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Analysis of the Possibilities for Improving the Environmental Legislation of Kazakhstan

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ABSTRACT

The study describes the results of a study of environmental problems that limit socio-economic development in Kazakhstan. Changes in legislation, management decisions, and strengthening of control over compliance with environmental standards are proposed. The article examines the gaps in the legislative regulation of environmental safety and the policy at the national level. The recommendations outlined in the research will create conditions for ensuring a higher level of environmental protection, introduce a more effective system for the prevention and control of pollution and waste management, which will inevitably lead to a significant step-by-step improvement in the quality of the environment in the medium and long term, and as a result - to reduce the levels of morbidity and mortality, loss and decrease in the working capacity of the population caused by environmental pollution. Such positive social consequences will help reduce the losses in GDP associated with the above factors.

Keywords: environmental legislation; environmental safety; environmental management; environment.

RESUMO

O artigo descreve os resultados de um estudo de problemas ambientais que limitam o desenvolvimento socioeconômico no Cazaquistão. São propostas mudanças na legislação, decisões de gestão e fortalecimento do controle sobre o cumprimento das normas ambientais. O artigo examina as lacunas na regulamentação legislativa de segurança e política ambiental em nível nacional. As recomendações delineadas no artigo irão criar condições para assegurar um nível mais elevado de proteção ambiental, introduzir um sistema mais eficaz de prevenção e controle da poluição e gestão de resíduos, o que conduzirá inevitavelmente a uma melhoria significativa passo a passo da qualidade do meio ambiente a médio e longo prazo, e como resultado - reduzir os níveis de morbimortalidade, perda e diminuição da



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capacidade de trabalho da população devido à poluição ambiental. Essas consequências sociais positivas ajudarão a reduzir as perdas no PIB associadas aos fatores acima.

Palavras-chave: legislação ambiental; segurança ambiental; gestão ambiental; proteção ambiental.

1. Introduction

The Environmental Code of the Republic of Kazakhstan does not directly indicate the purpose of environmental legislation. It should be noted that until now, the state policy of Kazakhstan in the field of environmental protection has been focused on ensuring environmental safety, that is, the protection of natural systems, the vital interests of society, and the rights of the individual from threats arising from anthropogenic and natural impacts on the environment (which was, in particular, reflected in the Concept of Environmental Safety of Kazakhstan for 2004-2015, which has lost its force today). «Environmental safety, as a component of national security, is an indispensable condition for sustainable development and is the basis for the preservation of natural systems and the maintenance of appropriate environmental quality. The Kazakhstan political and legal mechanism for ensuring environmental security against the background of multilateral and dynamically evolving international institutions has not achieved any significant efficiency yet» (Koshkinbaeva et al. 2019).

Meanwhile, global trends pose new challenges for Kazakhstan and more strategic, long-term goals that go beyond ensuring only environmental safety and require creating conditions for the sustainable development of the country and society. In this regard, the main goal of Kazakhstan's environmental legislation should be to promote sustainable development of the country, including in the field of environmental protection, the transition to a "green" economy to ensure a healthy and favorable environment for today's living and future generations.

As for the sphere of regulation, then, in the broadest sense, environmental law is aimed at regulating social relations arising from the interaction of society and nature, first of all, the influence of human activity on the natural environment. Therefore, it includes as a direct "environmental" aspect - environmental protection ("environmental law"), the core of which is the prevention and control of pollution, and relations in the field of natural resources management ("natural resource" law). The fact that in most countries of the world environmental legislation is not codified, but is represented by a large number of separate laws in various areas of environmental and natural resource law determines the complex nature of this industry. Among European countries, the exceptions are countries such as France, Sweden, and Luxembourg (Boyer-Allirol & Barbu 2017), which have independent environmental codes, the coverage of regulated relations in which, at the same time, varies significantly. «With the proposed concept of sustainable development, being popularized in the late 1980s, environmental legislation in developed countries began to shift and has changed from focusing on pollution and treatment to prevention and a holistic approach to the whole process of management of natural resources development and utilization. Moreover, an accompanying shift has also been to focus on national legislation to address deals with the international common environmental issues through legislation. Today, legislation has become sophisticated and comprehensive, even with acknowledged limitations in applying it effectively. At the same time, environmental legislation in developing countries has also been improving step by step» (Mu et al. 2014).

Environmental legislation of the Republic of Kazakhstan is a complex branch of legislation. Based on the Constitution of the country, it is at the junction of public and private law and includes norms of various branches of law (civil, administrative, business, criminal, and others). Following the Constitution (paragraph 1 of Article 31), the state aims to protect the environment favorable to human life and health. Besides, according to paragraph 3 of Article 6 of the Constitution of Kazakhstan, the land and its subsoil, waters, flora, and fauna, and other natural resources are in state ownership. Thus, the state, on the one hand, ensures environmental protection, and, on the other hand, exercises the powers of the owner of natural resources (possession, use, and disposal under the law).

In Kazakhstan, with the adoption of the Environmental Code in 2007, the formal separation of the branches of environmental legislation (Environmental Code of the Republic of Kazakhstan; partially - the Law "On Specially Protected Natural Areas") and natural resources (Land Code; Water Code; Code "On Subsoil and Subsoil Use"; Forest Code; Law "On the Protection, Reproduction and Use of Wildlife") legislation. At the same time, relations in the field of natural resource management are significantly influenced by environmental standards. At the same time, it should be noted that the Environmental Code of the Republic of Kazakhstan, going



beyond the environmental function, regulates certain issues of natural resource management (concepts and types of natural resource use, the grounds for the emergence of the right of special nature use, and others), which is the subject of regulation of special, natural resource legislation, and existing the natural resource laws of Kazakhstan in some cases contain environmental requirements (that is, requirements for environmental protection), which can cause contradictions and inconsistencies between the natural resource and environmental legislation.

Legal analysis of the legislation also revealed the presence in the Environmental Code of reference norms that do not have any legal significance, there is a duplication of norms. Such and other shortcomings of the environmental legislation of Kazakhstan should be subjected to critical analysis and, if necessary, should be harmonized with each other, and individual norms should be removed (in case of duplication or loss of relevance) or transferred to the relevant law, while a clearer distinction should be made between the norms of environmental and natural resource law, provided that they are interconnected and interact.

There is a need to revise the terminology used in the system of environmental legislation, introduce new terms, for example, "polluter", "operator" or "person having an impact on the environment", as is customary in the legislation of developed foreign countries (EU, USA, other developed countries).

The system of regulation by subject composition requires a radical revision: the number of regulated entities should be optimized to improve the quality of control of those entities that make or may make the greatest contribution to the deterioration of the environmental situation in the country, and regulatory requirements for entities that have a minimal or insignificant impact on the environment should be reduced.

Principles of legal regulation in the field of environmental protection

The principles of legal regulation in the field of environmental protection are listed in Article 5 of the Environmental Code of the Republic of Kazakhstan, while:

- the content of such principles is not disclosed, which complicates the application and interpretation of environmental legislation;
- the principles are very extensive and do not always fully comply with the principles of international environmental law;
- some principles are not always observed in the norms of environmental legislation, which calls into question their fundamental nature (the principle of "harmonization of environmental legislation of the Republic of Kazakhstan with the principles and norms of international law" is rather a principle of state legislative policy in the field of environmental protection than a principle of legislation).

The wording of this principle can be finalized by developing the meaning of Article 8 of the Constitution of the Republic of Kazakhstan, according to which the Republic of Kazakhstan respects the principles and norms of international law, in particular, by proclaiming the undeniable influence of the generally recognized principles of international environmental law on the national environmental legislation of Kazakhstan and the need to take them into account in law enforcement);

- certain principles, in their essence, are not legal principles (for example, "state regulation in the field of environmental protection and state management in the field of use of natural resources", "interaction, coordination of activities of state bodies for environmental protection").

The principles of law should contain the fundamental ideas that determine the very essence and purpose of the rules of law and fill in the gaps in regulation. In this regard, the principles of environmental legislation should be critically revised, optimized, and filled with a more capacious, fundamental content, which will be deciphered in detail and will determine the further content and directions of legal regulation.

We believe that the fundamental principles should include, among other provisions:

the precautionary principle, according to which the lack of certainty should not be a reason for refusing or delaying the adoption of effective and proportionate measures aimed at preventing the risk of causing significant and irreversible damage to the environment;

the principle of prevention and control, under which it is required to prevent the formation of contaminants, primarily at the source and control and to the extent possible, eliminate the resulting pollution of the environment, for which is necessary to take all necessary



measures, including the use of best available technologies, methods, and techniques, taking into account technical, technological and socio-economic aspects, with the overall aim of achieving a high level of environmental protection as a whole;

the "polluter pays" principle;

the principle of integration, according to which, to achieve sustainable development of the state, environmental protection should be an integral part of such development and cannot be considered in isolation from it. «Environmental legislation requires a socio-ecological focus, bringing together all the pillars of sustainable development in a unified manner. There is real potential for resilience to become integrated into environmental law though with the assistance of additional policy» (Wright 2014).

the principle of participation and involvement of society, which requires that everyone has access to environmental information, including information on environmentally hazardous substances and activities, and according to which the public should be involved in decision-making processes related to the implementation of projects that have a significant impact on the environment, including in the planning of settlements, industrial facilities, roads, etc.);

the principle of the inevitability of responsibility for causing environmental damage, the completeness of compensation for environmental damage, according to which the person responsible for the caused environmental damage must eliminate or compensate it in full.

The consolidation of clear, concise, and understandable principles will contribute to the maximum harmonization of legal norms, clarity in law enforcement, and, most importantly, the achievement of long-term goals to ensure a favorable environment and sustainable development of the country and society.

The quality of the environment

In developed foreign countries, environmental norms, regulations, and standards are included in the system of environmental legislation and are supported by serious legal guarantees. These norms clearly define the natural objects and resources to be protected, permissible levels of impact and indicators of permissible technogenic oppression, list sanctions for violation of norms and regulations, methods of monitoring the implementation of environmental requirements. Such a regulatory framework is becoming an important tool of public administration in the field of environmental protection.

Despite the important reforms carried out within the framework of the Environmental Code of the Republic of Kazakhstan in 2007, the use of modern approaches in regulating the quality of the environment is extremely limited. In Kazakhstan, there is no system of proper environmental standards for environmental quality, so a set of sanitary and hygienic standards is mainly used.

Kazakhstan has not approved and officially does not have its own (national) and independent environmental standards regulating the levels of anthropogenic impact on nature and habitat, which form the basis of environmental regulation. The entire field of environmental regulation related to man-made environmental pollution is based on hygienic standards established for compliance with sanitary and hygienic requirements. However, sanitary and hygienic standards are focused exclusively on human health and do not take into account the conditions of preservation and stability of natural ecosystems. Permissible pollution for humans can lead to a violation of the physiological state of many species of plants, animals, and the entire ecosystem as a whole.

The existing approach to the legislative and regulatory framework in Kazakhstan causes the presence of an inadequately wide list of pollutants subject to environmental regulation and requires extremely low concentrations in the environment. In Kazakhstan, the number of regulated parameters (more than 1,000) significantly exceeds the number of equivalent parameters used in the EU countries. At the same time, a large number of regulated parameters and more stringent requirements for maximum concentrations in Kazakhstan do not guarantee the achievement of a higher environmental quality.

According to OECD experts, the excessive vastness and rigor of Kazakhstan's regulations is based on deliberately unrealistic assumptions and imposes requirements that, in many cases, cannot be achieved even with the use of the most advanced available techniques that ensure the lowest possible levels of emissions, or requires financial investments that are unaffordable for most industrial enterprises in the country. Also, in practice, the number of parameters that can be controlled remains small. Toxic pollutants are not fully covered in Kazakhstan's current monitoring programs, and laboratories are not always equipped to analyze controlled substances.



At the same time, substances subject to priority control for water resources in the EU countries in Kazakhstan are covered only by about one-third of the parameters (SC MNE rok 2019).

Taking into account the current environmental situation in Kazakhstan in many cities, the maximum permissible concentration of harmful substances, in fact, is, at best, the target indicators of environmental quality, to which it is necessary to strive.

Recognizing the importance of the existing system of maximum permissible concentrations of harmful substances as a necessary but important measure to curb the further growth of pollution, it should be recognized that there is a practical need to develop new approaches to environmental regulation and rationing.

Approaches to environmental quality standards should be reviewed in the light of international experience and set at reasonable and realistic levels, that is, striking a balance between what is desirable from an environmental point of view and what is feasible from a technical and economic point of view. A clearer distinction should be made between environmental quality standards and standards for permissible environmental impact (including the cumulative impact within specific territories, zones).

It is necessary to lay down rules on the gradual transition from sanitary and hygienic standards to environmental standards adopted and used in the EU and OECD countries (for example, the EU Directive 2013/39/EU on priority substances in the field of water policy, the EU Directive 2008/59/EU "On atmospheric air quality and Cleaner air for Europe", the Protocol on Heavy Metals, the Gothenburg Protocol to the Convention on Long-range Transboundary Air Pollution, etc.). At the same time, taking into account the need to gradually improve the quality of the environment (by achieving the target parameters) and the development of green technologies, the possibility of gradually introducing new standards with more stringent requirements in the future should not be excluded, to the extent that this is justified from a technical, technological, environmental and economic point of view. This approach will make it possible to set specific medium- and long-term tasks for enterprises to reduce emissions and improve environmental efficiency and purposefully manage these processes.

Environmental control and enforcement

Enforcement measures should be based on a strong regulatory framework and achieve several goals, the main of which is to return the violator to environmental compliance. In general, an effective enforcement regime should provide for the flexible application of a wide range of proportionate penalties, allowing the authorities to respond according to the specific case and nature of the violation.

The hierarchy of enforcement measures is often depicted as a so-called "enforcement pyramid", which implies that regulatory authorities are willing to toughen penalties when soft measures to eliminate violations do not lead to environmental compliance and that the penalties at the top of the enforcement pyramid are sufficiently serious and effective to prevent possible violations.

To translate this theory into practice, Kazakhstan at the top of the enforcement pyramid provides sufficient punishment as a harsh deterrent to repeat violations. For example, environmental crimes are punishable by various sanctions, including imprisonment for up to 8 years, and ecocide for up to 15 years. At the same time, the "enforcement pyramid" method requires further development since there is insufficient understanding of the need to take less stringent measures at the base of the pyramid.

In contrast to the OECD countries, where non-reprisal measures are usually taken first to eliminate an administrative offense, in Kazakhstan, administrative fines are a legal instrument at the bottom of the pyramid of administrative law enforcement. A negative factor is that the activities of regulatory authorities are assessed by the number of fines imposed, which creates false incentives for environmental inspectors to issue fines in majority of cases (OECD 2017).

Many effective alternative legal instruments of influence used in the OECD countries are not used in Kazakhstan. As international practice shows, non-reprisal measures give the offender a sufficient opportunity to eliminate the violation without loss of tangible and intangible assets, while ensuring a more favorable state of the environment. Such measures are quite effective in countries such as Finland, Japan, the Netherlands, the United Kingdom, and others. For example, in Japan, the main purpose of administrative action is not to impose fines, but to direct the operator towards compliance with environmental requirements, about which they are given specific instructions for execution. Tougher enforcement measures (including fines) are only taken in cases of significant or repeated violations (OECD 2019).



The lack of preventive responses in the law enforcement system in Kazakhstan does not allow us to assess the effectiveness/sufficiency of the use of harsher penalties. Theoretically, the deterrent effect of the latter can be judged by the probability of correcting violations with the help of soft measures that form the base of the pyramid of law enforcement.

There is a demand for the introduction of provisions aimed at improving the environmental control system by introducing alternative measures of influence (as opposed to using only monetary penalties), including the use, where appropriate, of preventive enforcement measures (for example, a warning, including oral, etc.) in the event of violations.

The existence of strict penalties for violations of environmental legislation is insignificant to ensure a high level of environmental protection if there is no mechanism for timely and effective detection of environmental non-compliance.

The legislation of Kazakhstan imposes several requirements and restrictions on the system of inspection inspections (a long period between scheduled inspections, the need for prior approval and registration, early notification of the subject of control about the inspection), which reduce the likelihood of detecting violations. "For environmental legislation to 'work', it must not only be well designed but also efficiently and effectively enforced. Strategies must be developed as to how inspectors should go about the task of intervening in the affairs of regulated organizations to ensure compliance and enforcement" (Gunningham 2011).

According to the recommendations of the OECD experts, in addition to inspections carried out by the state, the status of environmental compliance can be verified by monitoring the environment near the site, the results of the operator's industrial environmental control program, inspections of the production process chain, independent audit, and public monitoring. Inspections carried out by public authorities remain the basis of all environmental control systems. At the same time, a simple visit to the site, but without the application of administrative measures, in some cases can have a greater effect on the level of environmental compliance than penalties (OECD 2017).

However, this form of control and supervision does not fully meet the goal of ensuring a high level of environmental protection. Preventive control and supervision with a visit to the subject (object) of control and supervision in the field of environmental protection can be initiated only by the results of an unscheduled inspection (in compliance with all relevant requirements and with the application of all relevant consequences, including administrative sanctions). Verification when individuals and legal entities address specific facts about causing harm, including the environment, refers to unscheduled inspections, and not to preventive control and supervision with a visit to the subject (object) of control and supervision.

The introduction of provisions on such a form of state monitoring of environmental compliance as "site visits" is in demand. It is necessary to allow environmental inspectors to visit Category I facilities suddenly (without a complex registration and warning mechanism) when receiving a message from public associations in the field of environmental protection (public environmental control), with the possibility of short-term finding and monitoring production processes in order to determine their environmental compliance or, in case of non-compliance, warning the enterprise about them and providing recommendations for their elimination.

Thus, the state inspector performs the function of an auditor who helps to identify nonconformities and is limited only to notifying the subject (orally or in writing) of an existing or potential nonconformity, without initiating administrative proceedings, issuing an order to eliminate violations and without applying rapid response measures, any administrative, law-limiting or other coercive measures. In case of detection of an obvious fact of causing damage to the environment, an unscheduled inspection should be scheduled by the grounds and procedure established in the legislation. Such a system will increase the probability of detecting environmental inconsistencies and ensure transparency of enterprises' activities.

In Kazakhstan, the participation of NGOs and public in detecting non-compliance with environmental requirements and in law enforcement is very episodic. Most often, NGOs use their right to signal to authorized state bodies about non-compliance by enterprises with environmental requirements. There is a demand for elaboration and consolidation of provisions on increasing the role of public organizations and the public in the field of environmental control and law enforcement, strengthening the norms on public control. «Deficits in the promulgation and implementation of environmental legislation and citizen participation have been and will continue to be a major impediment to environmental protection and natural resource conservation and management in most developing countries. What is required is the enactment of effective environmental legislation that encompasses environmental standards, management objectives, and priorities in a contextual domestic and global environment as well as a development framework, with domestic law



development in respect of liability and compensation for environmental perturbations caused to individuals. Extensive measures coupled with a legal stance may be the option for the facilitation of effective citizen participation to equilibrate the prevailing elite domination of questions pertaining to technical policy making» (Chukwuma 1996). Moreover, studies show that corruption, poor enforcement, and the muzzling of civil society render the state incapable of resolving arguably its most significant environmental challenge: illegal and unregulated resource use (Newell & Henry 2016).

Social impact tools and analytical framework for violations

For environmental enforcement to be effective and efficient, it must be based on a solid analytical framework. In addition, the principles of transparency, accountability, and public access to information must be applied in practice to ensure that penalties are fair.

In addition to the tools of state influence, in OECD countries, great importance is given to the social impact on the violator, which provides for mandatory publication of the results of inspections, which ensures better compliance with environmental requirements by control subjects, in order to avoid the risk of public pressure and loss of business reputation (Winter & May 2001; Short & Toffel 2008; Delmas & Toffel 2004).

A particularly good example of a system for making such information public is the Online Enforcement and Compliance History website in the United States (hereinafter referred to as "ECHO"). This website provides information on environmental compliance and regulatory activities for approximately 800,000 regulated entities across the country. It allows users to find information about authorizations, inspections, violations, enforcement actions, unofficial enforcement actions, and penalties over the past five years. Because of ECHO, the public can monitor environmental compliance at the local level, corporations can monitor compliance by their own enterprises, and it is easier for investors to take environmental activities into account in their decisions. Besides, it is important to note that public authorities in the United States may require companies to publish information on enforcement in the media at their own expense, which reduces the burden on public authorities (Bergeson 2003).

As recommended by the OECD experts, Kazakhstan should pay more attention to the problem of asymmetry of information available to users. The various bodies should strive to create a single, consistent set of indicators that are monitored with appropriate frequency and statistical reliability. They should prepare and submit periodic summary reports (including activity reviews) on inspection and supervisory activities. Reports should include data on ensuring compliance with the law by law enforcement agencies (courts, environmental prosecutor's office, and environmental police). Regular reviews of environmental enforcement should be carried out, particularly the careful consideration of the deterrent effect of various penalties (OECD 2016).

Environmental control data are collected regularly in Kazakhstan, although the information collected is not sufficiently adapted to the needs of strategic planning and is not made public to the extent necessary to ensure that the public exerts pressure on violators. Also, the principle of confidentiality of information on inspection activities enshrined in the Environmental Code applies to all information on cases of law enforcement, and not only to information on forensic examinations and information on criminal cases.

It is reasonable to review the provisions on the confidentiality of information on inspection activities to ensure the availability of information necessary to increase public participation in accordance with the Aarhus Convention. In this connection, it is possible to introduce the possibility for the court to impose on the violator the obligation to publish at its own expense in the media information about the penalties imposed on it and the measures taken/planned to eliminate environmental violations. It is appropriate introduction of the practice of regular publication of the relevant state bodies of analytical reports on the level and changes in the level of environmental compliance.

Environmental responsibility

Despite the introduction of important legislative changes, environmental liability for environmental damage in Kazakhstan remains focused on calculating and collecting monetary compensation, rather than on preventing and repairing damage, reducing emissions over time, and encouraging the use of the best available technologies.

The Environmental Code does not provide for the priority of eliminating damage before its monetary compensation. Moreover, the law explicitly provides that compensation for harm in kind is allowed only with the "consent of the parties by a court decision". As



a result, the financial compensation applied in Kazakhstan remains an ineffective tool from an environmental point of view, since it does not perform an environmental or nature-preserving function because in most cases the consequences of damage caused to the environment are not eliminated and the money is simply "dissolved" in the state budget. In such a situation, a more effective, from an environmental point of view, and a more cost-effective way would be to oblige the subjects of control to finance the restoration of the environment under the control of the state.

In the environmental legislation of Kazakhstan at present, there is the concept that binds the responsibility of the perpetrator for the sole fact of exceeding limits/standards, without requiring proof as the fact and amount of damage to the environment and causal relationships between actions and consequences.

Economic assessment of environmental damage can formally be carried out by direct or indirect methods, depending on whether it is possible to eliminate the damage caused by environmental restoration measures. The Environmental Code establishes the priority of the direct method of assessing environmental damage over the indirect method, based on the fact that the indirect method is used in cases where the direct method of economic assessment of damage cannot be applied. However, as law enforcement practice shows, the priority of the direct method is declarative. In most cases, the authorized state body is forced to use an indirect method of assessing environmental damage (in particular, in the case of exceeding emissions and discharges). The correctness of such calculations is often challenged in court because the calculation methods are not reliable enough.

The liability for environmental damage provided for in most advanced countries (EU, USA) is compensatory (i.e., aimed at eliminating the damage caused), and not punitive in nature (Martin-Ortega et al. 2011; Zaredar & Zarkesh 2012). In this regard, losses are calculated based on actual damage to restore the state that existed before the violation; the effect of penalties is limited and subject to the principles of reasonableness and proportionality, and the amounts of compensation received can only be used for the restoration or replacement of a damaged natural resource. Methods for calculating environmental damage require taking into account the actual and expected consequences of restoration measures, the ability of the ecosystem to restore itself. The key characteristic of the calculation mechanism is its concrete, not abstract nature: the amount of damage to be compensated is calculated based on the plan for the restoration or replacement of this particular damaged natural resource. In EU countries, legislation prescribes that the pollutant must be identified, the damage must be specific and quantifiable, and a causal relationship between the damage and the pollutant must be found (Lindhout & Van den Broek 2014).

In this regard, the norms on environmental responsibility should be revised in strict accordance with the principles of "polluter pays" and the inevitability of liability for violation of environmental legislation. There should be a strict "polluter pays" model based on the proven fact and amount of damage to the environment, establishing a causal relationship between the actions of the polluter and the resulting negative consequences for the environment, as well as the use of only a direct method of assessing the damage in each case. The absence of an environmental permit should not be the basis for making claims for compensation for environmental damage, since instead only administrative liability should be provided. At the same time, the necessary provisions should be introduced to ensure the inevitability of environmental responsibility.

Environmental monitoring

World experience shows that the first step in solving environmental problems is to obtain objective information about the state of the environment. The only possible way to obtain such information is monitoring, that is, a system of observations, assessment, and forecast of the state of the natural environment. In the EU, the main purpose of environmental monitoring is to assess progress made because of set environmental goals, as well as to identify new environmental problems. The results are fundamental to environmental management in general, as the development and prioritization of environmental policies are based on the results of environmental monitoring (Lovett et al. 2007).

According to the Environmental Code of the Republic of Kazakhstan, state environmental monitoring (monitoring of the environment and natural resources) is a comprehensive system of monitoring the state of the environment and natural resources, including using remote sensing data from space, to assess, predict and control changes in their state under the influence of natural and anthropogenic factors. The objects of state environmental monitoring are atmospheric air, land, surface and underground waters,



subsurface resources, flora, and fauna, as well as the climate and ozone layer of the Earth, ecological systems, and factors of environmental impact on public health.

The Environmental Code provides for the formation of a Unified State System for Monitoring the Environment and Natural Resources (USSMENR), which is defined as a "multi-purpose information system", which is an incorrect definition, since the USSMENR includes, in addition to a single information system, also relevant monitoring entities, infrastructure, and monitoring tools. Thus, a single information system USSMENR, conditions the creation of which are established by Article 139 of the Environmental Code of the Republic of Kazakhstan, shall constitute a separate component USSMENR, be it information and communication platform, used for collecting, storing, keeping, processing and storage of results of environmental monitoring on the common methodological basis.

Environmental and natural resource monitoring data is currently collected and processed by a large number of authorized bodies and organizations on their own information resources, which are often not integrated. To improve the efficiency of the organization of state environmental monitoring and analysis of the collected information, it is necessary to accumulate the necessary environmental data on a single information resource (a single national database (bank) of environmental monitoring data) that meets modern requirements in the field of information and telecommunications technologies, ensuring openness for information interaction, including integration with existing and created information systems, and security taking into account the requirements of information security.

In this regard, it is proposed to:

correct and clarify the corresponding conceptual framework;

adjust the list of monitoring objects taking into account the types of monitoring currently available in Kazakhstan;

provide a legal basis for the formation and to establish the necessary norms and mechanisms for the creation and effective functioning of a unified information system USSMENR and developing a national database for environmental monitoring and natural resources, including through the integration of information systems of the competent authorities for all existing types of state monitoring of the environment and natural resources into a single functional system, to update the list of data on the state of the environment and natural resources, clearly define the necessary competence and mechanisms of interaction of all authorized state bodies and other interested persons to create and operate a single information system;

formulate the principles of information disclosure, information exchange by participants within the unified information system of the Unified State Educational Standard on a gratuitous basis; ensure the openness and accessibility of the obtained results of environmental monitoring.

Environmental information and public access to environmental information

It is necessary to continue work on improving the norms of environmental legislation related to the collection, storage, processing, systematization, analysis, scientific research, and provision of environmental information, as well as ensuring public access to it. Kazakhstan has ratified by Law No. 92-II of 23.10.2000 the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention). The Convention recognizes the rights of the public to access information, participation in decision-making processes, access to justice in environmental matters, and imposes obligations on States Parties to ensure them. The convention links environmental protection with human rights standards.

The Aarhus Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters represents a major new departure in international environmental law. For the first time, the vital contribution of individual citizens and NGOs in environmental decision-making is given legal recognition. The Convention defines new rights in three areas. It creates specific and detailed rights of freedom of access to a wide range of environmental information held by national, regional, and local levels of government. Linked to this it requires States to take the initiative in publishing and disseminating information about the state of the environment. Secondly, it requires states to notify the public of proposals for environmental projects and programs, to allow sufficient time for meaningful consultation, and to take the views of the public into account in any decision-making process. Thirdly, these procedural rights are to be made legally enforceable - without excessive costs - through national courts or independent and impartial bodies (Harrison 2000).



According to the Environmental Code, the State Fund for Environmental Information (SFEI) is maintained to provide state bodies, individuals, and legal entities with reliable information about the state of the environment and its objects, environmental impact factors, measures taken to protect it, prevent and reduce environmental pollution, and the use of natural resources. The management of the SFEI is carried out by a subordinate organization of the authorized body in the field of environmental protection and includes measures for the collection, storage, processing, analysis, scientific research, provision, dissemination of environmental information, education of the population and nature users on environmental protection and the use of natural resources.

It is necessary to introduce into legislation norms and mechanisms for the formation and operation of a single database of environmental information (using modern digital technologies) in the following thematic areas: air pollution, air quality and ozone depletion, climate change, water resources, biological diversity, land resources and soil, energy, waste, including waste generation and hazardous waste management.

Besides, it is necessary, taking into account the best international practice of implementing the principles of "circular" economy in the field of waste management, to expand the list of the required information on collection (including separate), transportation, disposal, and recycling of waste. To implement the above approaches, you need to define the necessary expertise and clear mechanisms of interaction of the authorized state bodies and other stakeholders to promote and support a unified information system SFEI. Work is needed to harmonize the provisions on public access to environmental information with the requirements of the Aarhus Convention and other international obligations of Kazakhstan.

Over the years of independence, Kazakhstan has become a party to a significant number of international treaties in the field of environmental protection. There is a demand for updating and supplementing environmental standards to harmonize them with all the country's international obligations on environmental protection. Results suggest a positive relationship between domestic environmental legislation with both international environmental agreements and preferential trade agreements (PTAs) with environmental provisions. This link is more robust for PTAs, mostly present in developing countries, more pronounced before rather than after the treaties' entry into force, and shows significant variation depending on the issue area (Brandt et al. 2019).

Conclusion

Summarizing the results of this review, the following main conclusions can be formulated.

The environmental legislation of Kazakhstan does not clearly define the purpose of regulating public relations in the field of environmental protection, and the principles of legal regulation are not disclosed. The principles listed in Article 5 of the Environmental Code do not fully comply with the principles of international environmental law.

Kazakhstan has not approved and officially does not have its own (national) and independent environmental standards regulating the levels of anthropogenic impact on nature and habitat, which form the basis of environmental regulation. Environmental legislation requires updating and improvement in order to harmonize it with all international obligations of the country on environmental issues.

The main objectives of improving the legislation should be to establish a clear, transparent, non-discriminatory, effective, and stable regulation of relations in the field of environmental protection in order to ensure a favorable environment for the population and create conditions for sustainable development of Kazakhstan, as well as to approach the standards of environmental regulation of the OECD countries. In particular, the introduction of new legal institutions that are successfully implemented in practice in the OECD countries (environmental assessment, strategic environmental assessment, integrated pollution prevention and control system and integrated environmental permits, waste management hierarchy, etc.), creation of an effective system of economic regulation and incentive mechanisms, improvement of the system of environmental monitoring, environmental control and law enforcement, resolution of problematic issues related to waste management, environmental responsibility, historical pollution, full implementation of the ecosystem approach, a higher level of ensuring the rights of the public to access environmental information and participate in decision-making on environmental issues, development of the system of environmental audit and environmental insurance, optimization and updating of legislative regulation of relations related to greenhouse gas emissions, ozone-depleting substances, defining the national legal framework for implementing the provisions of the Paris Agreement on Adaptation to Climate Change, as well as minimizing legislative contradictions and gaps, harmonizing norms with Kazakhstan's international obligations.



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