

Technologies and Main Modern Economic and Legal Aspects of the Formation of State Control Systems (Supervision) Over the Use of Natural Resources

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Abstract: *The article aims to systemize the economic and legal aspects of forming a modern state system of control (supervision) of the natural resources use. Analysis of the approaches applied in theory and practice for monitoring (supervision) of the use of natural resources has revealed that the development of a comprehensive methodology for the assessment of natural resources, including the comparison (analogy), regulatory and balance methods, as well as simulation procedures, would be the most viable option. The regulatory method allows defining the amount of component capital of national resources estimated for all the fields to be monitored (supervised). It has been found that the elimination of duplication in the work of inspection authorities, focused on environment protection, management and safety control, requires determination of a comprehensive list of public authorities charged with environmental control, their power and mechanism ensuring inter-departmental cooperation. All these measures would help to eliminate the problem of excessive state supervision when managerial and regulating functions along with the approval and control ones are concentrated in the hands of one public authority. It has been proved that the strategy on environmental security should be developed and may include the main threats to environmental safety, the principal guidelines of the national policy for environmental safety control and crucial priorities for the development of national policy in this area.*

Keywords: *control, supervision, ecological security, national policy, natural resources, development, strategy, ecology.*

I. INTRODUCTION

Stable development of the Russian Federation, high living and health standards and national security can be achieved only based on the protection of natural systems and adequate environmental quality. This requires development and consistent implementation of the unified environmental state policy focusing on environmental protection and sound environmental management. Meanwhile, implementation of

environmental protection, sustainable environmental management and environmental security contributes to effective and successful state ecological control. Ecological control as a legal form of environmental activity is a system of measures aimed to ensure compliance with environmental legislation and government action, as well as the establishment of a legal system relevant to the developments in the field. It operates as a vital function of state regulation. Furthermore, ecological control is exercised through federal and regional executive authorities within their competencies in accordance with the legislation of the Russian Federation and in the manner established by the Government of the Russian Federation. However, the Government of the Russian Federation established the rules for organization and performance only of some types of state ecological control, while other forms are yet to be approved.

II. LITERATURE REVIEW

Study of monitoring (supervision) of the use of natural resources was reflected in the works by Y.V. Arbatskaya [1], T.K. Arsamakova [2], S. Zhibankov [3], I.K. Epifanov [4], A.Y. Ryzhenkov [5], L.V. Chkhutiashvili [6], etc. Review of the literature concerning the research subject brings up the contradictions proving the importance of justifying the economic and legal aspects for the development of a modern state system of monitoring (supervision) of the natural resources use.

Researchers [7-9] noted that monitoring is widely used by the government and results in a variety of forms and tools of its implementation. The significance of monitoring is determined by the fact that it allows identifying different deviations and their reasons, generate organizational prerequisites for further elimination of these nonconformities. Monitoring is considered as a means for the achievement of performance targets, as a behavior and management principle.

At the same time, monitoring in the field of environmental protection (ecological control) is a system of measures directed towards prevention, identification and restraint of environmental law violation, enforcement of the requirements, including regulations and regulatory documents for the environmental protection, by economic and other entities.

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III. PROPOSED METHODOLOGY

A. General description

Analysis of the approaches applied in theory and practice for control (supervision) of the natural resources use revealed that the development of a comprehensive methodology for the assessment of natural resources, including comparison (analogy), regulatory and balance methods, as well as simulation procedures, would be the most viable option. The regulatory method allows defining the amount of component capital of national resources estimated for all the fields to be monitored (supervised).

The comparison method is based on the measurement of natural resources efficiency by its value in the main region. The regulatory method considers natural resources efficiency in relation to the amount of regional natural resources and the structure of regional environmental balance and survey data. Information background of the article includes statistical data of public authorities, research findings, legislative and

regulatory documents for the regulation of monitoring (supervision) of the natural resources use [10-12].

B. Procedure

The research process provides for systematization of economic and legal aspects to develop a modern state system of monitoring (supervision) of the natural resources use, elaborates measures on coordination between the main entities involved in monitoring (supervision) over the natural resources use that ensures environmental stability and justifies the requirement for efficient use of ecological potential in terms of economic relations development.

C. Process flow chart

The research is based on the following chart where the state system of control (supervision) of the natural resources use is considered as a dynamic process arising from a set of environmental factors (Figure1).

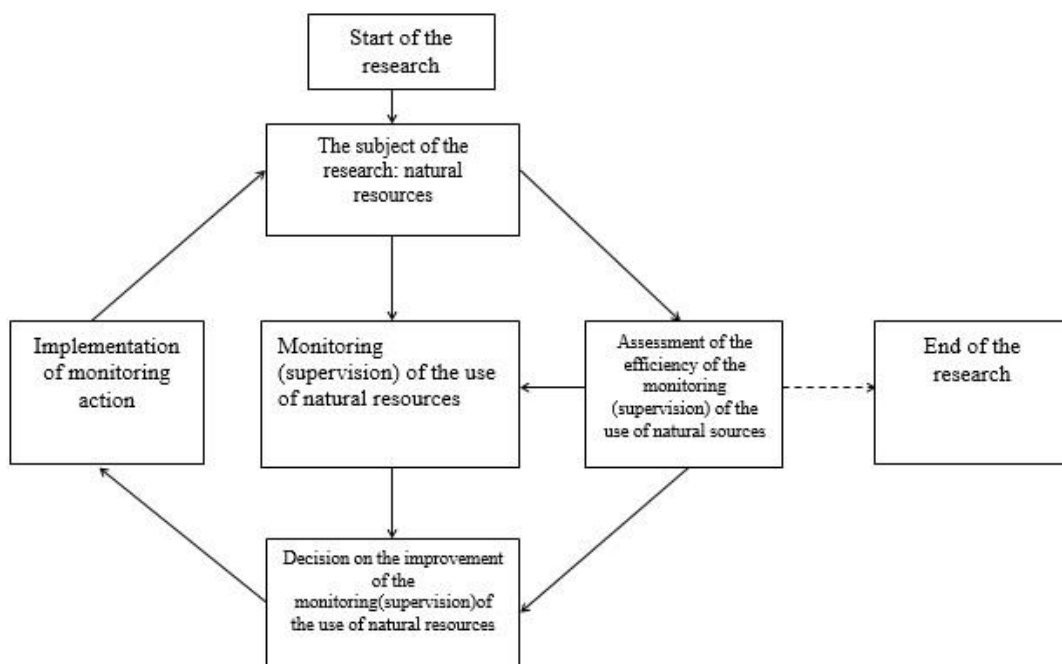


Fig.1: Process flow chart of the state system of control (supervision) of the natural resources use.

IV. ANALYSIS OF THE RESULTS

Research has shown that control (supervision) of the natural resources use is intended for the implementation of comprehensive environmental government policy, the establishment of conditions for efficient environmental management and environmental governance, as well as promotion of the state ecological security. However, in the environment of the market economy, state ecological control targets ensuring sound environmental management and environment protection from the harmful impact, as well as efficient use of natural resources and ecological security.

The most important challenges of the state environmental control include the following: monitoring of compliance with legal requirements, measures of efficient environmental management and environment protection from pollutions to be performed by all public authorities, enterprises, companies and residents; monitoring of compliance with standards for maximum permissible impact on the environment; control of compliance with other legislative requirements to

environment. The list of requirements can be expanded and further detailed subject to many other objectives of state ecological control. Therefore, we believe that ecological control (supervision) as a legal form of environmental activity is a system of measures aimed to ensure the compliance with environmental legislation, government action under the environmental legislation and establishment of legal system relevant to the developments in the field. Meanwhile, the objectives of the state ecological control (supervision) must be pursued by public regulatory authorities in accordance with their competencies. Importance of further improvement in state ecological control (supervision) is beyond question as it derives from a number of circumstances.



It is affected by utmost importance of government supervision as an integral part for the development of economic, social-political, cultural and other relations in public life, on the one hand, and discovered inadequacy of legal support exacerbated by ineffective work of certain elements, on the other hand.

From our perspective, the established form of government control, primarily focused on coercion and obedience, has largely reached its limits. The current situation requires

shifting top recalcitrant and preventive control, which operates as a service. To have a truly effective state ecological supervision in the Russian Federation, corresponding to the level of advanced economies, one must restructure and improve it, aligning to the present regulated system (Fig. 2).

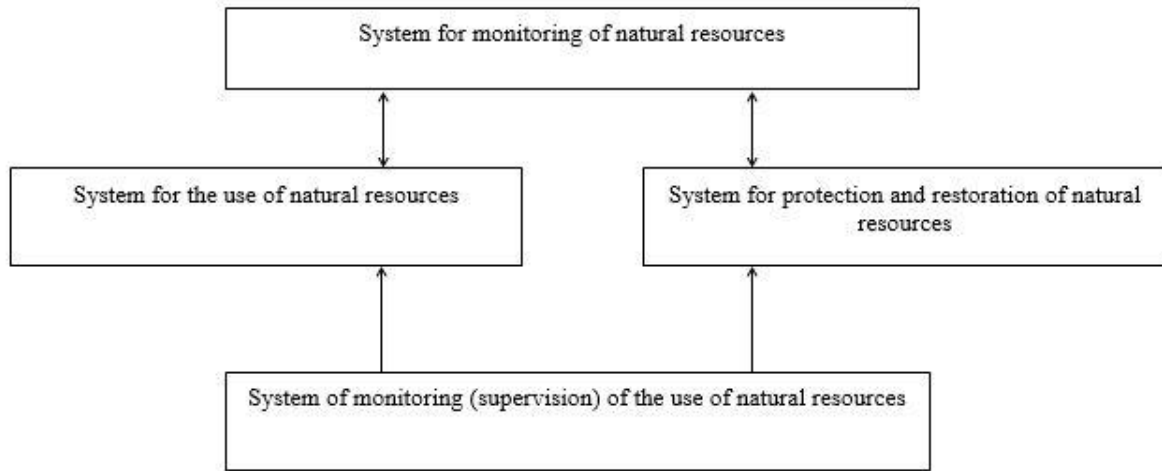


Fig. 2: Development of a modern state system of monitoring (supervision) of the natural resources use.

At the same time, the principal directions of reforms, the most striking features of the new model for the system of state ecological control, its modern vision can be developed only through a comprehensive review of its theoretical and practical issues, the study of the best local and foreign experience, modern practices of regulatory authorities. State ecological supervision is focused on prevention, detection and punishing the violations of environmental requirements committed by legal entities, independent entrepreneurs and residents.

Current practice reveals that the activity of the authorities in state environmental monitoring (supervision) should be exercised in two interdependent directions: liberalization of government control policy towards economic entities, as well as granting greater autonomy and incentives to them; improvement of monitoring efficiency in the main socially important fields of public life through consistent development of forms and methods of public authorities' oversight.

For each of the above-mentioned directions required for state environmental monitoring (supervision) in the Russian Federation, it is possible to define a corresponding set of measures whose implementation includes use of accumulated practical experience of Russian specialists, engagement of qualified personnel and establishment of a reliable inducement system. We suggest a comprehensive implementation of the following measures for the improvement of the state environmental monitoring (supervision) system:

- to divide authorities and entities of government control in the field of environmental management and environmental protection both horizontally, i.e. between numerous federal executive authorities, and vertically, i.e. between federal state authorities, state authorities in constituent entities of the Russian Federation and local authorities;

- to coordinate activities and cooperation procedure of the federal regulatory authorities and their local authorities with regulatory authorities established in constituent entities of the Russian Federation, and, locally, through development of administrative procedures for cooperation of regulatory authorities at the federal and regional level of state power, sign agreements on cooperation between such authorities, draw up lists of economic facilities and other facilities, which have a negative environmental impact and are subject to government control at the federal and regional level accordingly;
- to define the entities of state ecological control, jurisdictions and powers for monitoring and supervision of federal executive authorities, executive authorities in constituent entities of the Russian Federation and local authorities to exclude possible monitoring of the same entity by several levels of environmental supervision;
- to establish a clear division of responsibilities on monitoring and supervision between federal, regional and municipal authorities, as well as environmental and natural resources, managerial, regulatory and law-enforcement authorities for further improvement of efficiency for the protection and sustainable management of the environment;
- to improve the regulation of environment protection and introduce economic incentives for economic entities along with the implementation of the best existing technologies aimed to reduce human burden on the environment, use non-conventional forms of energy, secondary resources and recycling.

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Aquatic biological resources can be considered as a subject of this aspect. In doing so, the scientific and technological development of aquatic biological resources could be implemented in the following priority areas: comprehensive research of aquatic biological resources and their habitats for sustainable and effective use; development of technologies and equipment for preservation and artificial reproduction of aquatic biological resources and aquaculture to keep and increase population of most valuable and vulnerable species of aquatic biological resources; development of fishing fleets to enhance efficient use offered stock and improve profitability of its extraction.

Moreover, sustainable management of aquatic biological resources requires the basis of economic development to generate preconditions for improvement of financial-economic indexes at enterprises of the fishing industry, IT-based management of aquatic biological resources as well as to provide information support in management decisions, delivery of accurate data about aquatic biological resources and their use to the public.

At the same time, the establishment of an effective system for delivery of public services through the use of information technologies would include creation of an automated system for state registration of aquatic biological resources use, development of measures and methods to prevent simulation of satellite positions, implementation of a system for training and certification of specialists, introduction of information security through electronic seals, transition to domestic hardware of satellite positioning, creation of unified sectoral information environment that provides monitoring of staffing needs, facilitates employment of graduates of educational institutions in compliance with their qualification.

Within this aspect, a sectoral situation center for Federal Fishery Agency could be established for providing the customer with the tools of managerial decision support, including automation of the procedures for collection, consolidation and processing of information, analytical studies, simulation and forecasting of situation development. Generally, a situation center is considered as the main tool for consolidation, analysis and delivery of different types of information aimed to provide support and management decisions through the modeling of industry development in general, as well as in relation to its separate processes and situations.

A situation center must include the following sub-systems: software and hardware to assist collection and consolidation of data; software and hardware to display monitoring, analytical and predicted data of industry figures and background information; software and hardware to assist teamwork; software systems for decision support, in particular, monitoring of the situation, dynamic simulation, statistical analysis, econometric modeling, high-quality situation modeling; methods for addressing sectoral objectives in terms of monitoring and management; range of predictive industrial models.

The research has shown that processing of unstructured information involves its classification, clustering, generation of data sets by mentioning of various subjects, the tone of statements related to the items of interest and newsworthy events, analysis of the reasons for the arisen situations. Meanwhile, processing of structured information involves its

statistical analysis. Tools for analysis and modeling of subjects and situations can be implemented in the situation center to support decision-making in the management of aquatic biological resources through the methods of econometric modeling, dynamic simulation and modeling on the basis of cognitive maps.

V. CONCLUSION

Concluding the aforementioned, it should be emphasized that the elimination of parallelism and duplication in the work of inspection authorities and establishment of clear coordination in supervisory activity of executive authorities related to environment protection, environmental management and environmental safety control requires determination of a comprehensive list of public authorities charged with environmental control, their powers and mechanisms ensuring their inter-departmental cooperation.

All these measures would help to eliminate the problem of excessive state supervision when one public authority concentrates managerial and regulating functions, as well as the approval and supervisory ones. Furthermore, the environmental security strategy should be developed with the possible inclusion of the main threats to environmental safety, national policy guidelines in the field of environmental safety control and crucial priorities in the development of the national policy in this area aimed to define the objectives and guidelines for public administration.

At the same time, an improvement in state environmental control (supervision) requires the mobilization of extensive intellectual resources and investment in research, methodological and regulatory inventions, recruitment of additional staff, training and retraining of specialists, purchase of equipment and machinery. State environmental control exercised under constant reduction of professional staff requires the involvement of the external environmental auditors to address the deficiency in qualified personnel.

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