Environmental monitoring as a method of counteracting environmental risks in the context of sustainable development

E V Provodina
Saratov State Law Academy, 1, Volskaya street, Saratov, 410056, Russia
E-mail: lysenko-elena12@yandex.ru

Abstract. The problem of assessing environmental risks in science is covered from various angles. Its versatility is due to the intensive development of modern society and, in particular, the growth of industrial production and large-scale mining. In view of this, mechanisms that provide for forecasting and risk assessment have a significant advantage, which is characteristic of environmental monitoring. At the same time, the interrelationship of social processes, taken as its subject, the central element of which is a person, forces us to rethink the content of ecological mechanisms for environmental protection. Mechanisms for countering environmental risks should include not only technical procedures and mathematical calculations, which are widely applicable in risk assessment in the event of insurmountable natural events, for example, but also risks that can give rise to a wide range of negative consequences if natural resources are not properly treated. Taking into account the identified needs, elements of environmental monitoring were presented, forming a mechanism aimed at predicting and assessing environmental risks, which corresponds to the stated goal of the study.

1. Introduction
In the conditions of intensive development of modern society, risks are an integral part of it, which makes them the main subject of research in a wide range of scientific areas. Environmental risks are a separate type of this social phenomenon. Mechanisms counteracting them are being developed by scientists at various levels. For example, the impact of environmental risks on banking or financial activities is studied separately [1]. In a given context, risks are differentiated into transition risk, physical risk, liability risk, legal risk and reputational risk [2]. This problem is of particular concern in the framework of investment lending [3].

The problem of assessing environmental risks is being updated due to the growth of industrial production and large-scale mining [4]. The rapid development of technologies and their introduction into almost all spheres of public and industrial life requires an assessment of the potential risk to the environment and human health [5].

In addition, the five biggest risks that are most likely to occur in the next ten years are environmental risks [6].

The assessment of the consequences of the risks of natural hazards, such as hurricanes and floods, deserves special attention [7]. In such situations, risks are counteracted by various methods, in particular, a disaster risk reduction method is proposed, including the development of a disaster risk index at a different level of the risk assessment scale. Risk and vulnerability assessment, including institutional capacity assessment, is also one of the disaster risk strategies [8].

The term "risk" is used to describe the possibility of losing something of value and the likelihood of a threat of harm to life, injury and other negative consequences [8], as well as harm to other...
significant protected objects, for example, the atmosphere, water resources, etc. In the face of emerging risks, the atmosphere needs not only modern technologies to ensure its prosperity, but also intensive methods of protection [9], including their forecasting. As well as, environmental mechanisms to combat water pollution as an element of the environment, represented by its main areas: scientific and technical, state control, legal regulation [10] should be based on a timely risk assessment. The main task is to determine the effectiveness of the selected methods of influence in the formation of the stability of the developed model [11].

Considering that it is strategically important to develop key provisions for countering threats [12], the implementation of the listed protection methods, in the face of increasing risks, gives undeniable significance to the method of environmental forecasting.

Environmental forecasting by applying mathematical methods to calculate the probability of events associated with various changes in the anthropogenic impact on the environment, under conditions of intense anthropogenic impact on it, associated with a high level of technology development and more active human intervention in natural processes, predetermined the creation of a monitoring system for the state of the environment in order to monitor, predict and manage this state [13]. And, in this sense, the main goal of environmental monitoring is to prevent critical situations that are harmful or dangerous to human health, the well-being of other living beings, their communities, natural and man-made objects [13], which corresponds to modern methods of counteracting emerging risks.

Environmental monitoring is associated with a comprehensive system for monitoring the state of the environment, including the assessment and forecasting of environmental changes under the influence of natural and anthropogenic factors [14] fauna, as well as the Earth's climate and the ozone layer, ecological systems and environmental factors affecting the health of the population [15].

It seems that environmental monitoring as a method of counteracting the threat of the realization of socially dangerous consequences meets the conditions contained in the risk concept presented by the United Nations [16] for determining risk, which includes two main components: danger and vulnerability when calculating risk, where "coping capacity is one of the subcomponents in the vulnerability component" [8].

Environmental monitoring is an important part of environmental protection work [17].

The subject of environmental monitoring in general terms is a set of economic, environmental and social processes that significantly affect the health of the population, employment, migration and demographic situation, determine the standard of living of the population, environmental awareness, etc. [18]. Given that the subject of these interrelated processes is a person who actively implements a certain policy and determines the vector of development [18], it is necessary to single out the object of its impact as another significant element of the environmental monitoring mechanism. At the same time, it should be based on the fact that "the object of prevention is relations in the form of needs formed by the consciousness and will of an individual from external factors, specified by a certain social result achieved by the commission of a socially dangerous offense (intentional socially dangerous attacks) or by behavior that directly generates socially dangerous consequences (careless socially dangerous encroachments)" [19]. This means that the object of preventive action in the implementation of environmental prevention, carried out through environmental monitoring, is the relationship for the implementation of environmental safety, in the form of needs formed by the consciousness and will of an individual from external factors, specified by a certain social result achieved by the commission of a socially dangerous offense (intentional socially dangerous attacks) or by behavior that directly gives rise to socially dangerous consequences (careless socially dangerous encroachments).

The need for such an approach when designing risk countermeasures is justified by the quality of the actual relationships that have developed in practice; when insufficient training of monitoring staff and irresponsible attitude affect the quality of atmospheric environmental monitoring [17].

Environmental monitoring, as one of the types of law enforcement monitoring, is "... a set of methods and methods, rules and techniques for using the means of planning monitoring activities, obtaining the necessary information, fixing it, summarizing, analyzing and evaluating, formalizing and publishing, as well as implementing its results . At the same time, the introduction of law enforcement
monitoring technology is aimed not only at identifying defects in the rules of law for the purpose of their regulatory adjustment, but also at finding features of the implementation of certain groups of rules of law in order to increase the efficiency of their application” [20]. The content of the listed elements of the preventive impact, carried out through environmental monitoring, makes it possible to form a mechanism for environmental monitoring aimed at identifying the most vulnerable processes and defective relationships that create risks of socially dangerous consequences.

2. Materials and methods
The object of the study is environmental monitoring as a method of counteracting environmental risks. The main purpose of the study is to study environmental monitoring and form on its basis a mechanism for counteracting environmental risks in the context of sustainable development. To achieve this goal, the following tasks were formulated:

- Specify the tasks of environmental monitoring in the legal counteraction to environmental risks;
- Identify elements of the environmental monitoring mechanism as a method of countering environmental risks in the context of sustainable development;
- Identify the problems of legal support of the method of environmental monitoring in the context of sustainable development.

The main methods that made it possible to obtain the results presented in this work were the methods of dialectics. The combination of methods of analysis and synthesis, induction and deduction, analogy, generalization and systematization, contributed to the achievement of the goal of the study and the implementation of the stated tasks.

3. Results
Since environmental risks, as a threat of causing harm to protected natural objects, are an integral part of the development of modern civilization, environmental monitoring, including their assessment and forecasting - the basis for adequate practical counteraction to them, is one of the most popular ways to prevent the risks of threats to environmental protection and provides a solution to the following main tasks in this area:

- Allows for the assessment and forecasting of environmental risks under the influence of natural and anthropogenic factors;
- Identify facts of violations in the implementation of relations on environmental safety and environmental protection, creating the risk of socially dangerous consequences and causing harm to humans and protected natural benefits;
- Identify persons who violate the requirements for ensuring environmental safety and environmental protection, whose improper professional activity creates a risk of harm to humans and protected natural benefits.

The systemic implementation of the above tasks makes it possible to form a mechanism for environmental monitoring as an independent method of preventive impact in the face of environmental risks caused by anthropogenic impact and its elements:

- The subject of environmental monitoring is a set of economic, environmental and social processes, in their most vulnerable part, creating a threat (risks) of the onset of adverse (socially dangerous) consequences of various levels for public health, employment, migration and demographic situation, as well as protected natural objects, due to interrelations of human social activity;
The object in the implementation of environmental monitoring, are relations for the implementation of environmental safety, in the form of needs formed by the consciousness and will of an individual from external factors, specified by a certain social result, achieved by committing a socially dangerous attack (intentional socially dangerous attacks) or behavior that directly generates socially dangerous consequences (careless socially dangerous encroachments);

The content of this mechanism is the relationship that ensures environmental safety and environmental protection through the application of a set of established methods, methods, rules and techniques for using the means of planning monitoring activities, obtaining the necessary information, fixing it, summarizing, analyzing and evaluating, forecasting, formalizing and publishing, as well as the implementation of its results

Subjects – participants of relations ensuring environmental protection and ecological safety.

The proposed model of the environmental monitoring mechanism can be applied in differentiated areas, depending on the implementation of a specific type of preventive impact. is able to function under conditions of strict legal regulation, clearly defining the status, rights and obligations of the subjects of relations aimed at protecting the environment, as well as in the presence of measures to ensure their implementation.

4. Discussion
The principles formulated in science indicate as one of the priorities that "The basis of the formation of the system of targets and the indices that describe them are laws, regulations, government programs, as well as instructional and teaching materials in the directions of reforming"[20].

At the same time, recognized in theory, the legal significance remains not fully implemented in practice: "... in the framework of the implementation of state environmental monitoring, officials who carry it out do not have the authority to bring to legal responsibility" [21]. "... For more effective environmental protection, it is necessary to provide legal grounds for officials involved in environmental monitoring to bring offenders to legal responsibility” [22]. All the harmfulness of the current situation must be comprehended in terms of the significance of environmental monitoring not only as a system of monitoring the state of crime prevention, but "... also assessing the effectiveness of crime prevention subjects" [22]. And in this part, the highlighted lack of legislative regulation of prevention carried out by these entities makes the violations identified by them the basis for unscheduled inspections [21], and not the means of direct response aimed at eliminating further causes and conditions of environmental offenses. The absence of federal legislation regulating the powers of entities exercising environmental preventive impact should be recognized as a gap in legal regulation, not only in the implementation of provisions on ensuring environmental safety and environmental protection (clause 13, part 1, article 6 of Federal Law No. 182) [23] through monitoring (clause 10, part 2, article 6 of the Federal Law No. 182), but also as part of the implementation of the provisions of part 2 of article 3 of the Federal Law No. 182, which provides for the regulation of the features of crime prevention in certain areas of public relations by the relevant federal laws.

Prevention of offenses in the field of environmental safety and environmental protection (clause 13, part 1, article 6 No. 182-FZ “On the basics of the crime prevention system in the Russian Federation”) carried out through monitoring in the field of crime prevention (clause 10, part 2 6, No. 182-FZ), requires the adoption of the Federal Law “On Environmental Monitoring”, which, among other things, provides for empowering the entities that carry it out with the authority to bring offenders to legal liability.

5. Conclusion
The practice of applying a wide range of mechanisms aimed at protecting the environment in nature management indicates the need for their modernization, taking into account the danger of emerging risks. However, technical forecasting and environmental assessment are not always able to resolve the
difficulties that arise. An analysis of the problems existing in this area revealed an acute lack of legal regulation in the implementation of environmental monitoring. The absence of the necessary legal framework regulating the activities of entities exercising control over compliance with established standards in the use of natural resources, the absence of a single legal act fixing the basic concepts and principles of crime prevention in the field of environmental protection in the Russian Federation, carried out through environmental monitoring, artificially hinder activities to ensure environmental safety and environmental protection, do not allow to fully implement activities to counteract environmental risks.

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