Study on Eco-Environment Crisis Coping with System of Russia under Sustainable Development Strategy Background

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Abstract
Ecological crisis is a challenging problem commonly faced by humanity, and environmental protection has become a priority for countries across the world. In recent years, Russia has focused on the treatment of the eco-crisis in its sustainable development strategy, and it has formulated the *Environment Protection Law of Russia* and *Ecological Appraisal Law of Russia*, forming a series of ecological regulatory systems, including ecological standard system, ecological registration system, ecological appraisal system, ecological supervision system, ecological compensation system, ecological insurance system and ecological audit system. Russia's ecological regulatory systems lay emphasis on functions and classifications, which can be summarized as administrative system, legal system and economic system. In addition, Russian insists on some basic principles in its establishment of ecological systems, including coerciveness, participation, and incentiveness.
Based on the analysis of Russia's basic ecological regulatory systems, this paper attempts to summarize basic connotations, rules, functions and characteristics, reveal the inner link and rules among them, and explore the beneficial experience of other countries. Russia's ecological standards provide for effective prevention of ecological risks. Meanwhile, it must be admitted that there are also some weak points in Russia's ecological systems, mainly represented in overlapping management, resulting in relatively low efficiency. These deficiencies deserve our attention and further research.

Keywords: Russia, sustainable development strategy, ecological regulatory system

Introduction

At present, humanity is faced with increasingly serious environmental challenges, including environmental pollution, ecological degradation, and soil erosion and desertification. The strategy of sustainable development has become the common concern of people all over the world. All countries are looking for the right way to implement sustainable development strategies. As a large country full of ecological and mineral resources, Russia always attaches great importance to the study of ecological theory, and regards "the priority of environmental protection" as the basic legal principle in protecting environment and utilizing natural resources. After its independence, Russia learned lessons from the former Soviet Union in dealing with environmental disasters. In particular, after the Chernobyl nuclear disaster, environmental protection and economic development have been given equal priority. Russia has formed a complete set of laws and mechanisms relevant to ecological environment protection, such as legislation, management, decision-making, evaluation, and prevention. Russia's environmental protection mechanism is of great benefit to China and other countries in promoting the modernization of ecological governance systems and capacity. It has not only theoretical significance and academic value, but also a strong practical significance.

Literature Review

In recent years, people have given more attention to western developed countries in their research on legal policies and systems of ecological and environmental protection. In comparison, people have rarely explored the development of Russia's ecological regulatory systems, so there is a lack of comprehensive research results in this area.

What is novel about this research is that it captures the basic connotation, principle, procedure, function and characteristic of Russia's regulatory system, revealing the internal relation and regularity of Russia's approach. The author does not seek to carry out comprehensive research in this field, but tries to grasp some key and important issues, thus gaining from the experience of other countries.

Methodology and methods

In terms of research methodology, this paper forms a scientific cognitive approach by collecting, identifying, and reviewing previous literatures. The main sources of research data include official literature, reports by relevant research institutions, academic monographs and papers, professional journals and international journals, and some official websites. In addition, the author makes full use of primary materials and literatures, striving to bring objective and accurate comments and conclusions.

Discussion

In Russia, population and industry is concentrated in 20% of the country, thus the environment is significantly stressed. In 185 cities and industrial areas, air pollution is beyond the recommended index. Therefore, Russia attaches great importance to the implementation of sustainable development strategies, environmental protection, and resource utilization, and it has issued a series of laws, regulations, and policies. In addition, Russia plays an active role in dealing with global and regional ecological issues. In order to ensure effective implementation of national ecological laws, ecological policies, and ecological measures, Russia has formulated a set of ecological regulatory and administrative systems, which achieve effective results in dealing with the environmental crisis. These include the Ecological permit system, Ecological standard system and Ecological registration system, Ecological identifying system, Ecological supervision system, Ecological compensation system, Ecological insurance system and Ecological auditing system. These basic systems provide institutional safeguards to protect the environment and ensure effective use of natural resources. They have become the basic norms of Russia's ecological functional departments, regulatory authorities, non-governmental organizations, civil society environmental governance, and environmental management and supervision.

Chapter I: Comments on Russian ecological system and mechanism

1. Ecological permit system and its characteristics in Russia

The Ecological permit system is composed of specific administrative acts that govern resource exploitation, construction, and other activities that impact the environment. The permit system examines proposals for new activities in these areas in order to decide whether to give permission or not. Russia's ecological permit system is divided into three categories, including the permit for natural utilization, the permit for activities with negative impact on environment, and the permit for other activities related to environment. Article 30 of the *Russian Federation Environmental Protection Act* stipulates the types of activities for which compulsory ecological permits are granted. The Ecological permit system is widely used in the enforcement of ecological protection laws, which is targeted and flexible.

2. Ecological registration system and its characteristics in Russia

The Ecological registration system requires enterprises to list the kinds of natural resources they use and the relevant environmental impact of production. This information must be submitted to the Russian National Ecological Commission for record. Every enterprise must draft an eco-registration proposal, recording the product description, illustration of the production process, types of natural resources used, impact of production on environment, time, emission and material composition of pollutant discharge, indicator of green ecological force and information of nature use

permit, and payment of environmental pollution and nature use.

In addition to ecological registration of enterprises, the Ecological registration system also includes industrial safety registration, radiological health registration, and hazardous waste registration. *Industrial Safety Law for Dangerous Production Project of the Russian Federation* stipulates that enterprises engaged in hazardous production operations are obliged to register for industrial safety. According to the provisions of Russian law, enterprises must complete their ecological registration and report their ecological security situations to state and social organizations. The purpose of ecological registration is to predict environmental conditions of enterprises and their surroundings, to supervise the concrete implementation of environmental protection measures, and to reduce security incidents in production.

3. Connotation and Characteristics of Ecological identification System in Russia

The Ecological identification system is one of the most important ecological regulatory systems in Russia, similar to the current environmental impact assessment system in China and the United States. Article 1 of *Russian Federation Ecological Identification Act* clearly stipulates that ecological identification refers to ecological management and supervision by agencies and social organizations in ascertaining whether the proposed activities conform to ecological requirements, and in determining whether the identified activities are allowed to be implemented or not.[1] The Russian Federation's ecological identification system has two areas of focus: national ecological identification and social ecological identification.

Russian Federation Ecological Identification Act provides the following principles for the national ecological identification system: mandatory enforcement, scientific demonstration of conclusions, independence, openness, public participation, and above all, identification of any potential environmental crisis. Social ecological appraisal is organized by social groups and non-statutory, civil spontaneous ecological identification activities. The Ecological identification system can effectively reduce risks of decision-making, thus becoming an important environmental protection system implemented by the Russian government.

4. Connotation and characteristics of ecological compensation system in Russia

Ecological compensation is an economic mechanism to protect the environment and improve utilization of resources. The economic mechanism of environmental protection and resource utilization includes various economic instruments stipulated by law. The Ecological compensation system includes a charge system and an economic incentive system of environmental use.

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[1] Peredelsky, L.V.(2009). Ecology. Moscow: Prospect, 446.

(1) Connotation of environmental use charge system. According to Article 3 of Russian Federation Environmental Protection Act, legal persons and natural persons should give payments according to the principles of nature use and damage to the environment for economic activities and other activities that create environmental impacts. Environmental use charge system includes three elements: payment for nature use, payment for negative impact on environment, and payment for environmental damage. Russia has drawn up a clear basis for these divisions and detailed standards for charges.

(2) Connotation of economic incentive system. According to Article 14 of Russian Federation Environmental Protection Act, the government will provide tax relief and preferential policies for enterprises which adopt advanced technology, non-traditional energy, secondary recovery of resources, or recycling of waste. The essence of the ecological incentive mechanism is to use legal economic means to encourage subjects to protect the environment and utilize natural resources in a reasonable manner, thus playing a key role in solving environmental problems.

Chapter II: Evaluation on mutual relations and basic functions of the Russian ecological regulatory system

In system design, Russia focuses on scientific and rational ecological management. In the analysis of Russia's ecological regulatory system, we can summarize mutual relations, influences, and functions within the system. The author holds that there are three kinds of relationships among the different parts of the Russian ecological regulatory system: relative independence relationship, coupling relationship, and progressive relationship. There are different inherent logic relationships and levels in various systems which play different functions.

1. Three relations in ecological system

The current ecological regulatory system in Russia is a complete set of institutional systems which are relatively independent and do not overlap in content and form. At the same time, the various systems are not isolated but interrelated and progressive. There are three different types of relationships between specific ecological systems in Russia. It is generally believed that the independent relationship refers to the elements of the system which are neither mutually exclusive nor coupling. Coupling relationship means elements in the system cooperate with each other for the same subject, thus better achieving system characteristics. Progressive relationship refers to the subjects in the system which belong to the same category in logic and connotation, and each behavior develops according to logical relationships and orders.

(1) In content analysis, Russia's ecological regulatory system has a relatively integrated independence. In view of national ecological permitting, standards, registration, identification, ecological compensation, supervision, monitoring,

insurance, and auditing, each system plays its own role from different aspects, dimensions, and functions, and each cannot be replaced by others.

(2) In terms of system design and operation, the Russian ecological regulatory system has the features of relevance and coupling. It can be easily seen that the systems are based on both mutually independent relationships and interdependent, interactive, and interrelated relationships. If without an access to ecological permission, it is difficult to carry out ecological registration. If there is no corresponding ecological standard, it is impossible to conduct ecological identification and registration, as well as ecological supervision and auditing. The systems are not only closely correlated, but also cross-cutting. For example, the national identification system contains specific national standards, and the ecological insurance system also includes a number of ecological compensation elements.

(3) In view of logical elements, Russia's ecological regulatory system has a distinct progressive nature. The system has internal logic and progressive levels to its practical processes. For example, from its definite operational practice, it firstly needs to obtain the approval of ecological permits, before carrying out ecological registration. Ecological registration should be put on record, and go through the process of state ecological identification and social identification, with national ecological supervision and ecological monitoring. Violations of ecological regulations or laws are pursued and punished by the state, with encouragement and rewards given to observance and protection of ecological behavior. These acts constitute a set of institutional systems, which are interlocking, mutually restraining, and mutually progressive.

2. On the function of ecological regulatory systems

The Russian ecological regulatory system shows the following characteristics:

(1) At the administrative level, there are systems of ecological permitting, standards, registration, and supervision, which belong to the national administrative system. In other words, any enterprises must strictly abide by national ecological standards to obtain ecological permit approval, registration, and accept supervision from national ecological management organs, social organizations, and citizens. Those failing to meet the requirements and constraints of the above systems will be subject to corresponding legal punishment and sanctions.

(2) At the legal level, there are systems of ecological identification, ecological supervision, and ecological monitoring. Russia attaches great importance to the construction of the legal environment. For example, *Russian Ecology Law* clearly defines the enforcement principle of national ecological appraisal, thus Russia's ecological identification is of practical legal significance. National ecological management agencies and relevant social organizations will examine whether

enterprises comply with the legal provisions in the ecological field.

(3) At the economic level, there are the systems of ecological compensation, insurance, and audit, which are an effective economic lever with the objective to encourage enterprises to strengthen ecological security measures and reduce ecological risks of enterprises to the lowest level. Russia's ecological laws and regulations stipulate that ecological compensation is used to regulate and stimulate the protection of natural environment behavior. After long-term practice, it has been proven that the nature-use payment system is an effective economic instrument to regulate rational use of natural resources.

Chapter III: Characteristics of Russia's ecological system principles

1. A combination of coerciveness and voluntariness principles

Many of the ecological regulatory systems in Russia show a combination of coerciveness and voluntariness. According to the *Russian Federation Ecological Identification Act*, the connotation of coercion principle of national identification signifies: the Russian Federation empowers a specific national agency to identify economic activities and other activities that require a national ecological assessment under the laws of the Russian Federation. The Russian Federation is obliged to carry out a national ecological appraisal on projects with a high probability of potential ecological risks. The appraisal conclusions have legal validity and must be implemented by enterprises.

In terms of economic activities and other activities not belonging to the scope of national ecological identification, enterprises are allowed to conduct social and ecological appraisal voluntarily. The conclusions of social ecological appraisal has no legal effect, but they serve as references and suggestions to the national ecological appraisal, and they play an important role in social supervision by public opinion. From this point of view, the social ecological appraisal is a necessary supplement to the national ecological appraisal system. In addition, the ecological insurance and ecological auditing system are a typical combination of coerciveness and voluntariness.

2. Complementary principles of openness and participation

National environmental management and supervision needs public support through participation of citizens and social groups. Russia encourages social organizations and citizens to participate in the ecological governance process and monitor whether enterprises comply with environmental laws and regulations or not. Russian laws stipulate that enterprises are obliged to inform state agencies and social organizations of their ecological security status and accept the supervision of state organs and social organizations. For example, enterprises should publish their ecological registration

certificates to social organizations and surrounding citizens, and provide explanations to reasonable questions from social organization and citizens. Moreover, taking ecological appraisal as an example, the law stipulates that openness and social participation is an important principle of ecological appraisal. Citizens and social organizations may participate in and supervise the process of ecological identification, as well as review the results of the ecological appraisal, and they have the right to question the results of the ecological appraisal.

3. Laying equal stress on punitive principle and incentive principle

Russia enacts strict ecological punitive measures. According to national standards and ecological laws, Russia's ecological management and supervision departments will publish information and annual reports on whether ecological objects meet stipulated standards, and they will provide critical reviews on illegal enterprises and industries, investigating their legal liability. In Russia, if an enterprise fails to complete its ecological registration, it will be deprived of its right to use natural resources. It cannot be engaged in economic activities, and it may be subject to heavy penalties. In addition, the state imposes an ecological tax on the production of ecologically harmful products and products that use harmful ecological technologies.

Meanwhile, incentive policies are used to promote protective behaviors by enterprises. According to legal stipulations in Russia, enterprises will enjoy the preferential policies of tax relief and loan concessions if they use advanced technology, non-traditional energy, secondary recovery of resources, or waste recycling. Punitive and incentive principles are intended to help enterprises to fundamentally change backward production modes, use clean energy in production, and reduce energy consumption and pollution, thus achieving positive results in clean production and green environment.

From the theoretical and practical perspective, Russia’s ecological regulatory system is a legal embodiment of the national ecological system. All individuals and organizations in a sovereign country must abide by these legal system arrangements. With increasing attention of governments around the world and the long-term ecological practice, state ecological and environmental laws provide important systems and mechanisms suitable for their national conditions. There are obvious differences between China and Russia in ecological system construction and environmental supervision, with distinct regional, institutional, cultural, social, and economic differences.

In comparison with China and other countries, there are three characteristics in Russia’s theory and practice of ecological protection and regulation:

(1) Stringency and coerciveness of laws, regulations, and systems, which effectively protect the rational use of natural resources and prevent ecological risks and

environmental pollution.
(2) Wide scope of ecological system application, which is not only confined to macroeconomic activities, but also covers almost all microcosmic activities.
(3) Public participation in ecological protection and higher degree of openness in ecological law enforcement process, higher consciousness of law publicity and popularization, and stronger social environmental protection.

Conclusion

Russia has consistently adhered to the principle of "prevention first and strict supervision", emphasizing strict control from the source. Projects with ecological risks and poor standards cannot obtain government permission, including international cooperation projects. For example, in the Sino-Russian oil pipeline cooperation project, the Angarsk-Daqing line has been changed due to the worries of Russian ecological organizations that the pipeline may result in pollution to Baikal Lake.

In contrast, China's ecological regulatory system generally over-emphasizes environmental assessment and licensing, but neglects the implementation of standards. To pursue economic outcomes, local governments follow the procedure of "approval after the project", thus resulting in cases of "pollution first, treatment later". These negative examples should be worthy of our reflection.

At the same time, due to the slow decision-making process of the system and the overlapping management levels in Russia, ecological crisis prevention and treatment of decision-making efficiency is relatively slow. This becomes an important factor that impacts the integration of ecological policy and mechanism system between Russia and international community.[2] The main direction of reform in Russia should be organizational streamlining. This includes centralization of national ecological supervision and management power in one or two special environmental supervision and management agencies, which have the power to coordinate other environmental supervision and management activities.

[2] Gu, H. B. (2003). Analysis of Russia's environmental management system and its reform. Northeast Asia Forum, 60.

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