

Environmental Management Features at Industrial Enterprises of the Russian Federation (Judicial and Economic Aspects)

Yuliya Kiva-Khamzina
Department of Law and Cultural Studies
 Nosov Magnitogorsk State Technical University
 Magnitogorsk, Russia
 kiva_hamzina@mail.ru

Tatyana Rakhlis
Economic and Finance Department
 Nosov Magnitogorsk State Technical University
 Magnitogorsk, Russia
 ORCID: 0000-0002-4648-5934

Natalya Balynskaya
Department of State and Municipal Administration and Personnel Management
 Nosov Magnitogorsk State Technical University
 Magnitogorsk, Russia
 balynskaya@list.ru

Natalja Dyorina
Institute for Humanitarian Education
 Nosov Magnitogorsk State Technical University
 Magnitogorsk, Russia
 ORCID: 0000-0002-0613-0864

Abstract—With all the variety of normative and legislative acts existing in the field of environmental legal regulation, a difficult environmental situation remains in many cities and regions. The problem is particularly acute in the regions - large industrial centers, which is Chelyabinsk region. In the national environmental rating, Chelyabinsk region is 83rd out of 85 regions of the Russian Federation. The subject of this article is the legal and economic issues of environmental management at regional industrial enterprises of the Russian Federation. The article analyzes the legislation governing state and regional environmental development, the implementation degree of the environmental management system in accordance with international environmental standards at metallurgical enterprises in the region. The article reveals the features of the regional environmental development of Chelyabinsk region using statistical data over the past decade, justifies the need for incentive measures for business entities in order to update equipment parks and introduce the best available technologies. The effectiveness of environmental programs and measures implemented in accordance with the international standard ISO 14001 is shown on the example of a number of large industrial enterprises in the region through a quantitative assessment of emissions into the environment and through the total value of investments. The main focus of the work is on creating conditions for the implementation of the constitutional right to a favorable environment through ensuring the healthy development of the country's regional economy. Summarized: it is necessary for the constituent entities of the Russian Federation and local governments, implementing the strategy of sustainable development of cities and regions, to apply the experience of the world community in implementing environmental management systems in accordance with the international standard ISO 14001.

Keywords—*environmental safety, legal regulation of ecology, environmental management system (EMS), industrial enterprises, the economy of the region, investments in environmental programs, local governments.*

I. INTRODUCTION

When carrying out their production activities, all legal entities must ensure the constitutional right of every person to a favorable environment. Sustainable development of the country, ensuring a high level of life quality and protecting people's health, as well as guaranteeing national security in

the field of ecology, are possible under one condition - the conservation of natural resources and ecosystems. This explains the relevance of the article.

The purpose of this study is to build an effective mechanism of environmental management at industrial enterprises through the creation of a system for improving the environment quality that corresponds to the strategic plan for the development of economic entities and municipalities.

In accordance with the purpose, the authors posed theoretical and applied problems for the analysis of the existing legal and economic aspects of environmental management at enterprises in the manufacturing sector, paying special attention to their interconnection and inconsistency; a plan for the modernization of environmental management at the industrial sites of Chelyabinsk region is proposed, which will ensure stable development.

An element of the scientific novelty of the work is the economic and legal justification for the functioning of the environmental management mechanism in industrial enterprises, which defines the environmental protection strategy in the cities of the region as the primary task by introducing ISO 14001 series standards without compromising the welfare of the city as a whole, and its population in particular.

The theoretical and practical significance of the article is to describe the interaction of economic, environmental and legal components of the environmental management mechanism in industrial enterprises and in the cities of Chelyabinsk region.

The feasibility of developing a theme is explained by a topical issue today which is ensuring environmental safety in Russia and around the world. This situation is pushing for changes in state policy in the field of environmental protection, taking into account economic priorities and the new ways of the country development.

II. LITERATURE REVIEW

The issues considered in the article are reflected in the works of Russian and foreign authors, which are the scientific foundation in the environmental management organization in

industrial zones. The most significant contribution to the study of this problem was made by T.V. Bochkareva, A.O. Burov, D.A. Dzhangirov, O.E. Medvedeva et al. A.G. wrote scientific papers on the economic mechanism of nature management, ecology and rational nature management. Ayrapetova, E.V. Girusov, K.G. Hoffman, M.M. Guzev, K. Richter, A.D. Ursul et al.

III. RESEARCH METHODOLOGY

In the study of economic and legal aspects, we used complex, logical and holistic methods, which are general scientific methods, and also applied special research methods (in particular, graphical and statistical analysis).

IV. RESULTS

Art. 42 of the Russian Federation Constitution enshrines the human right to a favorable environment [1]. The exercise of this right is entrusted to the state, which determines the mechanism of environmental protection through the creation of an effective regulatory framework and through the formation of federal programs. In connection with this requirement, the head of the Russian state approved the "Fundamentals of state policy in the field of environmental development of the Russian Federation for the period until 2030" dated April 30, 2012 [2].

The consequences of industrial activities, environmental disasters, and a high level of man-made impact on the environment are the features that characterize the environmental situation in the world today. In this regard, Russia has built a strategic plan of state support in the field of environmental development of the country through the solution of a number of socio-economic problems related to the preservation of a favorable environment, improving the well-being of the country, taking into account the preservation of natural conditions, biological resources for present and future generations and strengthening environmental protection.

In order to cope with the above goals, the state needs to solve the following issues:

- the formation of an effective management system in the field of environmental protection and environmental safety;
- improvement of the legal framework for environmental protection;
- ensuring environmentally-friendly economic growth and the introduction of environmentally effective innovative technologies;
- improving the system of state environmental monitoring and control;
- the formation of environmental culture, the development of environmental education and upbringing;
- ensuring the effective participation of citizens, public associations, non-profit organizations and the business community in resolving issues related to environmental protection and environmental safety [2].

Article 72 of the Constitution of the Russian Federation determines that the issues of environmental protection and

environmental safety, specially protected natural territories, land, water, forest legislation, legislation on mineral resources, and environmental protection are jointly administered by the Russian Federation and constituent entities of the Russian Federation. The filling of the relevant legal institutions with specific legal content is carried out by the legislative bodies of the constituent entity of the Russian Federation, which should proceed from the situation - land and other natural resources are used and protected in the Russian Federation as the basis for the life and activities of people's living in the corresponding territory.

In the field of environmental development the policy of the Russian state includes a regional component, which is reflected in the Decree of the President of the Russian Federation "On approval of the Fundamentals of the state policy of regional development of the Russian Federation for the period until 2025" dated January 16, 2017 [3]. In the document, one of the principles of state policy for regional development indicates the principle of maintaining a balance between a comfortable living environment and the growth of the economic potential of the regions. And also the document defines one of the priority areas of regional development - improving the environmental situation.

The municipal level of management is entrusted with the implementation of the tasks of preserving and restoring the natural environment favorable for the population, preventing and reducing the negative impact of economic and other activities on the environment and ensuring compensation for environmental damage. The content of the municipal government in the field of environmental protection is determined by the special role of local government in organizing public authority. The environmental authority of local governments is their right and obligation to resolve issues of local importance in the field of environmental protection, as well as to exercise certain state powers in this area, transferred to them in the manner prescribed by law.

A significant result from the implementation of government environmental policies that meet international requirements can be seen in the analysis of the economic activity of industrial companies in Chelyabinsk region.

Historically, a large number of factories and plants for the production of ferrous and non-ferrous metals were concentrated in this region, which to a greater extent formed the income of this subject (see Figure 1) [4].

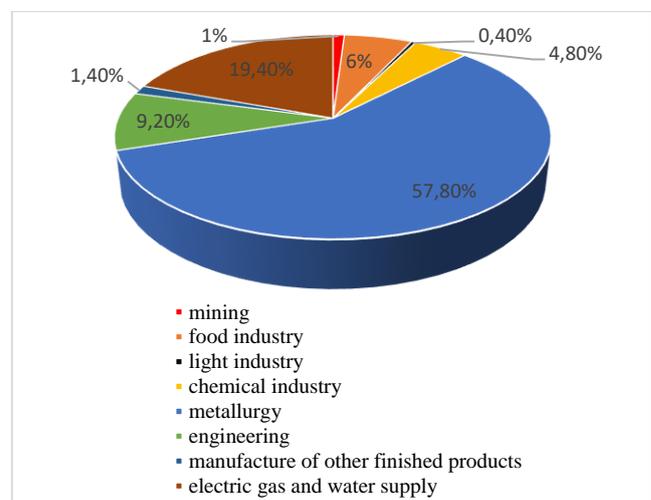


Fig. 1. Industry structure of Chelyabinsk region in 2018.

Such a wide scale of developed industry, of course, entails adverse environmental consequences.

Since April 2008, the All-Russian public organization Green Patrol has calculated and published the environmental rating of the constituent entities of the Russian Federation. The rating ideology is formed taking into account sustainable development in accordance with the Declaration of the UN Conference on the Environment and Development (Brazil, Rio de Janeiro, June 3-14, 1992). The rating model is developed on the basis of the conceptual scheme of the noosphere, proposed by V.I. Vernadsky. This project is aimed at monitoring public opinion and a comparative analysis of the constituent entities of the Russian Federation in the field of environmental protection. The objectives of the project are to stimulate regional authorities, business entities, citizens to cooperate in the provision of information. The composite index, which ultimately determines the subject's place in the national ranking, is formed in three areas: the ecosphere (environmental index), the techno sphere (industrial and environmental index), and society (socio-environmental index). The rating calculation is based on a single statistical and mathematical model for all regions of the country. The calculation is carried out online. According to this rating, Chelyabinsk Region is the 83rd out of 85 constituent entities of the Russian Federation. The worst situation is observed only in neighboring Sverdlovsk (the 84th place) and Irkutsk regions (the 85th place) [5].

One of the factors that can have a positive impact on resolving this issue is the environmental management system, which is being introduced into the work of industrial sites taking into account the requirements of the international standard ISO 14001.

The concept of an “environmental management system” (EMS) was first formulated and explained in 1992 in the British Standard BS 7750. These principles were further developed in a series of ISO 14000 standards, which were set out in international recommendations for states that accepted environmental relations. Moreover, among a series of standards, ISO 14001 “Specifications and guidelines for the use of environmental management systems” occupies a key place. Using the proposed specification, each business entity will be able to independently develop and implement a productive environmental policy in accordance with the environmental requirements of the state. For this, the standard clearly articulates the most important terms and concepts, provides guidance for planning environmental policy, and forms a chain of tasks based on the goals in the field of environmental management. Moreover, the standard gives recommendations to the enterprises taking into account their industry specifics. By implementing the provisions of this standard, enterprises and organizations can quickly and efficiently build their EMS and subsequently successfully confirm it for compliance with ISO 14001 standards.

The mass transition trend of Russian industrial manufacturers to an environmental management system is associated with globalization processes and Russia's integration into the international community. Back in 1996, the foundation was laid for building a favorable human environment, formulated in the Decree of the President of

Russia “On the Concept of the Transition of the Russian Federation to Sustainable Development”.

Modern environmental management at industrial enterprises includes three components: environmental management, environmental protection management, environmental safety management. Environmental management should be built into the organizations overall management system and mark common goals and objectives with it. At the same time, improvements to the environmental management system on an ongoing basis can give very tangible not only environmental, but social and economic benefits in the future [6].

Among the primary tasks of EMS, it is possible to single out measures for the rational use of natural resources, for the recycling of raw materials, for the introduction of non-waste and low-waste technologies, for reducing the likelihood of emergency and emergency situations, for landscaping of our own territories, for improving the working conditions of workers, etc.

At the same time, we note that in accordance with ISO 14001, the activities of economic entities in compliance with environmental legislation are voluntary. Its effectiveness can be expressed in obtaining unused opportunities (reducing energy consumption, reducing production and sales costs, minimizing environmental pollution, optimizing waste processing, etc.) and in gaining potential benefits (cost savings, additional investments, access to foreign markets) Using these opportunities and advantages can ensure the sustainable development of the company in the medium and long term [7].

Every year, the organization of an environmental management system at industrial enterprises is becoming an increasingly important task, which allows through multilevel control to ensure rational use of natural resources and environmental protection from harmful effects. The state administration of the Russian Federation without fail includes the control function in these relations, since all these actions are aimed at preserving the vital conditions for human existence. The control function should help business entities in the early stages of the implementation of environmental management in enterprises. And also, if there are offenses at the subsequent stages of development of the environmental management system, apply measures to influence the controlled objects.

An example of the effective implementation of an environmental management system is a number of the largest enterprises in the city of Chelyabinsk and the city of Magnitogorsk (Chelyabinsk region), namely Chelyabinsk Metallurgical Plant PAO, a member of the PAO «Mechel», Chelyabinsk Pipe Rolling Plant (Chelpipe PJSC), PJSC Magnitogorsk Iron and Steel Works. Indicators of their activities within the framework of environmental management are presented in Table 1.

An aggravating character is in the fact that more than 60% of the region's population lives near industrial enterprises of various sectoral directions (ferrous and non-ferrous metallurgy, energy, engineering, mining) [8].

TABLE I. PERFORMANCE INDICATORS OF INDUSTRIAL ENTERPRISES OF CHELYABINSK REGION

The company and the date of receipt of the certificate of compliance with the international standard EMS - ISO 14001	Volume of investments in ecology	Environmental Initiative Results
Chelyabinsk Metallurgical Plant PAO 2018	In March 2018, a tripartite agreement was signed on the implementation of the environmental program at the enterprises of the PAO «Mechel» in Chelyabinsk between the Federal Service for Supervision of Natural Resources, the Government of Chelyabinsk Region and PAO «Mechel» - 5 billion rubles. [9]	Over the past 3 years, air emissions have been reduced by 30%
Chelyabinsk Pipe Rolling Plant (Chelpipe PJSC) 2018	- In 2019, the volume of investments in environmental measures will be about 880 million rubles. - In 2019, an agreement was signed with the Ministry of Natural Resources, Rosprirodnadzor and the Government of the Chelyabinsk Region on interaction within the framework of the national project “Ecology” with the volume of investments of the Chelpipe PJSC in the project until 2024 - 180 million rubles [10].	Construction of treatment facilities for acid wastewater, research for the treatment of industrial storm water and the replacement of gas purification equipment. Long-term environmental programs were launched in four main areas: “Water”, “Atmosphere”, “Land reclamation”, “Industrial waste”.
PJSC Magnitogorsk Iron and Steel Works 2004	Total investment in environmental activities according to the Clean City strategic initiative until 2025: - for the period from 2000 to 2018 amounted to more than 58 billion rubles - for the period from 2018 to 2025. will amount to over 38 billion rubles [11].	- Decrease from 2000 to 2018. gross emissions into the atmosphere 1.6 times, into water bodies - 2.9 times. 100% of wastewater is used in recycled water supply - The implementation of the Clean City program will reduce gross emissions into the air by 18.4 thousand tons, and reduce emissions of hazardous pollutants of classes 1 and 2 by 10 times

Having studied the situation at the industrial enterprises of the region, we can conclude about positive qualitative changes: modern facilities and structures are being actively installed, the equipment park is being updated, new types of equipment and technologies are being built into the production process, and wastewater systems are being improved [12]. The path to sustainable economic growth is built in such a way that the task of satisfying the demand for products is equally fulfilled and at the same time, the environment for present and future generations is preserved.

In previous years, the deadlines for achieving maximum emission standards were set for the main polluting enterprises. If in 2012 there were 37 controlled enterprises in the region with sources of excess emissions, today there are no such enterprises.

V. CONCLUSIONS

Having considered some aspects of the legal and economic regulation of environmental issues at industrial enterprises, we can say that the main task of the state is to create favorable and motivational conditions for the activities of enterprises that strictly meet environmental safety requirements (increasing the interest of enterprises in the processing of industrial waste, reducing emissions and emissions harmful substances). In accordance with the existing legislative framework, the subjects of the Russian Federation should promote the implementation of the best technologies in enterprises by developing regional programs of additional financing; provide benefits to enterprises that process their waste or use materials and technologies in their activities that reduce the negative impact on the environment.

In addition to the much-needed assistance of the constituent entities of the Russian Federation in preserving a favorable environment, at the present time, it is also necessary to talk about a new level of relations in the environmental sphere - these are relations between industrial enterprises and municipal authorities. Here you can cite as an example the

tandem of PJSC Magnitogorsk Iron and Steel Works and local governments of Magnitogorsk. They successfully worked out joint actions to improve the environmental situation in the city and approved them in the “Strategy for the socio-economic development of the city of Magnitogorsk for the period until 2035” dated 10.27.2018. The direction “Improvement and Ecology” was identified as the first priority task of socio-economic city development.

Thus, environmental cooperation is reaching a new level of relations, now it depends not only on successful federal and regional forecasting, planning and regulation, but is also building new relations at the local government level, directly in cities where industrial enterprises are actively developing.

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