the Rules for the Preparation by State Control (Supervision) Bodies and Municipal Control Bodies of Annual Plans for Conducting Scheduled Inspections of Legal Entities and Individual Entrepreneurs. Consultant Plus Information system.

The system of planning measures for state control (supervision), including state environmental supervision, provides the grounds for including a business entity into the inspection plan for the relevant period.

Due to the introduction of a risk-oriented approach in the organization of certain types of state control (supervision), one of the most pressing issues for all control and supervision bodies is the problem of duplication of a legal entity in inspection plans if the legal entity has several facilities, and these facilities belong to different risk categories[17].

In order to avoid duplication of inspections, the formation of inspection plans should be linked to the data of the State Register of Objects of Negative Impact, in which each object is assigned a certain risk category. This will ensure the transparency of formation of inspection plans by objects of negative impact, not by their owners. This approach will also eliminate the subjective factor in forming inspection plans. To avoid duplication of control and supervisory activities by various bodies in related areas, it is essential to improve cross-agency interaction in electronic form.

Remote technologies should be employed when carrying out scheduled inspections, engagement and interaction of control and supervisory bodies' participants and registration of state environmental supervision results except for cases of risk of harm to life, health of citizens, harm to objects of fauna or flora, other natural objects and the environment in general.

Procedures for the implementation of control and supervision measures must also undergo changes when using remote forms of control (supervision). This will be facilitated by a system of automatic control at Category One facilities, as well as the aforementioned remote control means of photo, audio and video recording and videoconferencing.

To carry out state environmental supervision in relation to objects of negative impact, it is required to improve the procedure and criteria for identification of the object of control in order to prevent double verification activities in relation to the same object.

Control and supervisory results and relevant orders should be accumulated in the state register in relation to the specific object of negative impact to ensure electronic interaction between the object of control (supervision) and the state control (supervision) body.

As for checklists, their content should be linked to the risk category and hazard class to which the object of state control (supervision) is assigned. Checklists are proposed to be placed on the Internet as a means of self-control of business entities which will allow them to assess the extent of compliance with the established mandatory requirements. It will also contribute to developing a program of eliminating

[17] The Prosecutor General's Office provides clarification on the inspection plans formation. Available at: https://news.ecoindustry.ru/2018/08/generalnaya-prokuratura/ [Accessed 02 February 2021].

violations of those requirements before the state environmental supervision body inspection.

It is advisable to place an electronic form checklist in the personal office of a natural resource user with the function allowing to record responses and transfer data to the supervisory authority for control (supervision). We need to establish a procedure for its transfer and recording in the registry and ensure its reliability and immutability. The issues of ensuring the legal force of such documents, fixing the procedure for changing the risk category (automatically or offline based on the registry data) and adjusting the observed environmental requirements along with the procedure for using the registry data as evidence in law enforcement practice (including in electronic form) when information comes vis control and supervision activities are also of prime importance.

Digitalization of payment administration for negative impact on the environment (payment for NIE)

According to Article 16 of the Federal Law on Environmental Protection, the fees are collected for the following types of negative impact on the environment:

— emissions of pollutants into the air by stationary sources,

— discharges of pollutants into water bodies,

— storage and disposal of production and consumption waste (waste disposal).

Administration of a payment suggests the following financial operations: control over the correctness of calculation, completeness and timeliness of payment, recovery and decisions on the return, crediting of overpaid sums in the established order (Kudinova, Zibarev, Rozenberg, 2011:282—286). The Rosprirodnadzor and its territorial bodies monitor the correctness of fee calculation and check payment declarations for NEI.

In accordance with Article 16.1 paragraph 2 of the Federal Law On Environmental Protection accounting of tax payers for negative impact on the environment is carried out by the State Register of Objects of Negative Impact on the Environment. The State Register, in addition to determining taxpayers for NEI, also runs the payment base for NEI[18], reflecting the volume of emissions and discharges of pollutants and the volume of disposed production and consumption waste. The access of individuals to the registry data in some cases may contribute to identifying objects of negative impact that have not passed the state registration. People concerned about negative impact should be able to check information about the

[18] The payment base is the volume or mass of emissions of pollutants, discharges of pollutants or the volume or mass of waste disposed in the reporting period (clause 9 of the Resolution of the Government of the Russian Federation No. 255 of 03.03.2017 "On Calculation and Collection of Payment for Negative Impact on the Environment").

polluter and in case of lack of registration apply to the supervisory authority electronically.

Digitalization and integration of all sources of information and data streams into a single information space, followed by automation of its analysis based on modern technologies for processing large amounts of data will increase the efficiency of administering environmental payments.

Corresponding software products are used to help users of natural resources to calculate payments for NEI. The Order of the Ministry of Natural Resources and Environment of the Russian Federation No. 3 of January 9, 2017 On Approval of the Procedure for Submitting a Declaration of payment for Negative Impact on the Environment and its Form establishes that payment declaration is generated by using electronic services, including those provided by the Federal Service for Supervision of Natural Resources and submitted through information and telecommunications networks including the Internet in the form of an electronic document signed by an electronic signature via the web portal for receiving reports of the Federal Service for Supervision of Natural Resources (Personal Account). Declaration submission in electronic form greatly simplifies the process of administering payment for NEI and contributes to their prompt processing.

In order to control correctness of tax calculation for NEI, coefficients application in tax calculation, crediting/non crediting of overpaid sums and determination of payment base should be automated.

Conclusion

Thus, we note that the process of digitalization covers a wide range of state environmental management functions. At present, the following state functions are most susceptible to digital transformation: information support in the field of environmental protection, state accounting in the field of environmental protection, regulation in the field of environmental protection (in terms of application of the best available technologies), state environmental supervision and fee collection for negative environmental impact. Information from the State Register of Objects of Negative Impact should become the basis for making environmentally significant decisions; it is also important to ensure the interoperability of data from the state register.

Digitalization of technological standardization is associated with such technologies as regulation of data turnover, experimental legal regimes and assessment of compliance of the applied technology with the criteria of the best available technology presented in the information and technical directories. Control and supervisory measures should involve inspections based on the volume of danger of the negatively impacting objects with the use of remote-control methods; checklists for self-inspection of enterprises must also be introduced. Digitalization of calculating and

collecting payments for NEI should ensure the smooth functioning of fee calculation in digital format by the payer and control over the correctness of calculation and collection by the supervisory authority. The general requirement to digitalization of environmental management is establishing responsibility for introducing incorrect data into information systems which may lead to incorrect, distorted information hindering environmentally significant decisions.

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